A Meta-analysis and Conceptual Critique of Research on Role Ambiguity and Role Conflict in Work Settings

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Although role ambiguity and role conflict have been studied extensively in the organizational sciences, there remain numerous empirical discrepancies among the reported research results. Consequently, disagreement exists as to what can be concluded about the role ambiguity and role conflict research. Coupled with this empirical impasse has been a persistent and relatively singular approach to conceptually studying role ambiguity and role conflict. In response to this empirical and conceptual situation, a meta-analysis and a conceptual reevaluation of the role ambiguity and role conflict research were performed. Using the Hunter, Schmidt, and Jackson (1982, *Meta-analysis: Cumulating research findings across studies,* Beverly Hills, CA: Sage) meta-analysis procedures, this study analyzed 29 correlates of role ambiguity and role conflict. These correlates include ten organizational context variables, five individual characteristics, ten affective reactions, and four behavioral reactions. Meta-analysis procedures were used to measure the strength and consistency of the relationship found between each of the 29 correlates and role ambiguity and role conflict. Meta-analysis was also used to determine where moderator variables should play a critical part in future role ambiguity and role conflict research. Based on the results of the meta-analysis, several empirical summaries and conclusions are presented. Along with these, several conceptual observations and reconceptualizing suggestions are offered. It is concluded that while a great deal is known about role ambiguity and role conflict in the organizational sciences much remains to be learned.

Since the 1950s there has been a significant body of literature and research on role theory, especially the constructs of role ambiguity and role conflict (e.g., Gross, Mason, & McEachern, 1958; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Neiman & Hughes, 1951; Rizzo, House, & Lirtzman, 1970). The majority (approximately 85%) of this research has used the role ambiguity and conflict scales developed by Rizzo *et al.* 1970 (Van Sell, Brief, & Schuler, 1981). Because of their

The authors express their appreciation to Hannah Rothstein Hirsh, U.S. Office of Personnel Management, for providing the computer program used to conduct the meta-analyses. We also thank Robert J. House for his helpful comments on an earlier draft of this article. Partial funding for this project was provided by the Graduate School of Business Administration, New York University. Requests for reprints should be addressed to Susan E. Jackson, OBIR Department, Graduate School of Business Administration, The University of Michigan, Ann Arbor, MI, 48109.

0749-5978/85 $3.00

extensive use, the Rizzo *et al.* scales have come under close scrutiny for their psychometric properties (Schuler, Aldag, & Brief, 1977) and their item response characteristics, namely, their self vs other items wording and their positive vs negative item wording (House, Schuler, & Levanoni, 1983; Tracy & Johnson, 1981). Based upon the results of Schuler *et al.* and House *et al.* it appears as if the Rizzo *et al.* role ambiguity and role conflict scales have been and are satisfactory measures of two role constructs.

While sufficient evaluation of the psychometric properties of the Rizzo *et al.* role ambiguity and role conflict scales exists, less evaluation has been made of the impact of role ambiguity and role conflict in organizations. Those evaluations that have been done suggest less than definitive conclusions. In particular, Schuler *et al.* (1977) make the conclusion:

> In general, the results suggest that role conflict and ambiguity are valid constructs in organizational behavior research and are usually associated with negatively valued states; e.g., tension, absenteeism, low satisfaction, low job involvement, low expectancies and task characteristics with a low motivating potential. (p. 125)

In contrast, based on their review of 43 studies, Fisher and Gitelson (1983) make the conclusion:

> Past research has produced conflicting and unclear results with regard to the nature and strength of the relationships between role conflict and ambiguity and their hypothesized antecedents and consequences. (p. 330)

This lack of agreement about our knowledge of role ambiguity and role conflict prompted the present study. Because almost two hundred studies have been done using measures of role ambiguity and role conflict, we judged it desirable to determine whether more definitive statements about role ambiguity and role conflict could be reached. This task was facilitated by the recent development of meta-analysis methodology (Hunter, Schmidt, & Jackson, 1982). Where definitive statements cannot be made, we suggest new research directions for improving our knowledge.

The purposes of our efforts here are (a) to comprehensively review the empirical literature on role ambiguity and role conflict; (b) to critically analyze this literature in order to provide a greater understanding of the importance of role ambiguity and role conflict in organizations; (c) to offer conclusions on the use of role ambiguity and role conflict as central constructs in explaining organizational behavior, if warranted; and (d) to suggest new directions for future research. To facilitate the presentation of the meta-analysis, the analysis is divided into the hypothesized antecedents and consequences or outcomes associated with role conflict and role ambiguity. Several aspects of the organizational context and several individual characteristics serve as potential antecedents while affective and behavioral reactions serve as consequences. This division is based

upon conceptualization more than upon empiricism since most studies are cross sectional and do not allow clear causal interpretations (Van Sell *et al.*, 1981). A discussion of the results of the meta-analysis is presented after first briefly describing the meta-analysis methodology.

META-ANALYSIS METHODOLOGY

Literature Search

Our goal while searching through the literature was to identify all published empirical research on the causes and consequences of role ambiguity and role conflict as they occur in work-related contexts. Several methods of searching for relevant literature were used, with a focus in all cases on empirical research reported during the last decade. The most fruitful search was a manual search of all sources reported in the *Social Sciences Citations Index* (1970-October 1982) which referenced the seminal article of Rizzo *et al.* (1970). Another manual search consisted of a review of all issues of the following journals published between January 1970 and December 1983: *Academy of Management Journal, Administrative Science Quarterly, Journal of Applied Psychology, Human Relations, Personnel Psychology,* and *Organizational Behavior and Human Performance.* In addition, mechanized searches were conducted for *Psychological Abstracts* (1967-1981), *Management Contents* (1974-1981), and *American Business Index* (1971-1981). These search procedures yielded a total of approximately 200 relevant articles.

Study Selection

In an effort to make the present review comprehensive, only two criteria were used to delete articles from the initial pool. First, we excluded any article that was not concerned with work-related issues. Second, we excluded articles not based at least in part on either existing or original empirical data. Because almost all sources appeared in refereed journals, no additional methodological or statistical requirements were imposed except for the decision of whether a study could be included in the meta-analyses.' Inclusion in the meta-analyses required that the article report sample size and correlation coefficients. A total of 96 articles met these requirements. Relevant sources not included in the meta-analyses are discussed in the appropriate section below, as determined by the variables investigated.

The only exception to this rule was the decision to exclude from all analyses data reported in Chacko (1982) because of the extremely unusual correlation of -.56 reported between role conflict and role ambiguity. The article contained no comment about this unusual result, so the assumption was made that a reporting error had occurred.

Meta-analysis Procedures

Meta-analyses were conducted using the formulae developed in Hunter *et al. (1982)* for a total of *58* pairs of variables: role conflict with role ambiguity, plus each of the two role variables with ten organizational context variables, five individual characteristics (one correlated only with role ambiguity), ten affective reactions, and four behavioral reactions. The specific variables, which were chosen because of their frequency of appearance in the literature, are shown in Table 1.

TABLE I

RELIABILITY ESTIMATES USED IN META-ANALYSIS CALCULATIONS

Variable	*k*	*N*	*a*
Role ambiguity	63	15,956	.89
Role conflict	45	13,005	.89
Task/skill variety	10	4,073	.76
Autonomy	10	4,073	.81
Feedback from others	8	2,195	.82
Feedback from task	8	2,195	.76
Task identity	8	1,992	.78
Initiating structure	13	2,409	.90
Consideration	10	1,616	.93
Participation	7	1,696	.89
Formalization	3	537	.89
Level	5	1,675	1.00
Tenure	8	1,663	1.00
Locus of control	3	727	.86
Age	6	1,421	1.00
Education	6	1,421	1.00
Self-esteem	2	792	.73
Job satisfaction			
General	26	5,137	.89
Supervision	4	557	.93
Work itself	6	548	.86
Co-workers	2	753	.94
Pay	3	953	.88
Promotion	2	193	.86
Tension/anxiety	22	2,774	.89
Commitment	4	1,237	.93
Involvement	8	1,761	.88
Propensity to leave	4	649	.88
Absence	5	834	1.00
Performance			
Objective	9	1,330	1.00
Others' ratings	8	1,764	.94
Self-ratings	1	1,312	.80

Note. k is the number of samples for which reliability estimates were available; *N is* the total number of respondents across the *k* samples; 5 is the average reliability coefficient.

The meta-analysis for each pair of variables proceeds in several steps. The first step is the determination of the average observed correlation (r), weighted by sample size, for each pair of variables, as well as the standard deviation (SD,.) for this value.

The formula for r is

$$\frac{>nr}{In}$$

where n is the sample size for a study. The standard deviation for r *is* defined as

$$\frac{\sim I\ [n(r - r)^2]}{In}$$

To calculate r and SD_r, it is necessary to generate a list of all *discrete samples* for which the correlation of interest is available. A characteristic of the literature reviewed here is that often multiple research reports exist based on the same sample. We attempted to determine when this had occurred so that each sample would be represented only once in the average weighted observed correlation. Ambiguous instances were resolved by assuming that two possibly identical samples were in fact independent. When multiple reports based on a particular sample occurred, it was often the case that minor discrepancies existed among the reports. For example, reported sample sizes and correlation coefficients may have varied somewhat; or, slightly different but related indices, such as overall satisfaction vs components of satisfaction, may have been used in different reports; or, a subset of an original sample of respondents may have been followed-up at a later point in time. For these and other cases in which conceptual replications were reported for a single sample, values were averaged to yield the datum used to calculate r and SD_r, as recommended by Hunter *et al. (1982).*

As with all of the corrections for artifacts made in a meta-analysis such as the one reported here, many assumptions underlie the calculations. A basic assumption made when calculating the weighted r is that each sample r is based upon a randomly selected subgroup of the population; therefore, larger samples are *assumed* to yield more accurate approximations of the true r for the population. However, this assumption is questionable and may lead to giving undue weight to the results of studies with very large N's. Although not reported here, *unweighted* average correlations were also computed for all variable pairs. The unweighted average correlation treats each sample as equally representative of the total population. The average absolute difference between the weighted and unweighted values of r was .02. Absolute differences larger than .03

occurred for 11 variable pairs; for 10 of these pairs, the unweighted r was greater than the weighted r. Thus, for the present study, the result of weighting reported correlations by sample size was to produce smaller (more conservative) T's.

The second step of the analyses is generating an estimate of the reliability (a^2) with which each variable has been measured. Because reliability coefficients are often not included in published reports, the reliability estimate generated for each variable is usually based on a smaller number of samples than the total number of samples used to calculate the corresponding r. The formula used to calculate a^2 is

$$(\quad 7)2$$

$$1\backslash k$$

where r_{xx} represents the reliability coefficient for a particular sample (Hunter *et al.,* 1982).

The third step in our calculations is to correct r for range restriction of the "predictor" and for unreliability in the "predictor" and the "criterion." This value is labeled "True r" in Tables 2 and 3. Formulae for these calculations can be found in Hunter *et al.* (1982). For the purpose of these calculations, the role variable (i.e., conflict or ambiguity) was treated as the "predictor" and all correlates were treated as "criteria." The standard deviations reported in 19 studies using the Rizzo *et al.* (1970) role conflict and role ambiguity (7-point format) items were used to estimate the amount of range restriction typically present. Information about the number of studies available for generating reliability estimates and the estimates themselves are shown in Table 1. It is possible that reporting practices are biased such that low reliability coefficients may be less likely to be reported in the literature. If this is true and the estimated reliabilities used in the meta-analysis are inflated, the result on the findings reported here would again be conservative estimates of the strength of relationships between variables.

Whereas the first three steps of our meta-analyses were concerned with estimating the true strength of relationship between each role variable and a set of correlates, the last stage of the mesa-analysis determines whether it is plausible that the strength of a relationship varies as a function of a third, moderator variable. Thus, the fourth and final step of our mesa-analyses is to use the procedures described by Hunter *et al.* (1982) to determine the percentage of variance unaccounted for in the observed correlations; that is, the variance in corrections observed across studies that cannot be accounted for by considering the influences of sampling error, measurement unreliability, and range restriction. This value is referred to as "% Var. Unacc." in Tables 2 and 3. (Note: This value should

TABLE 2

SUMMARY OF META-ANALYSIS RESULTS FOR CORRELATES OF ROLE AMBIGUITY

Correlate	k	N	r	SD_r	"True r"	SD_{true}	Var. Unacc.
Organizational context							
Task/skill variety	11	4,089	-.06	.15	-.11	.22	87
Autonomy	12	4,196	-.23	.12	-.39*	.15	65
Feedback from others	8	2,194	-.35	.24	-.58*	.34	87
Feedback from task	8	2,195	-.22	.12	-.41*	.16	63
Task identity	8	1,992	-.27	.08	-.47*	.00	0
Leader initiating structure	31	3,705	-.28	.16	-.43*	.17	63
Leader consideration	25	2,854	-.30	.15	-.44*	.14	52
Participation	18	2,880	-.36	.17	-.55*	.19	77
Formalization	9	1,300	-.31	.21	-.49*	.26	82
Level	5	1,675	.08	.07	.11*	.04	28
Individual characteristics							
Locus of control	8	2,059	.17	.09	.28	.08	44
Tenure	8	1,663	-.12	.09	-.16*	.07	40
Age	6	1,421	-.17	.07	-.23*	.00	0
Education	5	1,227	.11	.11	.15*	.11	64
Self-esteem	7	2,918	-.21	.09	-.34*	.01	54

Affective reactions							
Role conflict	47	10,217	.27	.16	.42*	.19	78
Job satisfaction							
General	56	10,489	-.30	.16	-.46*	.19	73
Supervision	17	3,619	-.36	.09	-.53*	.00	0
Work itself	28	4,313	-.33	.11	-.52*	.08	25
Co-workers	14	3,579	-.25	.11	-.37*	.11	54
Pay	18	4,237	-.17	.12	-.26*	.14	77
Advancement	16	3,365	-.25	.10	-.40*	.08	31
Tension/anxiety	43	7,570	.30	.19	.47*	.24	81
Commitment	12	2,890	-.27	.10	-.41*	.09	45
Involvement	11	2,460	-.28	.10	-.44*	.08	30
Propensity to leave	25	4,974	.18	.14	.29*	.17	74
Behavioral reactions							
Absence	5	834	.09	.08	.13*	.03	8
Performance							
Objective	9	1,330	-.08	.15	-.10	.16	70
Others' ratings	17	3,320	-.08	.10	-.12*	.10	50
Self-ratings	11	1,312	-.24	.13	-.37*	.13	48

Note. k is the number of samples upon which calculations are based; N is the total number of respondents across k samples; $\bar{r}$ is the weighted average correlation; SD_r is the standard deviation for r; "True r" is the average weighted correlation corrected for four artifacts; SD_{True} is the standard deviation for the estimated "True r"; % Var. Unacc. is the percentage of unexplained variance in correlations observed across studies.

*Indicates that the 90% confidence interval does not include the value of 0.00.

TABLE 3

SUMMARY OF META-ANALYSIS RESULTS FOR CORRELATES OF ROLE CONFLICT

Correlate	k	N	r	SD_r	"True r"	SD_{True}	Var. Unacc.
Organizational context							
Task/skill variety	8	3275	.10	.11	.17*	.15	73
Autonomy	8	3275	.00	.16	.00	.24	91
Feedback from others	5	1381	-.18	.12	-.31*	.16	70
Feedback from task	5	1381	-.13	.09	-.25*	.09	41
Task identity	5	1178	-.25	.05	-.44*	.00	0
Leader initiating structure	10	1839	-.17	.09	-.27*	.06	24
Leader consideration	9	1709	-.28	.09	-.42*	.03	7
Participation	14	2287	-.24	.18	-.37*	.23	78
Formalization	9	1300	-.07	.20	-.11	.26	85
Level	5	1675	-.05	.06	-.07*	.02	8
Individual characteristics							
Locus of control	5	1806	.16	.07	.27*	.07	40
Tenure	7	1571	.02	.10	.02	.09	55
Age	6	1421	-.05	.13	-.06	.14	75
Education	5	1227	.14	.14	.19	.15	77
Self-esteem	0	—	—	—	—	—	—

Affective reactions							
Job satisfaction							
General	37	6314	-.31	.13	-.48*	.13	51
Supervision	14	3440	-.36	.08	-.53*	.00	0
Work itself	22	4022	-.30	.08	-.49*	.00	0
Co-workers	11	2893	-.28	.07	-.42*	.00	0
Pay	14	3399	-.20	.08	-.31*	.03	6
Advancement	14	3287	-.23	.11	-.38*	.11	46
Tension/anxiety	23	4035	.28	.13	.43*	.14	61
Commitment	11	2583	-.24	.14	-.36*	.16	73
Involvement	10	2326	-.16	.07	-.26*	.00	0
Propensity to leave	13	1915	.21	.11	.34*	.09	38
Behavioral reactions							
Absence	3	424	-.01	.12	-.02	.10	50
Performance							
Objective	3	769	.01	.02	.02	.00	0
Others' ratings	14	3119	-.07	.08	-.11*	.06	33
Self-ratings	7	1037	-.02	.12	-.03	.13	54

Note. k is the number of samples upon which calculations are based; N is the total number of respondents across k samples; r is the weighted average correlation; SD_r is the standard deviation for r; "True r" is the average weighted correlation corrected for four artifacts; SD_{True} is the standard deviation for the estimated "True r"; % Var. Unacc. is the percentage of unexplained variance in correlations observed across studies.

*Indicates the 90% confidence interval does not include the value of 0.00.

not be confused with the variance in a criterion unexplained by a set of predictors, i.e., $I - R^2$.) In assessing the "% Var. Unacc." the question being addressed is should the fact that the observed correlation between variables x and y varies somewhat across a set of k studies lead us to the conclusion that a moderator variable must be used to explain the different results found in the studies, or should the different results across studies simply be attributed to "artifacts," including *statistical* artifacts, such as sampling error and imperfect measurement, and *unmeasurable* artifacts, such as miscalculations and typographical errors?

To answer this question, one determines the standard deviation of *r* values reported in a set of studies. This value is labeled *"SD_r"* in Tables *2* and 3. Then, the percentage of this variation that can be accounted for by statistical artifacts (sample size, range restriction in the predictor, unreliable measures of the predictor and criterion, and variations in range restriction and reliability across studies) is determined. If statistical artifacts are not sufficient explanations for variations in *r* reported across studies, "% Var. Unacc." will be greater than 0. Therefore, explanations other than statistical artifacts are needed to explain the different results found across studies. Two categories of explanations are unmeasurable errors and the influence of moderator variables. Hunter *et al.* argue that if the "% Var. Unacc." is *25* or less, it is likely that this remaining observed variance is due simply to unmeasurable errors. However, if more than *25%* of the observed variance is unaccounted for, then it is reasonable to conclude that one or more moderators have influenced the correlation coefficients obtained in various samples.

Ideally, the last step in a meta-analytic review is an empirical test of specific, potentially important moderators. Unfortunately, this was not feasible given the literature on role ambiguity and role conflict, as discussed in a later section.

RESULTS AND DISCUSSION OF THE META-ANALYSES

The results of the meta-analyses are summarized in Tables 2 and 3. These results are discussed in some detail below, but first there are several global patterns of results that deserve comment. For example, a comparison of the studies cited in Table 1 to those cited in Tables 2 and 3 reveals that reliability coefficients have been reported only for about *50% of* the studies. In general, reported reliabilities are quite high, the lowest estimated reliability being .76. *If* a reporting bias operates, the true average reliabilities *of* the measures typically used in research on role conflict and role ambiguity may be somewhat lower than .76, and, therefore, the "True r" values shown in Tables 2 and 3 are underestimated.

A comparison *of* Tables *2* and 3 reveals that the variable of role am-

biguity is more frequently studied than is the variable of role conflict. The difference in the prevalence of studies including the two role variables is largely attributable to studies generated by the path-goal theory of leadership (House, 1971) in which role ambiguity, but not role conflict, is hypothesized as a critical variable.

In general, the *direction* of the ("true") correlation of each variable with role conflict is similar to the corresponding correlation with role ambiguity, the only noteworthy exception being task/skill variety, which is correlated positively with role conflict (.17) and negatively with role ambiguity (- .11). The *strength* of correlations often differs considerably for the two role variables, however: autonomy, feedback from others and from the task, initiating structure, participation, formalization, tenure, involvement, age, and self-reported performance are all more strongly related to role ambiguity than to role conflict.

The last column in Table 2 reveals that for role ambiguity relatively little of the variance in observed correlations is accounted for by the artifacts of sampling error, range restriction, unreliability of measurement, and variations in these across studies. Recall that Hunter *et al.* (1982) recommend that moderator variables should be explored for all pairs of variables for which the value in the column labeled "% Var. Unacc." is greater than 25. For role ambiguity, all except five of the correlates (task identity, age, satisfaction with supervision and with the work itself, and absence) have values greater than 25. As shown in Table 3, for role conflict, all except 10 of the correlates (task identity; leader initiating structure and consideration; level; satisfaction with supervision, the work itself, pay, and co-workers; involvement; and objective performance) have values greater than 25. Thus, for all other correlates, theoretically or methodologically meaningful moderator variables should be introduced and analyzed for their ability to account for fluctuations in r across samples.

For the literature reviewed here, conducting such an analysis was not possible for several reasons. To conduct tests of potential moderator effects, at least two conditions are necessary: First, variation in the moderator variable must exist among studies; second, it must be possible to identify the approximate value of the moderator for a particular sample. In general, there are two classes of potential moderators: *study characteristics* (for example, whether the design was causal or noncausal, or whether objective or subjective measures were used) and *sample characteristics* (for example, whether the participants were experienced or inexperienced at their jobs). For study characteristics, the condition of sufficient variation among studies was not met; almost all studies used cross-sectional survey designs. Regarding sample characteristics, the general practice has been to use and report results for heterogeneous

samples rather than to report results for homogeneous subsamples. Exceptions to these generalizations were so few that meaningful meta-analytic tests of moderator effects could not be conducted. Therefore, conclusions about potentially important moderator variables are based on theory and those studies which have specifically tested for moderator effects, rather than upon statistical results derived from meta-analysis procedures. These conclusions are included in our discussion of the meta-analysis results below. The discussion begins with the antecedents of organizational context and individual characteristics and ends with the consequences of affective reactions and behavioral reactions.

Organizational Context

Several researchers have examined the relationships of role ambiguity and role conflict to job and task characteristics, but taken as a whole, this research lacks theoretical coherence. The most popular assumption seems to be that job and task characteristics are determinants, or at least antecedents, of role ambiguity and role conflict, although some have argued that task characteristics are moderators of the relationship between role strains and outcomes. Most research linking role ambiguity and role conflict to task characteristics utilizes some variant of Hackman and Oldham's (1976) task dimensions of skill variety, autonomy, feedback from agents, feedback from the task, and task identity. Results from these studies are discussed in detail below.

Task/skill variety. As Table 2 and the Appendix show, weak *negative* correlations between role ambiguity and task or skill variety are often reported. The results are inconsistent for role conflict with positive, zero, and negative correlations all being reported.

To date, no careful theoretical analysis has explained why role ambiguity and/or conflict should be directly related to the variety of one's tasks, or the variety of skills needed to perform one's tasks. Indeed, the fact that variety has been found to be negatively correlated with role ambiguity suggests that these relationships may be spurious ones caused by respondents' tendencies to report that good things (high variety and low role ambiguity) coexist. The one study for which the argument of response bias cannot explain the data is Moorhead's (1981) research on 16 medical units. In that study, routineness of technology was assessed by administrators' reports and then correlated with physicians' role ambiguity and role conflict. This was one of two studies that found a significant positive correlation (r = .28) between role ambiguity and "task variety." The negative correlation (r = -.48) between role conflict and "task variety" reported for this study is both interesting and difficult to interpret.

Perhaps because research relating task characteristics to role ambiguity

and role conflict has typically not been theory driven, it suffers from a major methodological flaw, namely, that hypotheses about the effects of task and technology differences are being tested within employee populations that are fairly homogeneous with respect to task and technology. Interestingly, Rousseau's (1982) data from a broad national sample are the one exception to this generalization; her findings of low correlations between task variety and both role ambiguity and role conflict, in conjunction with a high percentage of variance unaccounted for by statistical artifacts, suggests that no simple relationship exists between task variety and role strains.

Autonomy. Data regarding the correlations between autonomy and role ambiguity and conflict are available from the same samples from which task variety data were collected. Overall, autonomy is negatively correlated (-.39) with role ambiguity and uncorrelated with role conflict; however, there is considerable variance across studies that cannot be accounted for by statistical artifacts.

Feedback from others and from the task. In general, both feedback from others and feedback from the task have been found to negatively correlate with role ambiguity ($r = -.58$ and $r = -.41$, respectively). While less evidence is available for role conflict, that which exists suggests weaker negative correlations exist between role conflict and feedback from others (-.31) and from the task (-.25).

That feedback from others is associated with low role ambiguity is not surprising since it is primarily through such feedback that roles are learned. However, if one distinguishes roles from tasks, it is not clear why task feedback should be related to role ambiguity. One explanation for the finding is method bias. Another is that the correlation is a spurious one that occurs because both high task feedback and low role ambiguity are associated with other aspects of one's job.

From a conceptual perspective, it is also unclear why role conflict should be negatively correlated with either type of feedback. In fact, for people in jobs where role conflict is high, such as jobs requiring boundary spanning activities (see Miles, 1976a, 1976b, 1976c; Miles & Perrault, 1976) or other complex interpersonal activities (Rousseau, 1982), feedback can be expected to heighten experienced conflict. As for the other task characteristics discussed above, the inconsistency of findings across studies suggests that we need to develop more sophisticated hypotheses about the conditions under which a relationship should and should not be expected.

Task identity. Task identity refers to the extent to which a person is able to see the impact of his or her efforts in the form of a visible and complete product or service. Like other task characteristics, task identity tends to be negatively correlated with role ambiguity (-.47) and role

conflict (-.44). To the extent task identity items reflect the respondents' awareness of how they fit into the larger organizational scheme, including the nature of their interdependence with others, the negative correlation with role ambiguity makes sense. Conceptual explanations for the negative correlation between task identity and role conflict are more difficult to generate, especially if task identity is assumed to be the cause and role conflict is assumed to be the effect. If one accepts the argument that task characteristics are objective in nature, then task identity is naturally assumed to be the causal variable. However, a social information processing perspective suggests a new insight, namely, that the experience of high role conflict may be a causal determinant which leads employees to label a job as being low on task identity.

As noted, most research on job and task characteristics has postulated these variables as direct antecedents of role ambiguity and conflict. In contrast to this view, Schuler (1977a) has argued that the relationship between tasks and role ambiguity and role conflict is more complex. Specifically, he postulated that it is the "fit" or congruence between task, technology, and structure which determines role ambiguity and conflict. Schuler found some support for his interactional hypothesis using data from employees of a large public utility; however, he notes that organizational structure and task design each also made independent contributions in the prediction of role ambiguity and conflict. Similar interactional hypotheses have been suggested and partially supported by others (Moch, Bartunek, & Brass, 1979; Morris, Steers, & Koch, 1979; Rogers & Molnar, 1976).

Taking still another perspective, several researchers have suggested that job design variables are important in determining the effects of role ambiguity and conflict on employees (Abdel-Halim, 1978, 1981b; Beehr, 1976; Tosi, 1971). For example, it is suggested that the negative effects of role ambiguity and conflict are significantly greater under conditions of high task complexity compared to conditions of low task complexity (Abdel-Halim, 1981b). While support for various complex inteactive effects has been found, these interactions require replication. Replications of interactive studies using role ambiguity and conflict with task design characteristics would appear to be a potentially useful avenue of research. Whereas studies investigating the relationship between task design characteristics and role ambiguity and conflict are difficult to theoretically develop, those investigating the impact of role ambiguity and conflict in a setting of task characteristics combined with other organizational characteristics can be developed within a rich theoretical framework (House & Rizzo, 1972b).

Leader consideration and initiating structure. Generally, leader consideration has been hypothesized to be relatively independent of role

ambiguity and conflict while leader initiating structure has been hypothesized to determine role ambiguity and conflict. The results of the leadership research are somewhat contrary to expectations. Leader consideration, rather than serving an exclusively socioemotional role as would be predicted, appears to also serve an instrumental or task role. That is, leader consideration appears to clarify roles and reduce role conflict. As shown in Table 2, across 25 studies, the average correlation between leader consideration and role ambiguity is -.44, and as shown in Table 3, across 9 studies the average correlation between leader consideration and role conflict is -.42.

One explanation for these results is that leader consideration is administered on a contingent basis. That is, leader consideration (socioemotional concern) is shown only after the employee performs well. This contingent administration of leader behavior thereby acts to clarify what is expected by rewarding employees for desired behaviors (Podsakoff, Todor, Grover, & Huber, 1984). By clarifying what is expected, contingent administration of leader consideration may also diminish role conflict. As employees gain knowledge about what behaviors are rewarded, decisions as to which role expectations to fulfill and which to ignore may diminish, thus reducing conflict that may have existed because role priorities were unclear.

Although the average correlations between leader consideration and role ambiguity and conflict are contrary to expectations, those between leader initiating structure and role ambiguity and role conflict are not. As expected, there are significant negative average correlations between leader initiating structure and role ambiguity (-.43) and role conflict (-.27). These correlations lend support to the rationale that leader initiating structure provides information about what is expected, thereby reducing role ambiguity and role conflict. Here again the negative association between role conflict and leader initiating structure may be due to the clarification and establishment of role priorities that the leader initiating structure provides.

The larger "% Var. Unacc." figures for leader behaviors and role ambiguity shown in Table 2 compared to those for role conflict shown in Table 3 suggest that the relationships between the two leader behaviors and role ambiguity are likely to be moderated, although the correlations between leader behaviors and role conflict are not. This finding is consistent with a recent study which found that leader expertise did not moderate the leader consideration-role conflict relationship, yet negative relationships between leader initiating structure and role ambiguity and between leader consideration and role ambiguity were found only when subordinates perceived their leaders as having a high level of expertise (Podsakoff, Todor, & Schuler, 1983).

A final point of interest is that the two leader behaviors are equally correlated with role ambiguity, but leader consideration is more strongly correlated with role conflict than is initiating structure. Apparently leader initiating structure helps clarify roles but does little to reduce conflict. Providing expectations *unilaterally* may preclude the subordinate from resolving conflicts that become clear in response to initiating structure. In contrast, leader consideration may include some level of employee participation (e.g., the supervisor asks about and shows concern for subordinates) that affords subordinates the opportunity to discuss and resolve conflicts.

Formalization. Several researchers (e.g., Kahn *et al., 1964;* Rizzo *et al., 1970;* Rogers & Molnar, *1976)* have suggested that both role conflict and role ambiguity have a negative relationship with formalization; however, empirical studies support only the relationship between role ambiguity and formalization. As shown in Table 2 the average correlation between these two variables is *-.49* while the same relationship between role conflict and formalization is -.11, as shown in Table 3. Thus the existence of written rules and procedures governing work activities (Pugh, Hickson, Hinings, & Turner, *1968)* appears to help clarify role perceptions for employees. Where these perceptions are already clarified, e.g., by word-of-mouth or professional norms, this clarifying effect of formalization may be minimal (Rousseau, *1978).*

The existence of professional norms also influences the relationship between role conflict and formalization. For example, instead of reducing role conflict, formalization for employees possessing professional norms increases conflict (Organ & Greene, *1981).* This is true because behaviors encouraged by professional norms are likely to be different from the behaviors encouraged by formalized organizational norms (Kornhauser, *1962;* Organ & Greene, *1981;* Sorensen & Sorensen, *1974).*

For employees not guided by professional norms, formalization can be helpful for reducing conflict since it serves to specify legitimate role senders and ways of behaving. This positive impact of formalization appears to be limited to employees such as secretaries and clerical workers who need the protection from role conflict that legitimate role senders can provide (Morris *et al., 1979).* For employees who have sufficient personal and/or organizational power, such as upper level managers, this protection from formalization appears unnecessary (Rizzo *et al., 1970;* Rogers & Molnar, *1976).*

Overall, these results suggest that formalization has the tendency to reduce role ambiguity, thus providing employees more clarity about what is expected. Nonetheless, the results of the "% Var. Unacc." column in Table *2* indicate that other variables should be investigated to help explain the variation across studies in the reported correlations between role

ambiguity and formalization. Such variables could include professionilism, experience, expertise, and organizational level-all variables that nay also be used to explain the wide variations in the formalization-role -onflict relationships. The results of our review suggest that when formalization is implemented, the existence of professional norms should be aken into account. Where these norms exist, formalization should attempt to be consistent with the professional norms (Organ & Greene, 1981).

Organizational level. In contrast to the results from studies of formalization, the results from studies of organizational level indicate no relationship with role conflict or role ambiguity and relatively little variation in correlations across studies (see Tables 2 and 3). This result is in contrast to the data reported by Kahn *et al.* (1964) and Hamner and Tosi (1974) which suggested higher level employees experienced more role ambiguity. Presumably, ambiguity increases at the higher levels because jobs at the higher organizational levels are more directly connected to the environment and its associated uncertainties and dependencies. These authors also implied that while employees at lower levels in the organizations would experience less ambiguity, they would experience more conflict than those at the higher levels of the organization. Nonetheless, the results of five studies revealed no relationships between organizational level (or hierarchically arranged positions) and role conflict and role ambiguity (Mossholder, Bedeian, & Armenakis, 1981; Rizzo *et al.,* 1970; Rousseau, 1978; Szilagyi, Sims, & Keller, 1976).

In addition to suggesting a direct correlation between level and role ambiguity and conflict, Kahn *et al.* (1964) and Hamner and Tosi (1974) suggested that organizational level serves as a moderator of the relationships between role conflict and role ambiguity and outcomes such as satisfaction and performance. The rationale used to support this moderator thesis was that role ambiguity becomes increasingly detrimental at higher organizational levels because it becomes a larger portion of the job, yet it is out of the control of the individual (Kahn *et al.,* 1964). In contrast, if role conflict is high in these jobs, it is less detrimental because the job incumbent has power to manage or reduce the conflict. In jobs at the lower levels, role ambiguity is relatively absent and role conflict predominates. This increased level of role conflict, combined with the job incumbent's relative inability to deal with it, makes role confict more detrimental at this level than at the higher level. However, subsequent research has generally found only limited support for the moderating effect of organizational level on role strain-outcome relationships (Axelrol & Gavin, 1980; Fisher & Gitelson, 1983; Miles, 1976a; Schuler, 1975).

Participation in decision making. Interest in the impact of participative

management styles on employees has generated a large body of literature. Typically, it is hypothesized that participation in decision making (PDM) is directly and causally related to two categories of employee responses: affective responses, such as job satisfaction, and behavioral responses, usually those related to performance (Locke & Schweiger, 1979). Much of the research on role ambiguity and conflict follows this tradition in hypothesizing that higher levels of PDM should lead to lowered role strain. As Tables 2 and 3 show, the hypothesized relationship is generally supported. Although most studies of participation have relied upon cross-sectional survey designs rather than causal designs, evidence that PDM is causally related to role ambiguity and conflict has been reported. In a field experiment, Jackson (1983) manipulated PDM for hospital nursing staff. After 3 months, objective participation was only weakly related to ambiguity and conflict, although perceived PDM was strongly related to role ambiguity and conflict. After 6 months, both objective and subjective PDM correlated moderately with role ambiguity and conflict.

While there is evidence for an association between PDM and role ambiguity and conflict, almost no empirical work has been done to provide an understanding of the *processes* through which PDM might create its effect. For example, a cognitive explanation would focus on the information dissemination that accompanies PDM. Jackson (1983) hypothesized that PDM determines two key aspects of an individual's work situation: influence over others' role expectations, which could be used to reduce role conflict, and availability of information about role expectations, which could reduce role ambiguity. This explanation highlights the importance of communication processes, which have been shown to correlate with both role ambiguity and role conflict (Schuler, 1979). Given that information about one's own performance level (Klimoski & Hayes, 1980; Oliver & Brief, 1977-1978; Teas, Wacker, & Hughes, 1979) and about the link between performance and rewards (Schuler, 1980) is correlated with both role ambiguity and role conflict, PDM should be especially effective in reducing role ambiguity and conflict when it increases performance-related communications.

An alternative to the hypothesis that PDM directly reduces role ambiguity and conflict is that PDM interacts with role ambiguity and conflict to affect other outcomes, such as satisfaction (Schuler, 1977b, 1980; Tosi, 1971) and performance. Evidence regarding this more complex hypothesis is both scarce and mixed.

Individual Characteristics

Locus of control. Most theoretical formulations of role theory assert that the organizational environment is the primary determinant of employees' experienced role ambiguity and conflict. However, some have

argued that personal characteristics may lead to differences in the way individuals exposed to the same organizational context perceive and/or react to the situation. In this context, the most frequently studied personality variable has been locus of control.

Two hypotheses have been postulated regarding the relationship of locus of control to role ambiguity and role conflict. In one formulation, locus of control is hypothesized to determine perceived conflict and ambiguity (Organ & Greene, 1974a, 1974b; Szilagyi *et al.,* 1976; Vredenburgh & Trinkaus, 1983). As Tables 2 and 3 show, this hypothesis is supported by low average correlations between locus of control and both role ambiguity (r = .28) and conflict (r = .27). Positive correlations indicate that high ambiguity and conflict scores are associated with an external locus of control.

Despite the number of studies reporting the relationships of role ambiguity and conflict to locus of control, conceptual justifications for predicting a relationship are almost completely missing, an exception being Organ and Greene (1974a, 1974b) who reasoned that because internals tend to be better informed about their occupations than externals, they should experience less role ambiguity. However, this argument cannot be used to predict that internals should also experience less role conflict. To fully understand the correlations between locus of control and role strains, we may need to look at differences in the role *making* processes of internally and externally oriented employees. Compared to externals, internals may rely more upon self-generated role definitions. If so, then when role senders are unclear or in conflict with each other, internals could be expected to impose their own role expectations upon themselves in order to bring clarity and consistency to the situation.

In contrast to the hypothesis that locus of control determines perceived ambiguity and conflict is the hypothesis that locus of control moderates employees' reactions to ambiguity and conflict. The moderator hypothesis is more prevalent, but the evidence for the moderator hypothesis is less supportive (se Abdel-Halim, 1980; Baths, 1980b; Kennan & McBain, 1979; Szilagyi *et al.,* 1976). The moderator hypothesis states that the links between role ambiguity and conflict and negative outcomes, such as job dissatisfaction and tension, would be weaker for internals compared to externals. Again, the psychological processes that should cause this difference are not well specified, nor are they obvious to these authors. Finally, we again point out that because of the heavy reliance on noncausal research designs, it is too soon to rule out a third type of explanation for the observed correlations between locus of control and role strains, namely, that prolonged exposure to ambiguous and/or conflicting role expectations may *cause* employees to lose any sense of being in control of outcomes, eventually leading to the development of an external

locus of control. This line of reasoning is well supported by theory and research on the phenomenon of learned helplessness, yet it has been totally ignored in organizational research.

Self-esteem. Most psychological traditions treat self-esteem as a person's relatively stable and global evaluations of personal worth or competence, but research relating self-esteem to role ambiguity has assumed that self-esteem can be domain specific (e.g., job-related self-esteem) and that it fluctuates in response to the environment. Specifically, job-related self-esteem has been hypothesized to be lower for people in work environments characterized by high role ambiguity (Bagozzi, 1978, 1980; Beehr, 1976; Kahn *et al.*, 1964; Margolis *et al.*, 1974; Organ, 1975). The implicit argument for this prediction has not been clearly stated in the literature, but one reason for predicting that role ambiguity leads to a lowered self-opinion might be that the employee feels personally responsible for the fact that ambiguity exists. Such a person might feel incompetent because he or she believes that the work environment is in fact orderly and that experienced ambiguity reflects only his or her inability to accurately assess and understand the sent role expectations. Whatever theoretical explanation is mustered for predicting a negative correlation between role strains and self-esteem, evidence supporting the prediction is generally poor ($r = -.23$).

Like locus of control, self-esteem has also been examined as a moderator of employees' reactions to role ambiguity and conflict (Miles, 1976c; Mossholder *et al.*, 1981), although to date neither empirical evidence nor conceptual logic supports the importance of self-esteem as a moderator.

Other personality variables. In addition to locus of control and self-esteem, several other traditional personality characteristics have been explored for their potential to improve our understanding of role relationships in organizations, including need for achievement (Abdel-Halim, 1980; Johnson & Stinson, 1975; Miles, 1976c; Morris & Snyder, 1979), intelligence (Bagozzi, 1978), authoritarianism (Tosi, 1973), need for clarity (Miles & Petty, 1975; Rousseau, 1978), need for autonomy (Bedeian, Armenakis, & Curran, 1980; Morris & Snyder, 1979; Regoli & Poole, 1980; Teas *et al.*, 1979), higher order need strength (Beehr, Walsh, & Taber, 1976; Brief & Aldag, 1976), and the Type A/B behavior pattern (Caplan, Cobb, French, Harrison, Pinneau, 1980; Caplan & Jones, 1975; Gavin & Axelrod, 1977; Ivancevich, Matteson, & Preston, 1982). However, because so few studies have been conducted using each particular personality characteristic, a meta-analytic approach to reviewing these studies makes little sense. But a conceptual review of these studies leads to several noteworthy conclusions.

First, in almost all of these studies, a personality variable is postulated

to moderate the relationship between perceived role ambiguity and role conflict and negative job outcomes. Second, the search for moderator variables appears to have begun relatively recently. Third, the empirical evidence provides little support for the importance of personality variables as important moderators. Two exceptions to this generalization are need for achievement (Abdel-Halim, 1980; Johnson & Stinson, 1975; Miles, 1976c; Morris & Snyder, 1979) and, to a lesser extent, the Type A/B behavior pattern (Caplan & Jones, 1975; Gavin & Axelrod, 1977; Ivancevich *et al.*, 1982). Available evidence indicates that the reactions of people who score high on need for achievement and those who tend to display Type A behaviors are more strongly correlated with role strains than are the reactions of people who score low on need for achievement and those who display Type B behavior. Fourth, theoretical explanations for how and why a particular personality characteristic should act as an important moderator are unclear or completely missing in most cases. Fifth, and finally, there has been no research examining the question of the effects of role *senders'* personalities on received conflict and ambiguity.

Age. There are no theoretical reasons to predict that age should be correlated with role ambiguity or role conflict, although spurious correlations might occur due to any associations of age with job experience or tenure. In the several studies that have reported age data, the correlations of age with role ambiguity and conflict are always very weak, occasionally significant, and almost always negative.

Education and tenure. Role ambiguity and role conflict have consistently been found to be very weakly and positively related to education level (Brief, Aldag, Van Sell, & Melone, 1979; Kelly, Gable, & Hise, 1981; Morris & Sherman, 1981; Morris *et al.*, 1979; Vredenburgh & Trinkaus, 1983; Wolfe & Snoek, 1962). No theoretical explanations for this relationship have been offered, however. In fact, some have argued that the correlation is a spurious one resulting from the association between education and job level (Morris *et al.*, 1979), but this explanation is not supported by the very low correlations between level and role ambiguity and conflict.

Job tenure, on the other hand, tends to be slightly negatively correlated with role ambiguity and unrelated to role conflict (see Appendix, also see Curtiss, Hammel, Heinen, & Johnson, 1978; Getzels & Guba, 1954; Jacobson, Charters, & Lieberman, 1951; Wolfe & Snoek, 1962). These results suggest that role ambiguity may be mostly a function of an incumbent's success in obtaining information about others' role expectations: The longer one is in a job, the more information he or she obtains. An alternative explanation would be that employees who fail to obtain clarification over time leave the job. The lack of relationship between conflict

and tenure suggests that conflicting expectations are less placable than ambiguous ones. In fact, if tenure is associated with the amount of information a job incumbent has, and if one's supervisors do in fact have conflicting expectations, tenure could lead to *greater* perceived conflict (see Rizzo *et al.*, 1970).

Like other individual differences, some of the interest in education and tenure has been due to their potential as moderators of the role strain-outcomes link. In this context, education and tenure can be used as indicators of ability. Schuler (1975, 1977b, 1980) has argued that ability should moderate the effect of role strains on outcomes such as job satisfaction and performance. Hypothetically, incumbents with high ability have the capacity to cope effectively with ambiguity and conflict. In contrast, incumbents with less ability do not cope as well and so are adversely affected by role strains. Two tests of this hypothesis have produced some supportive evidence for the outcome of satisfaction (Abdel-Halim, 1981a; Schuler, 1977b). In a related study, career stage (which should reflect ability) was tested as a moderator of the role ambiguity and conflict-performance relationship; no significant moderating effect was found (Stumpf & Rabinowitz, 1981).

Affective Reactions

Job satisfaction. Job satisfaction was the most frequently used consequence variable, appearing in about 50% of all studies. As Tables 2 and 3 indicate, job satisfaction is generally found to be negatively correlated with both role ambiguity and role conflict. The strength of correlations varies as a function of which aspect of job satisfaction one measures, however. When general satisfaction is assessed, the correlation is -.46 for role ambiguity and -.48 for role conflict. The respective values are *slightly* larger when role ambiguity and conflict are correlated with satisfaction with the work itself and with satisfaction with supervision; they are smaller for satisfaction with co-workers, pay, and advancement.

Both the "% Var. Unacc." and the standard deviations for the corrected correlation coefficients indicate that the correlations reported for the relationships between conflict and satisfaction tend not to vary across studies with two notable exceptions: The corrected standard deviations are relatively large for the correlations between both general satisfaction and role conflict (SD_{Tr1e} = .13) and between advancement satisfaction and role conflict (SD_{Tr1e} = .11). For the general satisfaction correlations, much of the variation across studies can be attributed to the diversity in satisfaction measures used. Whereas satisfaction with job facets was almost always assessed by responses to the Job Descriptive Index (Smith, Kendall, & Hulin, 1969), approximately 30 different measures of general satisfaction have been used. In fact, the diversity of general satisfaction

measures used was so great that it precluded coding studies according to the satisfaction measure used to test for systematic differences in correlations due to particular satisfaction measures.

In contrast to role conflict, both the "% Var. Unacc." and the standard deviations for the corrected correlation coefficients indicate that the correlations reported for the relationships between role ambiguity and satisfaction tend to vary across studies with the exception of satisfaction with supervision. The true standard deviation for the correlation between satisfaction with supervision is .00.

Comparisons between role ambiguity and role conflict and satisfaction indicate other important differences. For example, results using role conflict suggest that future research should explore moderator variables only when looking at the relationship between role conflict and general satisfaction. For role ambiguity, however, moderator variables should be explored for all types of satisfaction except satisfaction with supervision.

Overall, these results highlight the empirical differences between the correlates of role ambiguity and role conflict. They also caution against assuming that because the relative strength of correlations between role ambiguity and role conflict and some facets of satisfaction are similar that the conclusions about and suggestions for future research should also be similar. For instance, the correlations between role ambiguity and role conflict and satisfaction with pay are relatively equal (-.26 vs -.31) yet the "% Var. Unacc." suggests exploring for moderators when using role ambiguity but not when using role conflict.

In all of the studies of job satisfaction and role strain, a correlation was assumed to indicate that role strain led to dissatisfaction, although this correlation was almost always obtained from one-shot cross-sectional surveys. In three studies, the typical survey design was improved by assessing respondents at two points in time and computing dynamic and/or cross-lagged correlations (Miles, *1975;* Schuler, *1979;* Szilagyi, *1977).* All three studies support the assumption that role ambiguity and role conflict are antecedents of job dissatisfaction.

Finally, one experiment can be interpreted as supporting this causal ordering. Smith *(1957)* manipulated ambiguity by planting a "silent" group member into groups working on a "20-questions" task (ambiguous condition). Half of the groups were prepared for the silent member's behavior by a forewarning which indicated the person always was very quiet in group situations; the other groups received no such information. In a control condition, there was no silent member (unambiguous condition). Smith reported that regardless of whether an explanation was provided, the ambiguity created by the presence of a silent group member resulted in greater dissatisfaction and poorer performance.

Tension and anxiety. Like job satisfaction, many studies of role am-

biguity and role conflict include measures of tension and/or anxiety. Tension tends to be positively correlated with both ambiguity (r = .43) and role conflict (r = .47). Despite the apparent interest in these reactions to role ambiguity and role conflict, organizational researchers have not yet developed a psychometrically validated assessment tool. Nevertheless, the pool of items most often used (from which researchers select their favorites) are the job-related tension index developed by Kahn *et a!.* (1964) and the anxiety-stress items developed by House and Rizzo (1972a). When the Kahn *et al.* items are used to measure tension, the correlations with conflict and ambiguity are much higher than when the House and Rizzo items are used. The differences in results obtained when using the two measures are easy to understand when one examines the specific items that comprise these two measures: The Kahn *et al.* items make direct reference to problems of role conflict (e.g., "thinking that you'll not be able to satisfy the conflicting demands of various people over you") and role ambiguity (e.g., "being unclear on just what the scope and responsibilities of your job are"). In fact, most of the Kahn *et al.* items are directly parallel to items contained in the Rizzo *et al.* conflict and role ambiguity scales, yet many researchers have treated the job-related tension index and the role conflict and role ambiguity scales as if they measured distinguishably different constructs. On the other hand, House and Rizzo's (1972) tension items have more face validity because they refer to psychological or psychosomatic symptoms often associated with the concept of tension (e.g., "I feel fidgety or nervous because of my job"; "I have trouble with my digestion"; "I sometimes feel weak all over").

The correlations of role ambiguity and role conflict with tension, and presumably other physiological reactions, seem to be the major reason that research on conflict and ambiguity is categorized as "stress" research. Unlike most other researchers of stress, however, organizational scientists seldom seriously study the physiological effects of strain using methods other than self-reported symptoms. Projects in which physiological data such as heart rate and blood pressure have been collected indicate that role ambiguity and role conflict, especially role conflict, may have physiological consequences (Caplan & Jones, 1975; French & Caplan, 1970, 1972; Ivancevich *et al.,* 1982). But, to date, there is far too little evidence to accept this conclusion as true.

Commitment and involvement. As Tables 2 and 3 indicate, there is good evidence that organizational commitment is correlated with both role ambiguity (r = -.41) and role conflict (r = -.36). Indeed, role relationships are posited by Mowday, Porter, and Steers (1982) as one of four major determinants of organizational commitment although no research has yet tested this causal hypothesis. *As* Mowday *et al.* (1982) point out, we do

not yet understand the psychological processes that explain the correlations between commitment and role ambiguity and role conflict. What is surprising is that no one has even offered a guess about these processes. Instead, the justification researchers give for predicting a correlation is because a correlation has been found in the past. This practice generated a well-replicated result that no one can explain, but the result is assumed to be important because commitment is related to turnover and perhaps other withdrawal behaviors (Mowday *et al., 1982).*

Our inability to explain the effects of role ambiguity and role conflict on commitment suggests that the effect may be indirect rather than direct. For example, two direct antecedents of commitment may be satisfaction and tension, which in turn may be directly determined by role ambiguity and conflict. Unfortunately, none of the studies on commitment provides data that test this type of hypothesis.

Another interesting possibility is that one's commitment partially determines experienced ambiguity and conflict. Employees who feel behaviorally committed to staying in an organization may be more concerned about succeeding within that organization and therefore exert more effort to learn about others' expectations, thereby reducing role ambiguity. Organizationally committed employees may also be less likely to question the values and goals of the organization, the result being less chance that they will experience person-role conflict. In contrast, professional commitment might have just the opposite effect (cf. Greene, *1978).*

The concept of job involvement is closely related to the concept of organizational commitment in that both are assumed to reflect an individual's motivation to exert effort toward satisfactory performance. Like commitment, job involvement is negatively correlated with role ambiguity *(r* = -.44) and role conflict *(r* = -.26). And, like the literature on commitment, the literature on involvement includes little explanation of these correlations. A noteworthy exception to this generalization is the use of expectancy theory by Beehr *et al. (1976)* to predict the effects of role ambiguity and conflict on job involvement. These authors argue that role ambiguity decreases motivation to perform (e.g., involvement or commitment) because it decreases the employee's expectations that effort leads to performance and that performance leads to outcomes. The expectancy explanation for the effects of role ambiguity and conflict has received modest empirical support (Lee & Schuler, *1982).*

Propensity to leave. Turnover is hypothesized as one of the major negative consequences of role strain. Presumably, if role ambiguity and role conflict are too intense, employees will seek alternative situations that are less discomforting. Only three studies have reported data that directly tested for this effect; two of these supported the hypothesis (Brief & Aldag, *1976;* Lyons, *1971).*

Several studies have reported positive correlations between turnover *intentions* and role ambiguity ($r = .29$) and role conflict ($r = .34$). The Appendix shows that a few studies reported only very weak correlations, however. Inspection of the samples used in these studies reveals that the lower correlations appear to be associated with studies for which the samples used were heterogeneous with respect to job categories.

Behavioral Reactions

Absence. Role strains have been hypothesized to affect absenteeism for two reasons. At the extreme, conflict and ambiguity may cause absenteeism by causing poor physical health, such as excessive fatigue, tension, or headaches. Short of these debilitating effects, role strain may lead to absenteeism by generating a desire to withdraw from the work place as much as possible.

To date, there is very little evidence about the relationship between role strain and absenteeism. Available evidence suggests there is a weak correlation at best (Gupta & Beehr, 1979; Jackson, 1983; Rousseau, 1978); however, it is too soon to draw conclusions. As recent reviews of our knowledge about absenteeism and attendance point out, many factors must be taken into account when assessing the occurrence and causes of absence behavior (Mowday *et al.*, 1982; Steers & Rhodes, 1978). Indeed, if a model were developed which took seriously, conceptually and psychometrically, the distinctions among different types of role conflict and different types of absenteeism (e.g., voluntary and nonvoluntary), the hypothesized relationships could be very complex. For example, people experiencing role conflict in the form of overload may feel unable to take time off for fear of getting too far behind in their work. This would result in a negative correlation between role conflict and absence. The employee who submits to pressures to attend, and perhaps to put in overtime, may find this behavior eventually leads to interrole conflicts because of the lack of time available for spending with family and friends. Another unexplored hypothesis is that for some people attendance at work serves as an escape from ambiguity and conflict in other domains of life. Finally, it may be that role ambiguity and role conflict have little effect on total days absent but has a strong effect on the pattern of one's absences. For example, absences might be used strategically to cope with intersender role conflict, or they may follow regular pattens when they result from interrole conflict. At present, our knowledge in this area is extremely limited.

Performance. Correlations between role ambiguity and role conflict and performance are predicted by both cognitive and motivational explanations of performance. From a cognitive perspective, performance should be hindered by role ambiguity and role conflict because with them

the individual faces either a lack of knowledge about the most effective behaviors to engage in or an almost impossible situation for doing everything expected. Therefore, regardless of the amount of effort expended, behaviors are most likely to be inefficient, misdirected, or insufficient. As noted above, a motivational perspective would predict that performance should be negatively correlated with role ambiguity and role conflict because they are negatively associated with effort-to-performance and performance-to-reward expectancies.

Tables 2 and 3 reveal, however, that the evidence for negative correlations between role ambiguity and role conflict and performance is weak. In field settings, researchers have repeatedly failed to find significant correlations using a variety of *objective performance measures* (including sales volume, profits, number of publications), although two notable exceptions are reported by Bagozzi (1978, 1980) and Yukl and Kanuk (1979). In contrast, based on an interesting analysis of 75 randomly selected studies that obtained measures of performance in laboratory settings, Shalit (1977) found that high performance was associated with low situational ambiguity. Two major differences between these laboratory experiments and field studies relating role ambiguity and role conflict to performance are that (1) the field studies assessed individual perceptions of role ambiguity and role conflict whereas Shalit assessed the "objective" ambiguity of situations from a third-party perspective, and (2) the field studies focused on *role* conflict and *role* ambiguity whereas Shalit classified situations largely as a function of *task* ambiguity. This suggests that perhaps the negative associations between role ambiguity and role conflict and performance are moderated by the type of job. Individuals on jobs in which their performance is more dependent upon interacting with others, such as jobs in upper organizational levels, may be more affected by role ambiguity and role conflict than individuals with jobs in which their performance is more dependent upon interacting with the job task itself, such as jobs in lower organizational levels. The results of several studies provide some support for this suggestion (Berkowitz, 1980; Hamner & Tosi, 1974; Mossholder *et al.*, 1981; Schuler, 1975; Schwab and Iwanicki, 1982; Szilagyi, 1977).

The evidence for negative correlations between role ambiguity and role conflict and performance is not much different using *self-report performance measures*. But even these results have to be taken with some caution. For example, although negative correlations between self-report performance and role ambiguity have been reported, these results may be misleading. While this finding might be interpreted as evidence that role ambiguity causes low performance, an experiment in which feedback about performance was manipulated suggests that people who think they have performed poorly are more likely to describe the situation as am

biguous than are people who think they have performed well (Staw, 1975). This alternative explanation for the negative correlation between performance and role ambiguity is provocative, but it is unclear why employees should only attribute role ambiguity to low performance situations and not make similar attributions about role conflict.

Thus the existing evidence indicates that there is at best a modest negative relationship between role ambiguity and role conflict and performance. While the use of moderator variables is a viable route to pursue in improving this evidence, some moderators may not need to be considered. For example, Brief and Aldag (1976) found no support for higher order need strength as a moderator, and Stumpf and Rabinowitz (1981) found very limited support for career stage as a moderator. The use of job type, however, may prove to be a moderator that will produce more substantial results. But even job type may fail to provide supportive evidence if the measures of performance are unreliable. Thus future work in this area should consider both moderators and the performance measure itself.

SUMMARY, CONCLUSIONS AND SUGGESTIONS

Based upon our meta-analysis results and discussion, several summary statements are presented followed by several conclusions about and suggestions for research on role ambiguity and role conflict.

The results of the meta-analysis indicate that the average correlations between many organizational context variables and role ambiguity and role conflict are substantial and are significantly increased when corrected for unreliability. In contrast, individual characteristics are generally not strongly related to role conflict and role ambiguity. Our results also show that the average correlations between the affective reactions and role ambiguity and role conflict are greater than those between the behavioral reactions and role ambiguity and role conflict. These results are consistent with those reported by Van Sell *et al.* (1981) and Schuler *et al.* (1977). Also consistent with the results reported in those studies, the average correlations using role ambiguity are greater than those using role conflict, and role ambiguity and role conflict are not always associated with the same variables, whether organizational or individual.

Contrary to Fisher and Gitelson (1983), our results suggest that most of the relationships describing the potential causes and consequences of role ambiguity and role conflict *are* likely to be influenced by moderator variables. In Tables 2 and 3, 29 correlates are reported of which 25 had a "% Var. Unacc." value greater than 25 for role ambiguity and of which 17 had a "% Var. Unacc." value greater than 25 for role conflict. The differences between our results and those of Fisher and Gitelson may be

due to the fact that different (and fewer) studies were included in their analysis.

The results of our study and those reported by others prompt us to make several conclusions and suggestions. First, where a sufficient number of studies exist (e.g., more than five) and there is substantial variation in results across studies (e.g., *SD* greater than .10) and a substantial proportion of variance unaccounted for exists (e.g., more than 25%), bivariate studies using role ambiguity or role conflict should be replaced with *theoretically based* moderator studies. For example, we would recommend studying the relationship between role ambiguity and job satisfaction using a moderator because there were substantial differences found across the 56 studies we located and the unaccounted for variance is greater than 25%. In this case a theoretically based moderator could be organizational level since progression from lower to higher organizational levels may develop individuals who are more skilled in dealing with role ambiguity (Hamner & Tosi, 1974). By our guideline we would not recommend looking for a moderator of the relationship between role conflict and objective performance. A summary of those relationships for role ambiguity and role conflict that we would recommend moderator studies and those we would not recommend moderator studies is presented in Table 4. We would urge other researchers to examine Tables 2-4, as well as the Appendix, before conducting another role ambiguity or role conflict study.

Second, there is still a need to examine the antecedents and consequences of role ambiguity and role conflict in organizations using causal designs. While this need was suggested by Van Sell *et al.* (1981), studies such as Jackson's (1983) are notable exceptions to the continued stream of cross-sectional studies of role ambiguity and role conflict. Because the number of causal studies is small, bivariate causal studies are still appropriate, but the success of such studies may require inclusion of *theoretically* related moderator variables.

Third, we need to examine the relationship between objective and subjective role ambiguity and role conflict. This could aid in determining and removing the impact of common method bias that exists in many of the role ambiguity and role conflict studies. This, along with research examining how individuals cope with role ambiguity and conflict, may suggest fruitful avenues that individuals and organizations can travel in their attempts to reduce or manage the effects of role strain (Toby, 1952; Whetten, 1978). Since this suggestion was first offered by Schuler *et al.* (1977) and Van Sell *et al.* (1981) some research on how individuals and organizations can cope with role ambiguity and conflict has been completed (e.g., see Wells, 1984), but much more is needed.

Fourth, based on the research analyzed in this study, we suggest that

TABLE 4
SUMMARY RECOMMENDATION FOR MODERATOR STUDIES WITH ROLE AMBIGUITY AND ROLE CONFLICT

Correlate	Conduct moderator studies?	
	Role ambiguity	Role conflict
Organizational context		
Task/skill variety	Yes	Yes
Autonomy	Yes	Yes
Feedback from others	Yes	Yes
Feedback from task	Yes	No
Task identity	No	No
Leader initiating structure	Yes	No
Leader consideration	Yes	No
Participation	Yes	Yes
Formalization	Yes	Yes
Level	No	No
Individual characteristics		
Locus of control	No	No
Tenure	No	No
Age	No	Yes
Education	Yes	Yes
Self-esteem	No	—
Affective reactions		
Job satisfaction		
General	Yes	Yes
Supervision	No	No
Work itself	No	No
Co-workers	Yes	No
Pay	Yes	No
Advancement	No	Yes
Tension/anxiety	Yes	Yes
Commitment	No	Yes
Involvement	No	No
Propensity to leave	Yes	No
Behavioral reactions		
Absence	No	Yes
Performance		
Objective	Yes	No
Others' ratings	Yes	No
Self-ratings	Yes	Yes

the role conflict and role ambiguity constructs be regarded as separate constructs. Separate hypotheses should be stated for role ambiguity and separate hypotheses should be stated for role conflict. Generally, this separation is not made, resulting in an identical treatment for two theoretically distinct constructs. Yet the implications of role ambiguity and of role conflict certainly suggest that their impacts in organizations should

be different and the empirical results indicate that they are different. Furthermore, with respect to role conflict, relatively little attention has been given to the value of distinguishing among different *types* of role conflict, yet these distinctions appear to be quite important (Baird, 1973; Ehrlich, Rinehart, & Howell, 1962; Miles & Perrault, 1976).

A fifth conclusion is that we need a more rigorous and *parsimonious* theory of the causes and consequences of role ambiguity and role conflict. To facilitate this, the extensive number of correlates of role ambiguity and role conflict could be reduced to a more parsimonious classification system and some general propositions with respect to how the classifications operate could be explicated. Such a classification could be built upon a new theoretical conceptualization of role ambiguity and role conflict. This new theoretical conceptualization could also be used to suggest the theoretically based moderator studies referred to earlier. Alternatively a meta-matrix representing the intercorrelations of all the correlates identified in this article could be constructed and used to generate meta-regression equations and meta-path analyses. The results of these meta-analyses could then be used to develop a more parsimonious and rigorous representation of the network of relationships in which role ambiguity and role conflict are embedded.

Whereas the first five conclusions and recommendations address the current constructs and measures of role ambiguity and role conflict, our final suggestions go beyond the current literature. While the current Rizzo *et al.* measures of role ambiguity and conflict may be appropriate measures (Fisher & Gitelson, 1983; House *et al.,* 1983), they are measures of *role* ambiguity and *role* conflict. Just as ambiguity and conflict have increased our understanding of roles in organizations, so they may do likewise for other constructs such as tasks and rewards. For example, while an individual may be receiving a clear understanding of what *others* expect of him/her, this individual may be unclear as to the best way to perform the tasks (i.e., faces *task* ambiguity) in his/her job (Shalit, 1977). Or the individual may face the necessity to perform several tasks at the same time (i.e., face task conflict). Similarly an individual may have low role and task ambiguity and conflict yet be unclear as to what rewards are available for performing or perceive conflict among rewards in performing different tasks. Consequently, it may be advantageous to go beyond the traditional role constructs and include the constructs of task and reward ambiguity and conflict in organizational research. As with role ambiguity and conflict, separate hypotheses should be stated for the different types of ambiguity and for the different types of conflict.

From a practical standpoint, a useful direction for further research would be the development of good diagnostic tools for pinpointing the specific aspects about one's job that are ambiguous or conflicting.

Whereas existing research tools give good assessments of general perceptions, they are not very useful for evaluating specific role relationships (e.g., employee-client; employee-co-worker; employee-supervisor; client-supervisor), nor are they useful for assessing the *content* of ambiguities or conflicts. Given the evidence that both role ambiguity and role conflict are often detrimental to organizational functioning, it is appropriate to invest our efforts in developing sophisticated programs or tools for both diagnosing and correcting problems related to role relationships. For this task, Jackson's (1966) return potential model for assessing norms might prove invaluable.

We would hope that a review written 10 years from now will reveal great strides in our theories about role relationships. Whereas current research looks at role ambiguity and conflict as static conditions, future work should address the dynamic processes through which roles are created, learned, accepted or rejected, modified, and changed (Graen, 1976). Furthermore, whereas current research emphasizes received roles, role sending should also be studied.

Finally, whereas our current preoccupation is with supervisors' definitions of subordinates' roles, we should be examining the entire network of role expectations that links members of an organization together and that links nonmembers to the organization. Integral to an examination of the entire role network is a tracing of the impact of role ambiguity and role conflict as it flows through a network of supervisor-subordinate relationships.

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RECEIVED: August 8, 1983

APPENDIX

Primary Sources Included in Meta-analyses'

Source	Population	N	$r_{conFlict}$	rambiguity
	Absence			
Breaugh, 1980	Production department	101	nrh	18"
Gupta & Beehr, 1979	Printing, R&D, auto supply	309	nr	16
Jackson, 1983	Hospital nursing staff			
	-Time I	87	17	09
	-Time 2	66	- 22	- 06
Rousseau, 1978	Electronic firm and broadcasting company employees	271	- 02	01
	Age			
Morris & Sherman, 1981	Three facilities for the care of the developmentally handicapped-all jobs represented	506	-13	-14
Morris, Steers, & Koch, 1979	Full-time, nonacademic university employees	252	-10	-17
Rizzo, House, & Litzman, 1970	Managerial and technical personnel in heavy manufacturing firm			
	-Central office and main plant	199	- 07	- 29
	-Research and engineering	91	29	- 04
Rousseau, 1978	Electronics firm and broadcasting company employees	271	- 04	- 20
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	24	- 06
	Autonomy			
Keller, Szilagyi, & Holland, 1977	R&D employees	363	-14	- 30
Moorhead, 1981	Physicians and administrators	16 units	09	31
Rousseau, 1982	Sample of U.S. labor force	1515	16	- 23
Schuler, Aldag, &	Public utility employees	272	- 24	- 47

Brief, 1977; Brief & Aldag, 1976	Hospital workers	99	- 34	-3t
	Nurses' aides	70	-31	- 20
	Nursing personnel	374	- 07	-12
Vredenburgh & Trinkaus, 1983	Nurses	566	- 07	- 07
Teas, Wacker, & Hughes, 1979	Salespeople	107	nr	- 62
Walsh, Taber, & Beehr, 1980	Manufacturing employees			
	-Shop	486	nr	-18
	-Office	96	nr	-21
	-Management	232	nr	- 27
	Commitment			
Aldag & Brief, 1978	Police personnel	99	- 52	- 44
Bruning & Snyder, 1982	Supervisory males	195	-14	-31
	Supervisory females	167	-17	- 36
	Nonsupervisory males	57	- 44	- 42
	Nonsupervisory females	164	- 34	- 30
Dubrinsky & Mattson, 1979	Retail salespeople	203	-12	- 25
Ivancevich, 1980	Engineers and their supervisors	307	nr	- 08
Morris & Koch, 1979	University employees, including professional, clerical, & manual	259	- 30	- 34
Morris & Sherman, 1981	Three facilities for the care of the developmentally handicapped-all jobs represented	506	- 40	- 36
Morris & Snyder, 1979	Permanent, nonacademic university employees	262	-27[11]	- 30'~
Oliver & Brief, 1977-1978	Department managers in retail outlets	105	- 26	- 39
Vredenburgh & Trinkaus, 1983	Nurses	566	- 05	- 16
	Education			
Kelly, Gable, & Hise, 1981	Chain store managers	179	11	13

APPENDIX *(Continued)*

Source	Population	N	rcontlict	rambiguity
	Education			
Morris & Sherman, 1981	Three facilities for the care of the developmentally handicapped-all jobs represented	506	27	18
Morris, Steers, & Koch, 1979	Full-time, nonacademic university employees	252	13	18
Rizzo, House, & Lirtzman, 1970	Managerial and technical personnel in heavy manufacturing firm			
	-Central office and main plant	199	- 02	08
	-Research and engineering	91	-18	04
	Consideration			
Abdel-Halim, 1981c	White, male, middle-lower level managers	89		20
Aldag & Brief, 1978	Police personnel	99	n29	-39
Dessler & Valenzi, 1977	Supervisors in electronics firm	23	nr	-03
	Assembly workers in electronics firm	44	nr	- 60
Evans, 1974	Managers enrolled in MBA courses	86	- 48	-51
Frost, 1983	Male fire department officers	121	-10	-18
Greene, 1979	Leader-subordinate dyads in R&D division of manufacturing and electronics firms			
	-Low task structure group	39	nr	-11
	-Medium task structure group	40	nr	- 27
	-High task structure group	40	nr	- 26
	Leader-subordinate dyads in chemical products firm			
	-Low task structure group	20	nr	-10
	-Medium task structure group	20	nr	-12
	-High task structure group	20	nr	- 20
House & Rizzo, 1972a; also see House, 1971;	Managerial and technical personnel in heavy manufacturing firm			

House & Rizzo, 1972b; Rizzo, House, & Lirtzman, 1970				
	-Central office and main plant	199	- 43	- 38
	-Research and engineering	91	- 28	- 29
Morris & Sherman, 1981	Three facilities for the care of the developmentally handicapped-all jobs represented	506	- 26	-19
Podsakoff, Todor, & Schuler, 1983	Nonprofit organization employees	101	nr	- 27
Schriesheim, House, & Kerr, 1976	Hourly university staff	242	nr	-42
Schriesheim, 1979; see also Schriesheim, Kinicki, & Schriesheim, 1979; Schriesheim, 1980	Managerial and clerical personnel at large public utility	308	- 24`	-27'
Schriesheim & Murphy, 1976	Black social service counselors of inner city youth	54	nr	-17
Stinson & Johnson, 1975	MA students, including military officers, civil service, and engineers			
	-Low task structure group	29	nr	-15
	-High task structure group	31	nr	- 45
Szilagyi & Keller, 1976	Managers, engineers, and supervisors from equipment manufacturing firm	192	- 28	- 43
Valenzi & Dessler, 1978	Blue-collar to managerial personnel in two electronics manufacturing firms	284	nr	- 46
Vecchio, 1981	Males, mostly from manufacturing	107	-21	- 32
Yukl & Kanuk, 1979	Beauty salon employees (Sample 2)	69	nr	- 42
	Feedback from others			
Schuler, Aldag, & Brief, 1977	Public utility employees	272	- 36	-53
	Hospital workers	99	- 28	- 35
	Nurses' aides	70	-32	-11
	Nursing personnel	374	-19	- 28

APPENDIX *(Continued)*

Source	Population	N	rconflict	ʳambiguity
	Feedback from Others			
Vredenburgh & Trinkaus, 1983	Nurses	566	- 05	00
Walsh, Taber, & Beehr, 1980	Manufacturing employees			
	-Shop	486	nr	- 54
	-Office	95	nr	- 54
	-Management	232	nr	- 68
	Feedback from the task			
Schuler, Aldag, & Brief, 1977; Brief & Aldag, 1976	Public utility employees	272	- 23	- 43
	Hospital workers	99	- 32	-31
	Nurses' aides	70	-10	- 27
	Nursing personnel	374	-15	-12
Vredenburgh & Trinkaus, 1983	Nurses	566	- 05	-10
Walsh, Taber, & Beehr, 1980	Manufacturing employees			
	-Shop	486	nr	-21
	-Office	96	nr	- 25
	-Management	232	nr	- 42
	Formalization			
House & Rizzo, 1972a; also see House & Rizzo 1972b; Rizzo, House, & Lirtzman, 1970	Managerial and technical personnel in heavy manufacturing firm			
	-Central office and main plant	199	- 27	- 57
	-Research and engineering	91	08	- 57
Morris, Steers, & Koch, 1979	Full-time nonacademic university employees	252	-17	- 23
Nicholson & Goh, 1983	Production personnel	21	- 58	-61
	Research personnel	21	- 23	- 38

Organ & Greene, 1981	Senior scientists and engineers in three firms	247	24
Rogers & Molnar, 1976	Top administrators in government offices	110	02
Rousseau, 1978	Electronics firm and broadcasting company employees	271	- 05
Senatra, 1980	Audit seniors in public accounting	88	- 40
	Initiating structure		
Abdel-Halim, 1981c	White, male, middle-lower level managers	89	nr
Aldag & Brief, 1978	Police personnel	99	-19
Dessler & Valenzi, 1977	Supervisors in electronics firm	26	nr
	Assembly workers in electronics firm	45	nr
Evans, 1974	Managers enrolled in MBA courses	86	-14
Frost, 1983	Male fire department officers	121	-16
Greene, 1979	Leader-subordinate dyads in R&D division of manufacturing and electronic firms		
	-Low task structure group	39	nr
	-Medium task structure group	40	nr
	-High task structure group	40	nr
	Leader-subordinate dyads in chemical products firm		
	-Low task structure group	20	nr
	-Medium task structure group	20	nr
	-High task structure group	20	nr
House & Rizzo, 1972a; see also House, 1971; House & Rizzo, 1972b; Rizzo, House, & Lirtzman, 1970	Managerial and technical personnel in heavy manufacturing firm		
	-Central office and main plant	199	- 33
	-Research and engineering	91	- 07
Lee & Schuler, 1980	Industrial service organization staff	130	- 38
Morris & Sherman, 1981	Three facilities for the care of the developmentally handicapped-all jobs represented	506	-16
Podsakoff, Todor, & Schuler, 1983	Nonprofit organization employees	101	nr
Schriesheim, 1979;	Managerial and clerical public utility employees	308	- 08d

APPENDIX *(Continued)*

Source	Population	N	r'conflict	r'ambiguity
	Initiating stucture			
see also Schriesheim, 1980; Schriesheim, Kinicki, & Schriesheim, 1979				
Schriesheim, House, & Kerr, 1976	Hourly university employees	242	nr	- 38
Schriesheim & Murphy, 1976	Black social service counselors	54	nr	-32
Sims & Szilagyi, 1975	Associate directors of nursing	20	*nr*	–64
	Head nurses, in-patient care	20	nr	17
Stinson & Johnson, 1975	MA students, including military officers, civil service, and engineers			
	-Low task structure group	29	nr	- 09
	-High task structure group	31	nr	- 47
Szilagyi & Keller, 1976	Managers, engineers, and supervisors from equipment manufacturing firm	192	-17	-31
Szilagyi & Sims, 1974	Medical center personnel			
	-Administrators	53	nr	-41
	-Professionals	249	nr	11
	-Technicians	132	nr	00
	-Service staff	312	nr	- 07
Valenzi & Dessler, 1978	Blue-collar to managerial personnel in two electronics manufacturing firms	242	nr	- 32
Vecchio, 1981	Males, mostly from manufacturing	107	-10	- 47
	Involvement			
Abdel-Halim, 1978, 1980	White, male, middle-lower level managers	89	00d	_33d
Aldag & Brief, 1978	Police personnel	99	- 29	- 22
Baths, 1980b	Supermarket department managers	Ill	-14	-15

Beehr, Walsh, & Taber, 1976	White-collar, time-clock employees	134	nr
Morris & Koch, 1979	University employees, including professional, clerical, and manual	259	-11
Morris & Snyder, 1979	Permanent, nonacademic university employees	262	- 10e
Schuler, Aldag, & Brief, 1977	Nursing personnel	374	-18
	Manufacturing employees	362	-12
	Public utility in communications	399	-18
	Public utility in communications	272	- 28
	Food service and janitorial hospital workers	99	-18
	Job satisfaction - General		
Abdel-Halim, 1980	White, male, middle-lower level managers	89	nr
Aldag & Brief, 1978	Police personnel	99	- 48
Axelrod & Gavin, 1980; see also Gavin & Axelrod, 1977	Mining managers	95	- 24
Bagozzi, 1978	Industrial sales people assigned to territories	123	nr
	Industrial sales people assigned to accounts	38	nr
Batlis, 1980b; see also Batlis, 1980a	Supermarket department managers	111	- 39
Bedeian & Armenakis, 1981; Bedeian, Amenakis, & Curran, 1981	VA nursing staff-five levels represented	202	- 44
Beehr, 1976, 1981	Printing, R&D, auto supply, hospital service-five companies represented	587	nr
Beehr, Walsh, & Taber, 1976; see also Walsh, Taber, & Beehr, 1980	White-collar, time-clock employees	134	nr
Berkowitz, 1980	Industrial chemicals sales people	148	nr
	Industrial chemicals sales managers	49	nr
Breaugh, 1980	Production department personnel	101	nr
Brief, Aldag, Van Sell, & Melone, 1979	Full time RNs and their supervisors	157	- 27

APPENDIX *(Continued)*

Source	Population	N	$r_{conflict}$	$r_{ambiguity}$
	Job satisfaction-General			
Caplan, Cobb, French, Van Harrison, & Pinneau, 1980	National sample of white males, includes 23 occupations	315 316	-14	-17
Churchill, Ford, & Walker, 1976, see also Ford, Walker, & Churchill, 1975	Industrial salespeople from 10 companies and 7 industries	265	- 26	- 36
Curtiss, Hammel, Heinen, & Johnson, 1978	Pharmacists	629	- 30	- 25
Dessler & Valenzi, 1977	Supervisors in electronics firm	26	nr	-71
	Assembly workers in electronics firm	37	nr	-54
Dubrinsky & Mattson, 1979	Retail salespeople	203	-15	-25
French & Caplan, 1970, 1972	NASA administrators, scientists, and engineers	205	nr	- 42
French & Caplan, 1972	Salesmen	800	- 54	nr
Harrison, 1980	Child protective service workers	112	- 28	- 30
House & Rizzo, 1972b	Managerial, professional, and technical personnel in heavy manufacturing firm	200	-11	- 36
Ivancevich, 1980	Engineers and supervisors	307	nr	- 44d
Ivancevich & Donnelly, 1974; see also Donnelly & Ivancevich, 1975	Salesmen	86	nr	-51d
	Production supervisors	48	nr	- 08d
	Operating employees	127	nr	- 03d
Ivancevich, Matteson, & Preston, 1982	Business managers			
	-Type A's	113	-41	nr
	-Type B's	113	-19	nr
	Female RN's			

	-Type A's	21	- 40	nr
	-Type B's	29	-13	nr
Jackson, 1983	Hospital nursing staff			
	-Time I	87	- 29	-51
	-Time 2	66	- 46	- 40
Johnson & Stinson, 1975	Military officers	90	-25d	- 32d
Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964	Male interviewees from diverse jobs and organizations	53	nr	-32
Keenan & McBain, 1979	Middle managers	90	-16	- 48
Kelly, Gable, & Hise, 1981	Retail store managers	179	-12	- 43
Lee & Schuler, 1980	Industrial service organization staff	130	- 36	- 55
Lyons, 1971	Nurses	156	nr	- 44
Margolis, Kroes, & Quinn, 1974	Representative national sample	1496	nr	-13
Miles, 1975; also see Miles, 1976a, 1976b, 1976c; Miles & Petty, 1975	Males from nine R&D government organizations	202	– *28d*	-47d
Moorhead, 1981	Resident physicians and administrators	16 units	- 22	- 79
Mossholder, Bedeian, & Armenakis, 1981	Nursing employees	161	- 42	- 37
Oliver & Brief, 1977-1978	Department managers in retail outlets	105	- 40	– 38
Organ & Greene, 1974a	Scientists and engineers	94	nr	-14
Paul, 1974	Male teachers	293	nr	- 56
	Female teachers	287	nr	- 45
Posner & Randolph, 1979	Nurses	138	nr	- 39
Randolph, 1981	Management training students playing *The Organization Game*	90	-13d	- 34d

APPENDIX *(Continued)*

Source	Population	N	$r_{con0ict}$	rambiguity
	Job satisfaction- General			
Rousseau, 1978	Electronics firm and broadcasting company employees	271	-31	- 39
Schriesheim & Murphy, 1976	Black social service counselors	54	nr	-41
Seers, McGee, Serey, & Graen, 1983	Client processors in federal agency	104	-16	- 32
Senatra, 1980	Audit seniors in public accounting	88	- 37	-46
Shamir & Drory, 1981	Israeli prison officers			
	-Druze	83	-15	- 52
	-North African Jews	127	- 30	-17
	-Georgian Jews	96	-17	- 34
Tosi, 1971	Consumer loan office managers	488	-31	05
Tosi & Tosi, 1970	Elementary and secondary teachers	68	- 48	-08
Valenzi & Dessler, 1978	Blue-collar to managerial level employees in electronics manufacturing	284	nr	-61
Vecchio, 1981	Males, mostly from manufacturing	107	-18	- 27
Walsh, Taber, & Beehr, 1980	Manufacturing personnel			
	-Shop	486	nr	-19
	-Managers	232	nr	- 34
	-Office	96	nr	-53
	Job satisfaction-Supervision			
Aldag & Brief, 1978	Police personnel	99	-41	- 40
Breaugh, 1980	Production department personnel	101	nr	- 46
Busch & Bush, 1978	Male sales representatives	39	nr	- 30
	Female sales representatives	39	nr	- 27
Fulk & Wendler, 1982; see also Schriesheim, 1980	Low and middle level managerial and clerical employees	308	- 27	- 30

Harrison, 1980	Child protective service employees	112	- 26	-18
Keller, 1975	Government R&D professionals	51	- 28	- 20
Lee & Schuler, 1980	Industrial service organization staff	130	- 54	-53
Schuler, Aldag, & Brief 1977; see also Brief & Aldag, 1976; Schuler, 1975, 1979, 1980	Nursing personnel	374	- 38	- 32
	Public utility in communications	272	- 40	- 45
	Food service and janitorial hospital staff	99	-43	- 49
	Nursing aides and assistants	70	- 29	-16
	Manufacturing employees three levels	362	- 33	– 39
	Public utility in communications	399	-31	- 43
Seers, McGee, Serey, & Graen, 1983	Client processors in federal agency	104	-10	-14
Sziagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 43	- 34
Vecchio, 1981	Males, most from manufacturing	107	- 29	- 45
	Job satisfaction- Work			
Abdel-Halim, 1978, 1980, 1981b	White, male, middle-lower level managers	89	-33	-38'1
Abdel-Halim, 1981b	Managerial and nonmanagerial bank employees	81	nr	- 27
Aldag & Brief, 1978	Police personnel	99	- 36	-41
Brief, Aldag, Van Sell, & Melone, 1979	Full time RNs and their supervisors	157	- 34	- 32
Busch & Bush, 1978	Male sales representatives	39	nr	-41
	Female sales representatives	39	nr	- 59
Harrison, 1980	Child protective service workers	112	-21	- 44
Johnson & Stinson, 1975	Military officers	90	– *32d*	– 27"
Keller, 1975	Government R&D professionals	51	-19	- 54
Miles, 1976a; 1976b; see also Miles & Petty, 1975	Males from nine R&D government organizations	202	- 25	- 49
Organ & Greene, 1974a, 1974b	Scientists and engineers	92	nr	- 30
Posner & Randolph, 1980	Nurses	122	- 26	- 33
	Respiratory therapists	33	- 44	- 49

APPENDIX *(Continued)*

Source	Population	N	$r_{connict}$	rambiguity
	Job satisfaction-Work			
Schuler, Aldag, & Brief, 1977; see also Brief & Aldag, 1976; Schuler, 1975, 1979, 1980	Nursing personnel, all levels	374	-21	-18
	Public utility in communications	272	- 35	- 40
	Food service and janitorial hospital staff	99	- 26	- 39
	Manufacturing employees-three levels	362	- 36	- 47
	Public utility in communications	399	- 20	-41
	Nursing aides and assistants	70	- 29	- 09
Seers, McGee, Serey, & Graen, 1983	Client processors in federal agency	104	- 37	-17
Sims & Szilagyi, 1975	Associate directors of nursing	20	nr	- 24
	Head nurses in patient care	20	nr	- 35
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	- 07	- 43
Szilagyi, 1977	Hospital administrators	35	- 23d	- 36d
	Hospital professionals	83	- 36d	*– 26d*
	Hospital service staff	107	*– 34d*	– 29d
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 39	- 24
Vecchio, 1981	Males, mostly from manufacturing	107	- 26	- 25
	Job satisfaction-Co-workers			
Aldag & Brief, 1978	Police personnel	99	-18	- 27
Beehr, 1981	Printing, R&D, auto supply, hospital service-five companies represented	608	nr	- 44
Busch & Bush, 1978	Male sales representatives	39	nr	-10
	Female sales representatives	39	nr	- 20
Harrison, 1980	Child protective service workers	112	- 20	-31
Keller, 1975	Government R&D professionals	51	-11	- 22
Schuler, Aldag, & Brief, 1977; see also Schuler, 1979	Nursing aides and assistants	70	-10	05
	Nursing personnel-all levels	374	- 38	- 20
	Manufacturing employees	362	- 22	-31

	Public utility in communications	399	- 27
	Public utility in communications	272	- 34
	Food service and janitorial hospital staff	99	- 37
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	- 30
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 29
	Job satisfaction-Pay		
Aldag & Brief, 1978	Police personnel	99	- 04
Beehr, 1981	Printing, R&D, auto supply, hospital service-five companies represented	608	nr
Busch & Bush, 1978	Male sales representatives	39	or
	Female sales representatives	39	or
Harrison, 1980	Child protective service workers	112	00
House & Rizzo, 1972b	Managerial and technical personnel in heavy manufacturing	200	-12
Keller, 1975	Government R&D professionals	51	- 30
Schuler, Aldag, & Brief, 1977	Nursing personnel, all levels	374	-14
	Manufacturing employees	362	-19
	Public utility in communications	399	- 25
	Public utility in communications	272	- 32
	Food service and janitorial hospital staff	99	- 20
	Nursing aides and assistants	70	- 06
Seers, McGee, Serey, & Graen, 1983	Client processors in federal agency	104	- 08
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	-17
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 23
	Job satisfaction-Promotion		
Aldag & Brief, 1978	Police personnel	99	- 33
Busch & Bush, 1978	Male sales representatives	39	nr
	Female sales representatives	39	nr

APPENDIX *(Continued)*

Source	Population	N	rconfict	rambiguity
	Job satisfaction-Promotion			
Harrison, 1980	Child protective service workers	112	-13	- 03
House & Rizzo, 1972a, 1972b	Managerial and technical staff in heavy manufacturing firm			
	-Central office and main plant	199	-01	-14
	-Research and engineering	91	-17	- 27
Keller, 1975	Government R&D professionals	51	- 39	- 24
Schuler, Aldag, & Brief, 1977	Nursing personnel, all levels	374	-17	-12
	Manufacturing employees	362	-35	-38
	Public utility in communications	399	- 28	- 27
	Public utility in communications	272	-31	- 33
	Food service and janitorial hospital staff	99	-16	- 29
	Nursing aides and assistants	70	04	-15
Seers, McGee, Serey, & Graen, 1983	Client processors in federal agency	104	03	- 06
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	- 22	- 48
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 23	- 28
	Level			
Mossholder, Bedeian, & Armenakis, 1981	Nursing employees	161	05	- 08
Rizzo, House, & Lirtzman, 1970	Office and plant manufacturing employees	199	- 05	05
	Research and engineering personnel	91	-19	- 04
Rousseau, 1978	Electronics firm and broadcasting employees	271	03	15
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	- 06	10

	Locus of control'			
Bagozzi, 1978	Industrial salespeople assigned to territories	123	nr	38
	Industrial salespeople assigned to accounts	38	nr	29
Batlis, 1980b	Supermarket department managers	111	19	21
Evans, 1974	Managers in MBA courses	86	25	24
Keenan & McBain, 1979	Middle managers	90	04	08
Organ & Greene, 1974a, 1974b	Scientists and engineers	92	nr	42
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a medical center	953	22	15
Vredenburgh & Trinkaus, 1983	Nurses	566	07	11
	Participation			
Bedeian, Armenakis, & Curran, 1981	Nursing staff from five levels	202	- 39	- 30
Beehr, Walsh, & Taber, 1976	White-collar, time-clock employees	134	or	- 27
Caplan, Cobb, French, Harrison, & Pinneau, 1980	National sample of white males	316	03	-18
French & Caplan, 1972	Administrators, scientists, and engineers	205	nr	-55
Gavin & Axelrod, 1977; see also Axelrod & Gavin, 1980	Mining managers	95	- 08	- 27
Hamner & Tosi, 1974	High-level managers	61	-19	nr
Jackson, 1983	Hospital nursing staff			
	-Time 1	87	- 20e	- 40d
	-Time 2	66	-41d	- 43"
Moorhead, 1981	Resident physicians and administrators	16 units	30	-61
Morris, Steers, & Koch, 1979	Full-time, nonacademic university employees	252	- 27	- 36
Nicholson & Goh, 1983	Production personnel	21	- 58	-61
	Research personnel	21	- 23	- 38

APPENDIX *(Continued)*

Source	Population	N	rconflict	rambiguity
	Participation			
Posner & Randolph, 1979	Nurses	138	nr	- 44
Rousseau, 1978	Electronics firm and broadcasting employees	271	02	- 02
Schuler, 1980	Manufacturing company, three levels	382	-41	- 47
	Public utility in communications	429	- 37	- 49
Teas, Wacker, & Hughes, 1979	Salespeople	107	nr	- 65
Tosi & Tosi, 1970	Elementary and secondary teachers	68	- 29	- 25
Yukl & Kanuk, 1979	Beauty salon employees	69	nr	-15
	Performance -Objective			
Bagozzi, 1978	Industrial salespeople assigned to territories	123	nr	- 26
	Industrial salespeople assigned to accounts	38	nr	-15
Berkowitz, 1980	Industrial chemicals salespeople	148	nr	02
	Industrial chemicals sales managers	49	nr	- 14e
Ivancevich, 1980	Engineers and supervisors	134°	nr	_16d
Kelly, Gable, & Hise, 1981	Retail store managers	179	- 02"	-Old
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	00d	- 08"
Tosi, 1971	Managers of consumer loan offices	488	03	01
Yukl & Kanuk, 1979	Beauty salon employees	69	nr	- 58
	Performance-Ratings from others			
Bedeian, Armenakis, & Curran, 1981	Nursing staff from five levels	202	- 08	- 05
Breaugh, 1980	Production department employees	78	nr	- 05
Frost, 1983	Male fire department officers	121	- 04	- 08
Mossholder, Bedeian, & Armenakis, 1981	Nursing employees	161	- 04	- 04

Schriesheim & Murphy, 1976	Black social service counselors	54	nr	uV
Schuler, Aldag, & Brief, 1977; see also Brief & Aldag, 1976; Schuler 1975, 1979	Nursing aides and assistants	70	-01	- 23
	Manufacturing employees	362	- 05	- 02
	Public utility in communications	399	- 04	-19
	Public utility in communications	272	- 03	-12
	Food service and janitorial hospital staff	99	- 09d	- 02d
Seybolt & Pavett, 1979	University medical center nurses	153	-01	- 02
Stumpf & Rabinowitz, 1981	Full-time business faculty	102	24d	07d
Szilagyi, 1977	Hospital employees			
	-Administration	35	- 26d	-36d
	-Nurses	83	- 27d	-06d
	-Service staff	107	- *09d*	-27d
Szilagyi, Sims, & Keller, 1976	Paramedical and support staff at a hospital	953	-14	- 03
Yukl & Kanuk, 1979	Beauty salon employees	69	nr	-51
	Performance-Self-ratings			
Berkowitz, 1980	Industrial chemicals salespeople	148	nr	- 28
	Industrial chemicals sales managers	49	nr	- 34
Busch & Bush, 1978	Male sales representatives	39	nr	- 52
	Female sales representatives	39	nr	-21
Dubrinsky & Mattson, 1979	Retail salespeople	203	-12	-31
Fulk & Wendler, 1982; see also Schreisheim, 1980	Managerial and clerical employees	308	01	29
Miles, 1976a	Supervisory and nonsupervisory employees in nine R&D organizations	202	07	- 28
Posner & Randolph, 1980	Nurses	122	03	-15
	Respiratory therapists	33	08	- 35
Schuler, Aldag, & Brief, 1977; see also Brief & Aldag, 1976	Nursing aides and assistants			
	Food service and janitorial hospital staff	70	-21	-01
		99	*14d*	lid

APPENDIX *(Continued)*

Source	Population	N	$r_{conflict}$	$r_{ambiguity}$
	Propensity to leave			
Abdel-Halim, 1980	White, male, middle-lower level managers	89	nr	19
Baths, 1980b; see also Baths, 1980a	Supermarket department managers	111	43	42
Bedeian & Armenakis, 1981; Bedeian, Armenakis, & Curran, 1981	Nursing staff from five levels	202	31	31d
Berkowitz, 1980	Industrial chemicals salespeople	148	nr	31
	Industrial chemicals sales managers	49	nr	50
Busch & Bush, 1978	Male sales representatives	39	nr	31
	Female sales representatives	39	nr	43
Fulk & Wendler, 1982	Managerial and clerical personnel	308	12	08
Gupta & Beehr, 1979	Printing, R&D, auto supply, hospital service-five companies represented	620	nr	13
	Self-esteem			
Bagozzi, 1978; see also, Bagozzi, 1980	Industrial salespeople assigned to territories	123	nr	-32
	Industrial salespeople assigned to accounts	38	nr	- 20
Beehr, 1981	Printing, R&D, auto supply, hospital service-five companies	621	nr	-19
Donnelly & Ivancevich, 1975	Salesmen	86	nr	- 54
	Production supervisors	48	nr	03
Margolis, Kroes, & Quinn, 1974	Representative national sample	1496	nr	-16
Morris & Sherman, 1981	Three facilities for the care of developmentally handicapped-all jobs represented	506	-18	-31
	Task identity			
Keller, Szilagyi, & Holland, 1977	R&D employees	363	- 23	- 29

Schuler, Aldag, & Brief, l 1977	Public utility employees	272	- 28	- 39
	Hospital workers	99	-12	- 09
	Nurses' aides and assistants	70	- 28	-21
	Nurses	374	- 28	- 25
Walsh, Taber, & Beehr, 1980	Manufacturing employees			
	-Shop	486	nr	- 22
	-Office	96	nr	-19
	-Management	232	nr	- 37
Hamner & Tosi, 1974	High level managers	61	07	- 07
Ivancevich & Donnelly, 1974; see also Donnelly & Ivancevich, 1975	Operating employees	127	nr	63
	Salesmen	86	nr	31
	Production supervisors	48	nr	29
Jackson, 1983	Hospital nursing staff			
	-Time I	87	16	-10
	-Time 2	66	20	11
Lyon & Ivancevich, 1978	Hospital personnel	l 62	nr	31
Lyons, 1971	Nurses	156	nr	27
Margolis, Kroes, & Quinn, 1974	Representative national sample	1496	nr	07
Morris & Snyder, 1979	Permanent, nonacademic university staff	262	30	– 25
Rizzo, House, & Lirtzman, 1970; see also House & Rizzo, 1972b	Employees in manufacturing firm			
	-Central office and main plant	199	07	14
	-Research and engineering	91	06	29
Rousseau, 1978	Electronic firm and broadcasting company employees	271	23	33
Schuler, Aldag, & Brief, 1977; see also Brief & Aldag, 1976	Nursing aides and assistants	70	23	25
	Food service and janitorial hospital staff	99	17	15
Senatra, 1980	Senior auditors	88	39	38
	Task/skill variety			
Keller, Szilagyi, & Holland, 1977	R&D employees	363	-01	- 36

APPENDIX *(Continued)*

Source	Population	N	rconflict	rambiguity
	Task/skill variety			
Moorhead, 1981	Physicians	16 units	-48	28
Rousseau, 1982	Sample of U.S. labor force	1515	20	-10
Schuler, Aldag, & Brief, 1977; Brief & Aldag, 1976	Public utility employees	272	03	-18
	Hospital workers	99	14	-01
	Nurses' aides and assistants	70	- 08	-15
	Nurses	374	02	04
Vredenburgh & Trinkaus, 1983	Nurses	566	00	20
Walsh, Taber, & Beehr, 1980	Manufacturing employees			
	-Shop	486	nr	00
	-Office	96	nr	-16
	-Management	232	nr	- 08
	Tension and anxiety			
Abdel-Halim, 1978	White, male, middle-lower level managers	89	19	35
Bagozzi, 1978	Industrial salespeople assigned to territories	123	nr	44
	Industrial salespeople assigned to accounts	38	nr	42
Batlis, 1980b; see also Baths, 1980a	Supermarket department managers	111	37	32
Bedeian & Armenakis, 1981; Bedeian, Armenakis, & Curran, 1981	Nursing staff from five levels	202	69	39d
Beehr, Walsh, & Taber, 1976	White-collar, time-clock employees	134	nr	26
Breaugh, 1980	Production department workers	101	nr	29
Caplan & Jones, 1975	Males using a computer facility	122	nr	31"
Caplan, Cobb, French, Harrison & Pinneau, 1980	National sample of white, educated males	316	26	17

uurass, ttammel, Heinen, & Johnson, 1978				
French & Caplan, 1972	Salesmen	800	nr	39
Fulk & Wendler, 1982	Managerial and clerical employees	308	32	33
Gavin & Axelrod, 1977; see also Axelrod & Gavin, 1980	Mining managers	33	30	23
	-White collar	37	49	49
	-Blue collar			
Hamner & Tosi, 1974	High level managers	61	27	33
Ivancevich, 1980	Engineers and supervisors	307	nr	-11
Ivancevich & Donnelly, 1974; see also Donnelly & Ivancevich, 1975	Salesmen	86	nr	36
	Production supervisors	48	nr	39
	Operating employees	127	nr	78
Jackson, 1983	Hospital nursing staff			
	-Time I	87	10	30
	-Time 2	66	35	43
Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964	Male interviewees from diverse jobs and organizations	53	nr	51
Keenan & McBain, 1979	Middle managers	90	12	31
Kelly, Gable, & Hise, 1981	Retail store managers	179	35	53
Lyon & Ivancevich, 1978	Hospital personnel	162	nr	64
Lyons, 1971	Nurses	156	nr	59
Miles, 1975; see also Miles, 1976a,b; Miles & Petty, 1975	Males from nine R&D government organizations	148	31d	22"
Morris & Koch, 1979	Professional, clerical, and manual employees	259	32	22
Paul, 1974	Male teachers	293	nr	57
	Female teachers	287	nr	56
Rizzo, House, & Lirtzman, 1970; see also House & Rizzo, 1972b	Employees in a manufacturing firm			
	-Central office and main plant	199	20	12
	-Research and engineering	91	12	22

APPENDIX *(Continued)*

Source	Population	N	rconFlict	rambiguity
	Tension and anxiety			
Rousseau, 1978	Electronics firm and broadcasting company employees	271	25	25
Schriesheim & Murphy, 1976	Black social service counselors	54	nr	24
Schuler, Aldag, & Brief, 1977; see also Brief & Aldag, 1976	Food service and janitorial hospital staff	99	17	12
	Nursing aides and assistants	70	45°	25e
Senatra, 1980	Senior auditors	88	55	31
Tosi, 1971	Consumer loan office managers	488	14	-07
Tosi & Tosi, 1970	Elementary and secondary teachers	68	18	08
Caplan, Cobb, French, Harrison, & Pinneau, 1980	National sample of white, educated males	314	03	-14
Kelly, Gable, & Hise, 1981	Retail store managers	179	11	-11
Morris, Steers, & Koch, 1979	Professional, clerical, and maintenance	252	07	- 09
Organ & Greene, 1974b	Senior scientists and engineers	92	nr	21
Rizzo, House, & Lirtzman, 1970	Manufacturing firm employees			
	-Central office and main plant	199	00	-22
	-Research and engineering	91	28	-03
Rousseau, 1978	Electronics firm and broadcasting employees	271	-06	-12
Walker, Churchill, & Ford, 1975; Churchill, Ford, & Walker, 1976	Salesmen from ten companies and seven industries	265	-12	-18

Sources are ordered alphabetically for each variable. Variable groupings are also ordered alphabetically.

[b] nr indicates the correlation coefficient was not reported.

Decimals are omitted.

Variables reported were obtained by averaging correlation coefficients presented within a study or by averaging discrepant results from multiple sources.

High scores indicate external locus of control.

ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES 36, 16-78 (1985)

A Meta-analysis and Conceptual Critique of Research on Role Ambiguity and Role Conflict in Work Settings

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Reprinted from ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES, Vol. 36, No. 1, August 1985