

A Review and Meta-Analysis of the Antecedents, Correlates, and Consequences of Organizational Commitment

John E. Mathieu and Dennis M. Zajac
Pennsylvania State University

In this article, we summarize previous empirical studies that examined antecedents, correlates, and/or consequences of organizational commitment using meta-analysis. In total, 48 meta-analyses were conducted, including 26 variables classified as antecedents, 8 as consequences, and 14 as correlates. Statistical artifacts were found to account for the variance between studies in only one meta-analysis that used attendance. Type of organizational commitment (attitudinal vs. calculative) was proposed as a moderator variable and was found to account for significant between-study variance in 9 of 18 comparisons. Theoretical and methodological issues pertaining to the measurement of various forms of organizational commitment, its interrelations with other forms of attachments, and its role in causal models of behavior in organizations are reviewed. Directions for future research are highlighted.

In the past decade or so, the concept of organizational commitment (OC) has grown in popularity in the literatures of industrial/organizational psychology and organizational behavior. The concept has received a great deal of empirical study both as a consequence and an antecedent of other work-related variables of interest. As a consequence, OC has been linked to several personal variables, role states, and aspects of the work environment ranging from job characteristics to dimensions of organizational structure. As an antecedent, OC has been used to predict employees' absenteeism, performance, turnover, and other behaviors. In addition, several other variables of interest, perhaps best referred to as correlates (e.g., job involvement and job satisfaction), have demonstrated relationships with OC (for narrative reviews of this literature, see Morrow, 1983; Mowday, Porter, & Steers, 1982; Reichers, 1985; and Steers, 1977).

Mowday et al. (1982) have suggested that gaining a greater understanding of the processes related to organizational commitment has implications for employees, organizations, and society as a whole. Employees' level of commitment to an organization may make them more eligible to receive both extrinsic (e.g., wages and benefits) and psychological (e.g., intrinsic job satisfaction and relationships with coworkers) rewards associated with membership. Organizations value commitment among their employees, which is typically assumed to reduce withdrawal behaviors such as lateness and turnover. In addition, committed employees may be more likely to engage in "extra-role" behaviors, such as creativeness or innovativeness, which are often what keeps an organization competitive (Katz & Kahn, 1978). From a larger perspective, a society as a whole tends to benefit from employees' organizational commitment

in terms of lower rates of job movement and perhaps higher national productivity or work quality or both.

Given the amount of speculation concerning the role of employees' commitment to organizations and the amount of research that has been devoted to the topic in recent years, it is useful to consider what is known about the concept and to identify the most fruitful avenues for future research. Accordingly, the purpose of this article is fourfold. First, we review the empirical findings from research on OC using meta-analysis. Second, we consider recent theoretical developments related to OC. Third, we discuss several methodological issues pertaining to the study of OC. Finally, we offer suggestions for future research.

With the increased popularity of the concept of commitment, one observes a proliferation of foci, types, definitions, and measures of the construct. Morrow (1983) discussed the fact that there are several different foci for work commitment, including (a) value or personal (e.g., Protestant work ethic); (b) career; (c) job (e.g., job involvement and job orientation); and (d) union, in addition to a focus on one's organization. Reichers (1985) advanced a similar position and argued for a multiple constituency model of organizational commitment. Both Morrow and Reichers illustrated the importance of clarity with respect to the foci, or referents, of commitment research. In this article, we delineate the various foci of work commitments and reserve our definition of OC to *strictly that which is directed toward one's employing organization*. The Protestant work ethic is examined as an antecedent, and the other foci are considered as correlates of organizational commitment. Morrow and McElroy (1986) have argued that, although related, these various forms of work commitment are both conceptually and empirically distinct.

Organizational commitment has been defined and measured in several different fashions. The various definitions and measures share a common theme in that OC is considered to be a bond or linking of the individual to the organization. The definitions differ in terms of how this bond is considered to have

We would like to thank Frank Landy, Jim Farr, Michael Frese, and two anonymous reviewers for their many helpful comments and suggestions on an earlier version of this article.

Correspondence concerning this article should be addressed to John E. Mathieu, 437 Moore Building, Department of Psychology, Pennsylvania State University, University Park, Pennsylvania 16802.

developed. The most commonly studied type of OC has been *attitudinal*, most often measured with a scale developed by Porter and his colleagues (Mowday, Steers, & Porter, 1979; Porter, Steers, Mowday, & Boulian, 1974). Attitudinal OC is defined as

the relative strength of an individual's identification with and involvement in a particular organization. Conceptually, it can be characterized by at least three factors: a) a strong belief in and acceptance of the organization's goals and values; b) a willingness to exert considerable effort on behalf of the organization; and c) a strong desire to maintain membership in the organization. (Mowday et al., 1982, p. 27)

The second most popular form of OC studied has been *calculated* commitment. Built upon the work of Becker (1960), calculative OC is defined as "a structural phenomenon which occurs as a result of individual-organizational transactions and alterations in side-bets or investments over time" (Hrebiniak & Alutto, 1972, p. 556). In this sense, individuals become bound to an organization because they have side bets, or sunk costs (e.g., a pension plan), invested in the organization and cannot "afford" to separate themselves from it. Researchers have most frequently used a scale developed by Hrebiniak and Alutto (1972) to measure this form of OC.

Other types of OC have emerged, including normative commitment (Wiener, 1982) and organizational identification (Hall, Schneider, & Nygren, 1970). By and large, however, these other forms of OC have either been subsumed into the attitudinal or calculative definitions, or distinguished from commitment to the organization and treated as correlates. For example, organizational identification constitutes one of the subdimensions of attitudinal commitment as defined by Mowday et al. (1982). Normative commitment describes a process whereby organizational actions (e.g., selection, socialization procedures) as well as individual predispositions (e.g., personal-organizational value congruence and generalized loyalty or duty attitudes) lead to the development of OC (Wiener, 1982). Notice, however, that although this approach proposes a model of how commitment develops over time, it still considers OC as a resulting state or bond between employees and the organization. It is upon this concept of OC as a resulting state that we focus our attention here.

It should also be noted that attitudinal and calculative commitment are not entirely distinguishable concepts, and that the measurement of each contains elements of the other. Further, one may be drawn initially to an organization because of exchange relationships (i.e., calculative OC), yet develop attitudes consistent with maintaining membership (i.e., attitudinal OC). This suggests that the two processes may become more closely linked over time. Nonetheless, the two forms of OC are sufficiently distinct to permit comparisons between their relative relationships with other variables of interest. In the following section, we summarize a series of bivariate relationships between OC and a wide range of variables. This review serves as a foundation for the theoretical and methodological sections that follow. We conclude with recommendations for future research in this area.

META-ANALYSIS

Meta-analysis has recently come to be recognized as a means of quantitatively determining when findings from previous research on a certain topic have been consistent and when they have been inconsistent, suggesting the likelihood of moderated relationships (Glass, McGaw, & Smith, 1981; Hunter, Schmidt, & Jackson, 1982; Rosenthal, 1984). Meta-analysis techniques have been used to test certain hypotheses regarding the relationships between several variables and different types of OC. In this fashion, meta-analysis is used not only as a summary device, but also as a hypothesis-testing technique.

In the present application, we used the meta-analysis procedures outlined by Hunter et al. (1982). The Hunter et al. technique first considers the extent to which differences among study outcomes are attributable to statistical artifacts. Specifically, the influences of measurement unreliability and sampling error (i.e., relative sample sizes) on correlations between OC and other variables are removed to establish population estimates of their "true" relationships, and to determine whether sufficient variance between studies remains to warrant a search for moderator variables. In instances where significant between-study variance in findings remained after the corrections for statistical artifacts, we advanced and tested hypotheses regarding whether the findings would differ as a result of the type of OC assessed in the different studies.

Method

Literature Search

A search for published studies that included empirical findings involving OC was conducted using both computer and manual methods. The computer search scanned the PSYINFO (1967-1986) and Management Contents (1974-1986) data bases. The manual search was conducted in three fashions. First, the reference lists of previous reviews of the OC literature (e.g., Morrow, 1983; Mowday et al., 1982; Reichers, 1985; Salancik, 1977) were scanned for relevant studies. Second, the Social Citation Index Volumes through September 1987 were used to identify articles that referenced either the Hrebiniak and Alutto (1972) study or any of several early studies conducted by Porter and his colleagues (e.g., Porter et al., 1974). This strategy was adopted because of the popular use of the instruments reported in those articles. Finally, an article-by-article search of the *Journal of Applied Psychology*, the *Academy of Management Journal*, *Administrative Science Quarterly*, *Human Relations*, *Organizational Behavior and Human Decision Processes*, and *Personnel Psychology* was performed for the period January 1980 through September 1987. This final effort revealed several studies that were designed primarily to investigate other topics, yet included correlations with OC.

The search process yielded over 200 articles that presented empirical findings that could be used in the meta-analyses. No restrictions were placed on the inclusion of studies other than that they must have measured and analyzed OC at the individual level of analysis. The studies included contained correlations between OC and a wide array of variables. Hunter et al. (1982) suggested that meta-analysis can be conducted with as few as two samples; however, in order to remain manageable, we only present results for variables with three or more correlations. Thus, the present study includes meta-analyses of correlations between 48 variables and OC drawn from 174 independent sam-

ples that were presented in 124 published studies.¹ Data were coded separately for independent samples presented in the same article. This permitted a more detailed investigation of potential moderator variables than would have aggregating samples within each study (cf. Hunter et al.).

Sample Characteristics

Several sample characteristics were coded for use in either the Hunter et al. (1982) meta-analysis procedures or as potential moderators. Each author coded half of the studies. The average sample size ranged from a low of 23 to a high of 1,935 ($M = 294$, $SD = 333$). The average reported sample demographics were as follows: age ($M = 34.84$, $SD = 4.99$), sex (50% male, $SD = 37\%$), and education ($M = 2.42$, $SD = 1.04$, on a scale coded 1 = high school, 2 = some college, 3 = bachelor's degree, 4 = master's degree, and 5 = master's degree).

The type of OC assessed in each study (i.e., the manner in which OC was operationalized) was coded for use as a moderator variable. One hundred thirty-two of the samples assessed attitudinal commitment, 28 assessed calculative commitment, and 14 either combined the two types or assessed OC in another fashion (e.g., organizational attachment). In order to assess the reliability of this coding, we selected 30 studies at random and coded them separately. We exhibited 100% agreement on the types of OC used in this sample. Several other sample characteristics were considered for coding as moderators (e.g., the type of job and organization sampled), but none were reported consistently enough to permit extensive examinations of their role as a moderator.

Scale Reliabilities

Scale reliabilities were recorded for use in the meta-analysis procedure. Ninety samples used the 15-item Porter et al. (1974) scale, with 80 ($N = 24,258$) reporting an average internal consistency reliability of .882 ($SD = .038$). Thirteen samples used the 9-item version of the Porter et al. scale, which includes only positively worded items. The average reliability across 9 samples ($N = 1,831$) that reported information was .857 ($SD = .047$). Fifteen ($N = 4,980$) of the 23 samples that assessed OC with the Hrebiniak and Alutto (1972) scale reported an average reliability of .881 ($SD = .044$). Forty-eight samples used other measures of OC, with 26 ($N = 10,963$) reporting an average reliability of .787 ($SD = .140$).

Table 1 contains a list of the other reliability estimates used in the meta-analyses. It should be noted that Table 1 includes only a subset of the variables examined in this study. The remaining variables (e.g., age and job level) had no reliability information reported for any sample. Thus, the reliabilities for these variables were set at 1.00, although it is reasonable to assume that some degree of unreliability exists for even these rather easily assessed variables. In effect, however, this strategy is likely to *undercorrect* sample correlations, and thereby be conservative in assuming generalizability of findings.

Meta-Analysis Procedures

The meta-analyses were conducted following the procedures outlined by Hunter et al. (1982). First, each correlation was corrected for attenuation using the reliabilities reported for each sample. In instances where no reliability was reported, the average reliability for the variable across all samples that reported information was used. For instances where no reliability information was reported for OC, the average reliability for the type of measure used in the study was substituted. Second, the estimated true correlation (\bar{r}_i) between each variable and OC was calculated by summing the corrected correlations multiplied by sample size, and dividing the total by the sum of all individ-

Table 1
Reliability Estimates Used in the Meta-Analyses Calculations

Variable	<i>k</i>	<i>N</i>	<i>r_{xx}</i>
Perceived personal competence	5	1,089	.775
Ability	1	220	.610
Protestant work ethic	7	1,269	.755
Skill variety	2	378	.668
Task autonomy	1	217	.760
Challenge	1	140	.630
Job scope	3	576	.749
Group cohesiveness	1	220	.770
Task interdependence	2	420	.774
Leader initiating structure	11	2,289	.693
Leader consideration	9	1,912	.870
Leader communication	4	583	.800
Participative leadership	3	302	.866
Organizational centralization	2	391	.830
Role ambiguity	18	3,567	.803
Role conflict	20	3,823	.771
Role overload	4	987	.794
Motivation (overall)	1	85	.710
Motivation (internal)	3	780	.502
Job involvement	13	3,339	.775
Stress	10	2,463	.809
Occupational commitment	10	3,579	.851
Union commitment	5	3,407	.792
Job satisfaction			
Overall	17	5,908	.861
Intrinsic	4	852	.715
Extrinsic	3	632	.823
Supervision	11	3,333	.820
Coworkers	10	2,927	.855
Promotion	8	2,283	.850
Pay	8	2,798	.796
Work itself	10	2,437	.855
Job performance			
Others' ratings	5	1,140	.861
Output measure	1	307	.750
Intention to leave	8	2,314	.843
Perceived job alternatives	1	129	.620

Note. *k* = the number of samples providing reliability information, *N* = the total number of individuals in the *k* samples, and *r_{xx}* = the mean reliability of each variable across *k* samples.

uals across the samples. Third, the estimated population standard deviation was computed using the formulas presented by Hunter et al. (1982, chap. 3). Fourth, the percentage of variance across studies attributable to the artifacts of sampling error and measurement unreliability was calculated.

In their work on validity generalization, Schmidt, Hunter, and their colleagues suggested that if 75% or more of the variance across studies is explained by sampling error, measurement unreliability, and range differences between samples, then the likelihood of the presence of moderated relationships is negligible (e.g., Pearlman, Schmidt, & Hunter, 1980). It should be noted, however, that the 75% rule was proposed for meta-analyses that correct for three sources of artifactual variance. In the present study, we corrected only for sampling error and measurement unreliability. It was not possible to correct for range differences because so few studies reported scale ranges, means, and stan-

¹ A complete list of the studies included in each meta-analysis is available.

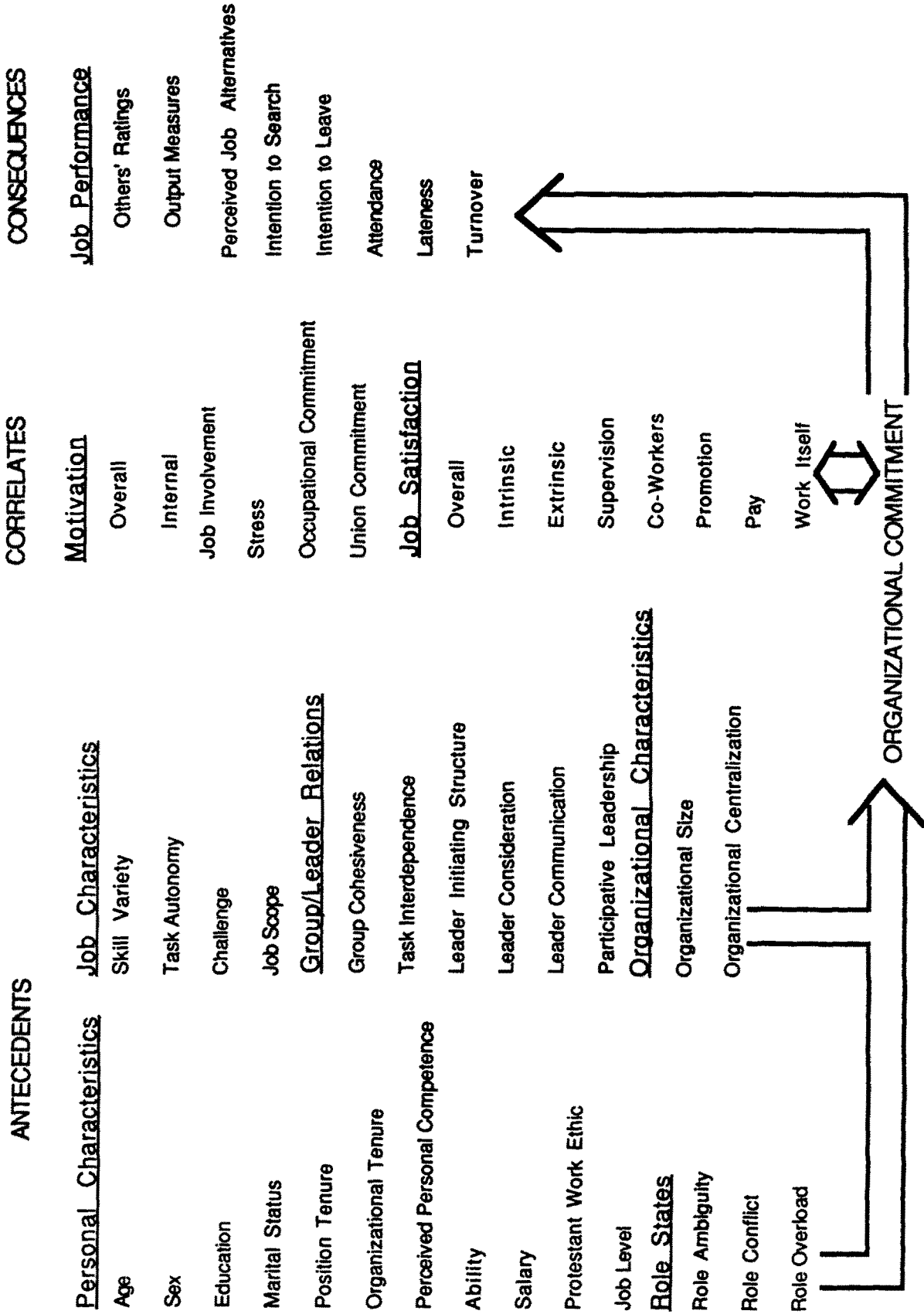


Figure 1. Classification of antecedents, correlates, and consequences of organizational commitment.

Table 2
Meta-Analysis Results of Antecedents of Organizational Commitment

Antecedents	<i>k</i>	<i>N</i>	\bar{r}	\bar{r}_t	<i>SD_t</i>	%	χ^2
Personal characteristics							
Age	41	10,335	.200	.201	.103	26	119.72**
Sex ^a	14	7,421	-.089	-.145	.165	6	210.22**
Education	22	4,914	-.043	-.092	.137	19	94.29**
Marital status ^b	6	2,116	.091	.106 ^c	.020	88	.84
Position tenure	8	1,574	.125	.091	.076	46	9.28
Organizational tenure	38	12,290	.183	.170	.113	19	167.28**
Perceived personal competence	5	1,089	.490	.630	.072	33	15.28*
Ability	3	1,114	.088	.136 ^c	—	100	—
Salary	7	980	.169	.182 ^c	.036	84	1.38
Protestant work ethic	7	1,269	.173	.289	.195	11	57.21**
Job level	13	3,520	.151	.178	.161	12	97.69**
Job characteristics							
Skill variety	6	921	.143	.207 ^c	.099	39	9.80
Task autonomy	3	704	.153	.083	.201	9	28.82**
Challenge	3	351	.227	.349	.206	15	19.36**
Job scope	5	951	.384	.503 ^c	—	100	—
Group-leader relations							
Group cohesiveness	3	925	.132	.149	.281	4	76.36**
Task interdependence	4	752	.185	.220 ^c	.069	51	3.93
Leader initiating structure	14	3,019	.213	.289	.210	9	157.98**
Leader consideration	12	2,642	.237	.335	.178	11	105.60**
Leader communication	4	583	.408	.454 ^c	.053	65	2.53
Participative leadership	3	302	.337	.386 ^c	—	100	—
Organizational characteristics							
Organizational size	3	1,054	-.050	-.001	.108	20	12.33**
Organizational centralization	3	1,025	.006	-.061	.234	5	56.55**
Role states							
Role ambiguity	21	4,528	-.239	-.218	.287	5	410.13**
Role conflict	24	4,989	-.270	-.271	.222	8	285.22**
Role overload	5	1,621	-.141	-.206	.136	13	32.88*

Note. *k* = the number of samples in each analysis; *N* = the total number of individuals in the *k* samples; \bar{r} = the mean uncorrected correlation; \bar{r}_t = the mean weighted correlation corrected for attenuation; *SD_t* = the estimated population standard deviation; % = the percentage of variance across samples attributable to statistical artifacts; and χ^2 = a chi-square test for variance remaining unaccounted for.

^a Sex coded lower for women. ^b Marital status coded higher for married. ^c Indicates that the 95% confidence interval does not contain zero.

* *p* < .05. ** *p* < .01.

standard deviations. Thus, a lower percentage of artifactual variance, perhaps 50–60%, across studies is probably appropriate for meta-analyses that only correct for two factors. Because there is some ambiguity concerning what percentage should be used for ruling out the presence of moderators, we relied more heavily on a chi-square test of the significance of the variance across the studies remaining after corrections for artifacts (cf. Sackett, Harris, & Orr, 1986, p. 304).

Results and Discussion

Summaries of the 48 meta-analyses are presented in Tables 2, 3, and 4. The results of the meta-analyses are discussed in three general categories: antecedents, correlates, and consequences. The variables included in each of these broad categories are depicted in Figure 1. Personal characteristics, job characteristics, group-leader relations, organizational characteristics, and role states have generally been considered as antecedents of commitment (Mowday et al., 1982, Steers, 1977). The results of the meta-analyses conducted with these variables are presented in Table 2. Affective responses represent a category of variables

that, like commitment, describe individuals' psychological reactions to the work environment. Because it is difficult to specify the causal precedence of different affective responses, these variables are simply considered as correlates of commitment. Table 3 contains the results of the meta-analyses conducted with these variables. Finally, behavioral intentions and actual behaviors are generally considered to be consequences of OC, and the meta-analyses conducted with these variables are summarized in Table 4. Whether the variables examined in the meta-analyses serve as antecedents, consequences, or correlates of OC is an issue that need not be resolved here. Undoubtedly, over time there is some amount of reciprocal causation between commitment and many of these variables. We will consider these issues more closely later in the theoretical section. For the present purposes, however, this classification scheme provides a useful heuristic for discussing the results. Each subsection is followed by a brief summary of the pattern of relations observed. Adopting the conventions suggested by Cohen (1969), we considered corrected correlations in the range of 0–.20 as small, between .21 and .40 as medium, and above .40 as large.

Table 3
Meta-Analysis Results of Correlates of Organizational Commitment

Correlates	<i>k</i>	<i>N</i>	\bar{r}	\bar{r}_i	<i>SD_i</i>	%	χ^2
Motivation (overall)	5	1,357	.436	.563 ^a	—	100	—
Motivation (internal)	5	1,739	.407	.668 ^a	.182	5	187.78*
Job involvement	20	5,779	.356	.439 ^a	.190	7	318.11*
Stress	16	3,850	-.294	-.330 ^a	.136	16	89.81*
Occupational commitment	22	5,131	.273	.438	.243	5	462.59*
Union commitment	5	3,407	.236	.215	.115	19	49.53*
Job satisfaction							
Overall	43	15,531	.488	.533 ^a	.241	3	1,756.02*
Intrinsic	4	852	.278	.349 ^a	.053	59	3.12
Extrinsic	3	632	.170	.167 ^a	.068	50	3.07
Supervision	23	5,236	.297	.409 ^a	.154	13	178.78*
Coworkers	22	4,830	.260	.348 ^a	.114	22	81.77*
Promotion	22	4,819	.284	.392 ^a	.111	23	82.57*
Pay	21	4,850	.212	.323 ^a	.161	13	156.97*
Work itself	24	4,973	.430	.595 ^a	.160	9	304.19*

Note. *k* = the number of samples in each analysis; *N* = the total number of individuals in the *k* samples; \bar{r} = the mean uncorrected correlation; \bar{r}_i = the mean weighted correlation corrected for attenuation; *SD_i* = the estimated population standard deviation; % = the percentage of variance across samples attributable to statistical artifacts; and χ^2 = a chi-square test for variance remaining unaccounted for.

^a Indicates that the 95% confidence interval does not contain zero.

* *p* < .01.

Before we discuss the individual meta-analyses, a few general observations are appropriate. First, the chi-square tests indicated that statistical artifacts accounted for the between-study variance in 14 of the 48 analyses. Thirteen of these 14 analyses, however, were based on very few (3–7) studies with fairly small average sample sizes. The sole exception to this pattern was the attendance–OC meta-analysis, which included 23 samples. Sackett et al. (1986) have demonstrated that the likelihood of detecting a population difference of .20 or less (i.e., power to detect a true moderator variable) is particularly low for meta-analyses based on so few studies.² Thus, with the exception of attendance, the meta-analyses suggest that it would be premature to rule out moderators of OC–variable relationships at this time.

It should also be noted that the present strategy is likely to protect against Type II errors (falsely excluding the presence of moderators) at the expense of increased Type I errors (falsely concluding the presence of moderators). We have adopted this position in concurrence with Sackett et al.'s (1986) opinion that Type II errors are more severe in meta-analysis, because they might lead to the inappropriate conclusion that the "true" relationship between two variables is known. Conversely, inappropriate acceptance of the presence of moderators is likely to lead to more research and more definitive conclusions in a meta-analysis conducted sometime in the future.

Moderator Hypotheses

Given the fact that corrections for sampling error and attenuation accounted for between-study variance in only the meta-analysis using attendance (among those with sufficient power to rule out moderators), we examined the potential moderating role of type of commitment. Table 5 presents the results from subgroup meta-analyses for 18 variables that had sufficient in-

formation to conduct separate analyses by type of OC. That is, the columns labeled *attitudinal commitment* summarize meta-analyses performed between each variable and OC when commitment was measured as an attitude. The columns labeled *calculative commitment* summarize the corresponding meta-analyses performed between each variable and OC when commitment was measured as calculative. Comparisons between the two sets of meta-analyses permit one to determine whether the manner in which OC is operationalized influences the magnitudes of its correlations with other variables.

We hypothesized that age, organizational tenure, satisfaction with promotion opportunities, satisfaction with pay, intention to leave, and turnover would be more highly related to calculative commitment than to attitudinal commitment. These hypotheses followed from the assumption that older workers, and employees who have been with an organization longer, will have accumulated more "sunk costs," and thereby have become committed to the organization. To the extent that employees are satisfied with their promotional opportunities and pay, the salience of these costs should also be higher. We further as-

² Excluding attendance, the average number of samples included in each of the 13 meta-analyses with nonsignificant chi-squares (see Tables 2–4) was 4.92, the average sample size was 205, and the estimated mean true correlation with OC was $\bar{r}_i = .263$. Sackett et al. (1986, Table 7, p. 309) illustrated that the power of detecting a population difference of .20 in a meta-analysis using artifact–measurement-error distributions, conducted with 4 studies having an average sample size of 200 with an overall mean population correlation of .30 and average reliabilities of .80 (the most representative figures for present study findings), is .503. That is, a conservative estimate of the probability of these analyses correctly identifying the existence of a true moderator at the .20 level is roughly 50%. The likelihood of correctly identifying a true moderator at the .10 level is roughly 14%.

Table 4
Meta-Analysis Results of Consequences of Organizational Commitment

Consequences	<i>k</i>	<i>N</i>	\bar{r}	\bar{r}_t	<i>SD_t</i>	%	χ^2
Job performance							
Others' ratings	10	2,215	.130	.135	.089	36	18.10*
Output measure	6	758	.018	.054	.091	49	6.25
Perceived job alternatives	7	2,657	-.095	-.085	.225	5	136.79*
Intention to search	5	1,513	-.482	-.599 ^a	.177	5	115.71*
Intention to leave	36	14,080	-.411	-.464 ^a	.181	5	751.73*
Attendance	23	4,005	.119	.102 ^a	.024	91	2.33
Lateness	6	1,485	-.110	-.116	.059	53	5.30
Turnover	26	8,197	-.245	-.277	.138	13	183.33*

Note. *k* = the number of samples in each analysis; *N* = the total number of individuals in the *k* samples; \bar{r} = the mean uncorrected correlation; \bar{r}_t = the mean weighted correlation corrected for attenuation; *SD_t* = the estimated population standard deviation; % = the percentage of variance across samples attributable to statistical artifacts; and χ^2 = a chi-square test for variance remaining unaccounted for.

^a Indicates that the 95% confidence interval does not contain zero.

* $p < .01$.

sumed that investments would have a greater influence on turnover-related processes than would attitudinal constructs. Alternatively, we hypothesized that attitudinal commitment would correspond more closely with other affective responses to the work environment and be correlated more highly with job involvement; overall satisfaction; satisfaction with supervision, coworkers, work; and occupational commitment. The potential moderating influences of type of OC on the remaining variables were examined in strictly an exploratory fashion.

Hunter et al. (1982) suggested that "a moderator variable will show itself in two ways: (1) the average correlation will vary from subset to subset [i.e., between the types of commitment] and (2) the corrected variance will average lower in the subsets than for the data as a whole" (p. 48). In addition, the differences between the subset results were tested statistically using a *t* test designed for small samples with unequal variances (Winer, 1971, pp. 41–42). The results of these tests are also presented in Table 5. Using Hunter et al.'s "rule of thumb," type of commitment was confirmed as a moderator in 17 of 18 instances; the exception was the analysis using others' ratings of performance. The more conservative (in terms of confirming the presence of a moderator) *t* tests were significant in only 9 instances. The specific findings are discussed below.

Antecedents

Personal Characteristics

Age. The full meta-analysis yielded a medium positive correlation, corrected for sampling error and attenuation, of $\bar{r}_t = .201$ between age and commitment. Only 26% of the between-study variance was attributable to statistical artifacts. Contrary to our hypothesis, the moderator analysis by type of commitment indicated that age was significantly more related to attitudinal than to calculative commitment, $t(32) = 1.82$, $p < .05$.

Many researchers (e.g., March & Simon, 1958) have suggested that age should be more highly related to calculative commitment. This relationship is typically attributed to limited alter-

native opportunities and greater sunk costs in later years. However, Meyer and Allen (1984) have suggested that older workers become more attitudinally committed to an organization for a variety of reasons, including greater satisfaction with their jobs, having received better positions, and having "cognitively justified" their remaining in an organization.

Sex. Study correlations between sex and OC were coded such that men were represented by higher values. The full meta-analysis using all correlations indicated that women tend to be more committed than men ($\bar{r}_t = -.145$), although the magnitude of this effect is small. Grusky (1966) proposed that women would become more committed to an organization because they had to overcome more barriers than men to gain membership. Presently, over 20 years later, this interpretation may need to be tempered. The moderator analysis by commitment type illustrated a slightly stronger relationship between sex and attitudinal commitment, but, in general, there appears to be no consistent relationship between sex and levels of OC.

Education. Education exhibited a small negative correlation ($\bar{r}_t = -.092$) with commitment. Although the magnitude of the relationship was small, it was significantly stronger (i.e., more negative), $t(14) = 2.00$, $p < .05$, for attitudinal as compared with calculative commitment. Mowday et al. (1982) concluded "that this inverse relationship may result from the fact that more educated individuals have higher expectations that the organization may be unable to meet" (p. 30). It may also be that more educated employees have a greater number of job options and are less likely to become entrenched in any one position or company.

Marital status. Marital status correlations were coded such that higher values referred to married individuals. This variable exhibited only a small positive correlation ($\bar{r}_t = .106$) with commitment. Over 88% of the between-study variance was accounted for by statistical artifacts. However, as noted earlier, the power to detect a moderator variable is very low in this instance because only five samples were included. Little theoretical work has been devoted to specifying why marital status may be related to commitment, and most authors seem to have included it more as a descriptive statistic than as an explanatory

Table 5
Moderator Analysis by Type of Commitment

Variable	Attitudinal commitment			Calculative commitment			<i>t</i>	<i>df</i> ^b
	<i>k</i>	\bar{r}_i	<i>SD</i> _{<i>i</i>}	<i>k</i>	\bar{r}_i	<i>SD</i> _{<i>i</i>}		
Age	26	.221	.114	13	.167	.070	1.82*	32
Sex ^a	7	-.179	.197	5	-.113	.065	.85	11
Education	14	-.114	.121	7	-.004	.118	2.00*	14
Position tenure	5	.152	.034	3	.025	.051	3.88**	5
Organizational tenure	25	.153	.143	11	.200	.036	1.52	36
Job level	10	.209	.161	2	.094	.078	1.52	4
Job involvement	15	.465	.188	3	.269	.057	3.35**	8
Stress	9	-.322	.169	7	-.353	.000	1.56	8
Occupational commitment	11	.451	.072	5	.501	.227	-.49	6
Job satisfaction								
Overall	29	.688	.119	10	.230	.079	13.81**	21
Supervision	17	.446	.124	3	.229	.000	7.22**	16
Coworkers	16	.378	.091	3	.233	.103	2.27	3
Promotion	16	.419	.075	3	.212	.051	5.80**	4
Pay	16	.338	.153	3	.306	.000	.84	15
Work itself	19	.629	.112	3	.332	.000	11.47**	18
Job performance								
Others' ratings	8	.131	.083	2	.156	.112	-.30	2
Intention to leave	27	-.520	.155	6	-.221	.038	-8.90**	19
Turnover	21	-.283	.149	4	-.250	.000	-1.08	19

Note. *k* = the number of samples in each analysis; \bar{r}_i = the mean weighted correlation corrected for attenuation; and *SD*_{*i*} = the estimated population standard deviation.

^a Sex coded lower for women. ^b Estimated degrees of freedom (Winer, 1971, p. 42).

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed).

variable. It seems reasonable to predict that marital status may be more related to calculative commitment because married employees are, in general, likely to have greater financial burdens. However, this remains an issue for future research because too few samples were available to conduct such a moderator analysis.

Position and organizational tenure. Tenure has often been used as a surrogate measure of side bets (Meyer & Allen, 1984). The general assumption is that as individuals accumulate more years with a company, they are likely to acquire greater investments (e.g., pension plan contributions). It is important to distinguish tenure with the *organization* from tenure in a particular *position*. Naturally, the two concepts will be related to the extent employees have not changed jobs within an organization. Organizational tenure, however, is likely to be a better surrogate measure of side bets.

The full meta-analysis showed organizational tenure to be more related to commitment ($\bar{r}_i = .170$) than was position tenure ($\bar{r}_i = .091$), although both effects were small. Interestingly, the moderator analysis by type of commitment showed position tenure to be significantly more positively related to attitudinal commitment, $t(6) = 3.88$, $p < .05$, whereas organizational tenure tended to be more positively related to calculative commitment, $t(36) = 1.52$, $p < .10$. Thus, these two variables may interact as related to OC. Specifically, it appears as though years spent in a particular position may build an employee's psychological attachment to an organization. Years spent in an organization are likely to yield greater side bets, such as a pension

plan, and develop greater calculative commitment. The causal direction of these relationships (i.e., whether increased tenure increases commitment or whether more committed employees stay with an organization longer) is unclear and likely to be reciprocal.

Perceived competence. Perceived competence exhibited a large positive correlation ($\bar{r}_i = .630$) with commitment across five samples, all of which assessed attitudinal commitment. Morris and Sherman (1981) interpreted this finding as indicating that self-referent processes may serve as a means of linking an individual to the organization. That is, individuals will become committed to an organization to the extent that it provides for growth and achievement needs. This interpretation, and the present findings, must be considered as tentative given the limited amount of research attention this relationship has received.

Ability. An average corrected correlation of $\bar{r}_i = .136$ was obtained from three studies that assessed employees' ability or skill level and commitment. Statistical artifacts accounted for all of the between-study variance. Stevens, Beyer, and Trice (1978) suggested that highly skilled employees are of great value to organizations, which is likely to increase the rewards they receive, and thereby increase their calculative commitment. Howell and Dorfman (1981) examined employees' skill level as a potential substitute for leadership. However, neither the moderated relationship nor a significant zero-order correlation between ability level and commitment were obtained. In summary, because little theoretical development has been directed

toward this relationship, and only three studies were available for analysis, it seems premature to speculate on how employees' abilities may relate to their commitment levels.

Salary. Data from seven samples were consistent and indicated a fairly low positive correlation ($\bar{r}_i = .182$) between salary and commitment; 84% of the variance between studies was attributable to artifacts. Salary is generally considered to represent a side bet and to thereby increase calculative commitment. Unfortunately, six of the seven samples included here used attitudinal measures of commitment, which precluded a direct test of the moderating effect of type of commitment. Salary levels may also increase feelings of self-esteem and thereby account for the positive relationship with attitudinal commitment. Thus, an empirical question for future research is whether the processes that link salary to OC differ for the two types of commitment.

Protestant work ethic. Several work values have been proposed as potential antecedents of OC (Mowday et al., 1982). However, only the Protestant work ethic, defined as "[commitment] to the values of hard work, to work itself as an objective, and the work organization as an inevitable structure within which those internalized values can be satisfied" (Kidron, 1978, p. 240), has received sufficient research attention to be included in the present meta-analysis. It was found to correlate positively with OC at a moderate level ($\bar{r}_i = .289$), although only 11% of the between-study variance was attributable to artifacts.

Job level. Job level correlated positively with commitment ($\bar{r}_i = .178$) across 13 samples, and statistical artifacts accounted for only 12% of the variance between studies. The moderator analysis by type of commitment indicated that job level tended to be more highly related to attitudinal commitment, although this difference was not significant, $t(4) = 1.52, p > .05$.

Job Characteristics

Although the relationships between various job characteristics and OC have been examined in several studies, no theoretical models have been proposed to explain why they should be related. Most authors have drawn upon Hackman and Oldham's (1976) job characteristic model to suggest that enriched jobs are likely to yield higher OC (Steers, 1977). Recent meta-analyses of empirical tests of the validity of the job characteristics model (Fried & Ferris, 1987; Loher, Noe, Moeller, & Fitzgerald, 1985; Spector, 1985) have generally supported its propositions; thus, it may provide a useful framework for examining relationships between aspects of jobs and organizational commitment. Sufficient data were available to conduct separate meta-analyses for skill variety and autonomy, as well as overall job scope. In addition, three samples provided correlations between job challenge and OC.

As shown in Table 2, skill variety and OC exhibited a medium positive correlation ($\bar{r}_i = .207$), and over 60% of the variance across studies remained unaccounted for after corrections for artifacts. The only sample examined that contained a negative correlation was also the only one that surveyed part-time employees (Still, 1983). Still examined attitude differences between full- and part-time employees and found a slight negative ($r = -.070$) correlation between skill variety and commitment

for part-time employees, who were predominantly students. This suggests that aspects of the job may have little impact on commitment levels of employees for whom work is a secondary role.

There was a small positive ($\bar{r}_i = .083$) correlation between autonomy and OC. Only 9% of the variance between studies was attributable to artifacts. Job challenge correlated positively ($\bar{r}_i = .349$) with OC, although over 85% of the variance between samples remained after corrections for artifacts. Although job challenge is not formally a component of the job characteristic model, it does follow that more challenging jobs should yield higher OC, particularly for employees with high growth need strength. However, no study to date has tested this relationship directly.

The more general job scope variable (generally computed as the average of the job characteristic model components) correlated more highly ($\bar{r}_i = .503$) and more consistently with commitment than did any of the three components previously listed. The variance between samples was completely attributable to statistical artifacts. Stone and Gueutal (1985) conducted an empirical study of the dimensions along which characteristics of jobs are perceived, and concluded that "it seems that individuals do not view jobs as having certain levels of variety, autonomy, task significance, and so forth, but instead see jobs in terms of a gestalt or summary dimension that might be labeled job complexity" (p. 391). Their results and the present meta-analyses suggest that jobs that are perceived to be more complex, or perhaps enriched, yield higher commitment levels. Again, borrowing the logic of the job characteristic model, employee growth need strength would be hypothesized to be a moderator of this relationship. One study that has tested this hypothesis directly, however, did not support the role of growth need strength as a moderator (Blau, 1987).

Group-Leader Relations

Group cohesiveness. Stone and Porter (1975) and Welsch and LaVan (1981) reported positive correlations between group cohesiveness and OC, although Howell and Dorfman (1981) obtained a negative relationship. Combined, the three studies yield a corrected correlation of $\bar{r}_i = .149$. The studies sampled different populations, all assessed attitudinal commitment, and none offered any clear explanation for its findings. Statistical artifacts accounted for only 4% of the between-study variance. Thus, no definitive conclusions from this analysis seem warranted.

Task interdependence. Four studies presented task interdependence-OC correlations, yielding an average corrected correlation of $\bar{r}_i = .220$. Three studies (Jermier & Berkes, 1979; Morris & Steers, 1980; Steers & Spencer, 1977) assessed attitudinal commitment and exhibited an average uncorrected correlation of $r = .227$, whereas the single study that measured calculative commitment (Parasuraman & Alutto, 1984) reported a correlation of only $r = .060$. Morris and Steers (1980) suggested that when employees experience high functional dependence, they become more aware of their own contribution to the organization and to their immediate work group (p. 56). This heightened awareness may enhance employees' ego involve-

ment and thereby increase their attitudinal commitment to the organization. This hypothesis offers an interesting question for future inquiries.

Leader initiating structure and consideration. Correlations between OC and leader initiating structure and leader consideration were available from 14 and 12 samples, respectively. Most studies assessed leader behaviors with one of the several forms of the Leader Behavior Description Questionnaire (LBDQ) that have appeared in the past few decades (Schriesheim & Kerr, 1974). The results of the meta-analyses showed medium positive correlations for each behavior (initiating structure: $\bar{r}_i = .289$, $SD_i = .210$; consideration: $\bar{r}_i = .335$, $SD_i = .178$), although significant between-study variance remained following corrections for artifacts in both instances (91% and 89%, respectively). The latter findings are not surprising given the proliferation of contingency theories of leadership.

Many of the zero-order correlations included in the meta-analyses were drawn from studies designed explicitly to test moderated relationships. For example, Howell and Dorfman (1981) examined several potential substitutes and neutralizers of leader behaviors, Jermier and Berkes (1979) tested the role of task characteristics as moderators, and Aldag and Brief (1978) assessed role ambiguity as a mediating variable of leader behavior-OC relationships. The results of these studies, and the substantial between-study variance observed in the meta-analyses, suggest that a continued search for moderators is warranted.

Leader communication. The relationship between leader communication and OC was assessed across four samples, all reported in Bruning and Snyder (1983), and yielded a large corrected correlation of $\bar{r}_i = .454$. Presumably, a supervisor who provides more accurate and timely types of communication enhances the work environment and thereby is likely to increase employees' commitment to the organization. However, this assertion remains speculative because this process has not been tested directly by Bruning and Snyder or any other study to date.

Participatory leadership. Relations between participatory leadership and OC were reported in Jermier and Berkes (1979) and for two samples in Rhodes and Steers (1981) that yielded an average corrected correlation of $\bar{r}_i = .386$. Both of the studies examined moderated relations. Specifically, Jermier and Berkes found that participatory leadership was most effective at influencing the commitment levels of police officers working in unpredictable environments. Rhodes and Steers found a higher correlation between participatory leadership and OC in worker-owned, as compared with conventional, organizations. In sum, we again find evidence that the relations between various leader behaviors and OC are contingent on other factors in the work environment.

Organizational Characteristics

Three samples presented correlations between organizational size (i.e., total number of organizational members) and commitment, and four included correlations with organizational centralization. Intuitively, larger organizations are seen as less personable and harder to identify with. Alternatively, Stevens et al. (1978) suggested that larger organizations may increase the chances of promotions and other forms of side bets

and increase the opportunities for interpersonal interactions, thereby increasing commitment levels. Neither explanation was supported by the meta-analysis results, which showed a corrected correlation of merely $\bar{r}_i = -.001$.

Bateman and Strasser (1984), Morris and Steers (1980), and Stevens et al. (1978) presented correlations between organizational centralization and OC. Morris and Steers suggested that perceived decentralization is likely to be associated with participative decision making and increased commitment levels through greater employee involvement. The meta-analysis results, however, were not supportive. The mean corrected correlation was $\bar{r}_i = -.061$, and over 95% of the variance among the four samples examined remained unaccounted for.

Role States

Mowday et al. (1982) proposed role states as one of the four categories of antecedents of OC. The results presented in Table 2 support this assertion for three specific role states: role conflict ($\bar{r}_i = -.271$), role ambiguity ($\bar{r}_i = -.218$), and role overload ($\bar{r}_i = -.206$). Little theoretical work has been devoted to how role states relate to commitment. The most common assumption has been that role states result from perceptions of the work environment and then influence affective responses. It is not clear whether the relationship between role states and OC is direct or mediated by other variables, such as stress or job satisfaction. It is clear, however, that employees who report greater levels of role strain also tend to report lower amounts of OC.

Summary

Several of the antecedents that appear in the left panel of Figure 1 demonstrated relationships with commitment. The correlations between personal characteristics and OC tended to be fairly small. Two variables exhibited medium-sized corrected correlations (i.e., Protestant work ethic and age) and one a high correlation (perceived personal competence). The corrected correlations among the other eight personal characteristics ranged from $\bar{r}_i = -.145$ to $\bar{r}_i = .182$, with an average absolute value of only .138. Most researchers have included personal variables in commitment studies more as descriptive statistics than as explanatory variables. That is, there has been relatively little theoretical work aimed at explaining *why* personal variables should be related to commitment.

A number of the personal variables examined are likely to share common variance. For example, given the data available for this set of meta-analyses, it is impossible to separate the unique influences of age, tenure, and job level on commitment. Assuming some opportunity for advancement within organizations, older workers will tend to have greater organizational tenure and are likely to occupy higher positions than are younger, newly hired employees. It is probably more appropriate to consider a general process of career progression within an organization as being associated with OC than to focus on the influence of any single variable in isolation. To the extent that individuals maintain a preference for upward mobility, which is complemented by opportunities for advancement within an organization, OC is likely to be enhanced (O'Reilly, Bretton, & Roberts, 1974). The prestige associated with moving

to higher job levels is likely to increase attitudinal commitment. Calculative commitment may also increase to the extent that financial opportunities become available to employees on the basis of their job level or organizational tenure. That is, many organizations reserve opportunities for stock options, profit sharing programs, and so forth for higher ranking or long-term employees. Alternatively, to the extent that opportunities for advancement are lacking for employees who prefer to be upwardly mobile, their level of OC is likely to be diminished, and they are more likely to consider alternatives, particularly if they have a high amount of education. Thus, cross-sectional zero-order correlations, computed across all employees, may obscure some important interactive relationships. That is, the relationships between several personal variables and OC are likely to develop, interact, and change over time. Clearly, this suggests the need for longitudinal studies to disentangle the dynamic nature of these interrelationships.

Enhanced job characteristics, particularly taken as an aggregate, offer promise as an antecedent to the development of OC. It is not clear, however, to what extent job characteristics as assessed by questionnaire or interview techniques are strictly antecedents of commitment. It may be that more committed employees tend to view their jobs as more fulfilling. A similar issue was examined by James and Tetrick (1986), who tested the causal sequence relating job perceptions to job satisfaction. They concluded that the primary causal direction was from job perceptions to job satisfaction, although there was some degree of reciprocal causation. Similarly, we would anticipate the primary causal direction of influence to be from job perceptions to OC, and to a lesser extent from OC to job perceptions.

The conclusions regarding the influence of job characteristics on OC are based on a relatively small number of samples. Several other studies were found during the literature search that reported positive relationships between various job characteristics and OC. Unfortunately, these studies reported their findings only in the form of regression analyses, canonical correlations, or other fashions that cannot be integrated into the meta-analyses. Thus, although the current conclusions must be interpreted cautiously because of the limited number of samples and respondents included, they do appear to be representative of the larger body of published studies.

The findings regarding the influence of leader behaviors, group processes, and organizational characteristics on OC suggest several avenues for future research. Leader initiating structure and consideration behaviors both tended to correlate positively with commitment at moderate levels. The results from the meta-analyses and the individual studies suggest that the influence of leader behaviors is likely to be moderated by other factors, including subordinate characteristics and aspects of the work environment. For example, Luthans, Baack, and Taylor (1987) found significantly higher correlations between leader initiating structure and OC among employees with an external, as compared to internal, locus of control. The direction of such influences, however, is not clear. It may be that more committed subordinates require less initiating structure or that externally oriented employees solicit greater structure from their supervisors. Many of the moderated relationships reported thus far also appear to have been found in primarily exploratory analyses. Clearly, further theoretical development regarding

how a certain variable may moderate (neutralize, substitute, etc.) a leader behavior–commitment relationship, and the direction(s) of such influence, is needed. Progress has begun along these lines, but much work remains to be done.

The influences of group relationships and organizational properties have been examined in only a few studies and represent neglected areas. There is also a need for theoretical development regarding why these variables should, or should not, be related to commitment. Wiener (1982) suggested that organizational environments may act as normative influences and affect members' OC by shaping their belief systems. In this sense, organizational contexts may interact with individuals' predispositions to become committed, thereby implying moderated relationships. Perhaps individuals with a high need for affiliation will become most committed to an organization that offers a supportive environment. Alternatively, individuals with a high need for achievement may become most committed in a competitive setting. These and other contextual-type questions have yet to be addressed.

The few studies that have examined the influence of organizational characteristics have generally found rather weak correlations. Berger and Cummings (1979) reviewed the relationships between organizational structure and several other employee affective responses, such as job satisfaction, and suggested several directions for future research. Such an approach also seems warranted with respect to relationships between organizational structure and OC. In all likelihood, the influences of contextual factors such as organizational size and centralization are mediated by other factors in the work environment. That is, organizational characteristics may act to shape more proximal influences on employees, such as the nature of group relations that may develop or facilitate certain leader behaviors, which in turn affect employees' commitment more directly. This suggests the need for the development of causal models that specify the interrelationships among the antecedents of commitment.

Finally, it should be noted that the correlations included in the group cohesiveness, task interdependence, and organizational centralization meta-analyses were all drawn from studies conducted at the individual level of analysis. That is, the correlations represent the relationship between individuals' perceived group or organizational properties and their commitment. Because these variables are normally conceptualized as aggregate-level constructs (cf. Rousseau, 1985), their relationships with individuals' commitment should be tested using cross-level designs. Thus, we really have no idea to what extent the current meta-analysis results were susceptible to ecological biases.

The findings involving role states provide an opportunity to compare the present results against those obtained in two other recently conducted meta-analyses (i.e., Fisher & Gitelson, 1983; Jackson & Schuler, 1985). Fisher and Gitelson concluded that no significant between-study variance remained for either role ambiguity or role conflict, as related to OC. In contrast, we conclude, as did Jackson and Schuler, that moderator studies seem warranted regarding the role conflict–OC relationship. Furthermore, we suggest that such studies are also warranted for the role ambiguity–OC relationship, whereas Jackson and Schuler did not. The discrepancies between the three sets of

recommendations appear to be traceable to the fact that we have included a greater number of studies than did the two earlier meta-analyses.³

Correlates

Motivation

Mowday et al. (1979) proposed that "highly committed employees are thought to be motivated to exert high levels of energy on behalf of the organization" (p. 236). We would expect the magnitude of such a relationship to be higher for attitudinal commitment, given the fact that one of the three factors said to characterize the Porter scale is "a willingness to exert considerable effort on behalf of the organization" (Mowday et al., 1979, p. 226). It would also follow that internal motivation (e.g., feelings of accomplishment and self-fulfillment) should be more highly related to attitudinal commitment, whereas external motivation (i.e., that derived from the attainment of tangible rewards, such as a cash bonus) should be more related to calculative commitment. Unfortunately, a direct test of this hypothesis was not possible because no studies were available that presented OC-external motivation correlations. However, some indirect evidence was available from a comparison of the meta-analyses conducted separately for internal and overall motivation.

Overall motivation exhibited a corrected correlation of $\bar{r}_i = .563$, with 100% of the variance across five studies accounted for by artifacts. Five other studies presented internal motivation-OC correlations that yielded an average corrected correlation of $\bar{r}_i = .668$.⁴ Because the 10 studies included across the two meta-analyses all used Porter's measure, a tentative conclusion is that the inclusion of external factors in an overall motivation composite reduces the magnitude of its relationship with attitudinal commitment. The question of whether or not external motivation correlates more highly with calculative commitment, however, remains to be answered.

Job Involvement

Morrow (1983) drew a distinction between OC and job involvement and defined the latter as "the degree to which a person is identified psychologically with his [or her] work" (p. 488). The primary distinction between the two concepts is that job involvement describes an employee's attachment to his or her job, whereas OC describes an attachment between an employee and the organization. One would expect the two variables to be correlated to the extent that an organization provides employees with jobs that they desire. Furthermore, it follows that job involvement should correlate more highly with attitudinal as compared to calculative commitment, as employees may become committed to an organization and maintain membership because it offers numerous side bets, even though they may not be psychologically attached to their jobs. Several examples could be drawn where an employee has stayed in a particular job, which long ago lost its psychological significance, simply to become vested in a company retirement plan. The results from the meta-analyses provide some support for this contention.

Overall, job involvement correlated $\bar{r}_i = .432$ with commit-

ment. However, over 93% of the variance between the 20 studies examined remained unaccounted for. The subgroup analyses by commitment type supported the hypothesis that job involvement would correlate more highly, $t(8) = 3.35$, $p < .01$, with attitudinal commitment, $\bar{r}_i = .465$, $SD_i = .188$, than with calculative commitment, $\bar{r}_i = .269$, $SD_i = .057$.

Stress

The average corrected correlation between stress and OC was $\bar{r}_i = -.330$. Eighty-four percent of the variance between studies remained unaccounted for after corrections. We suspect that part of this inconsistency stems from the varied ways in which stress has been defined and measured. Several studies (e.g., Bateman & Strasser, 1984; Hrebiniak, 1974) defined stress as a composite of role strains, often measured by summing role conflict, ambiguity, and overload items into a single index (cf. Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Other measures used included a "felt stress" scale (Parasuraman, 1982), a measure of work-related and nonwork-related stressors (Chassie & Bhagat, 1980), and a work-related anxiety scale (J. Cook & Wall, 1980). Additional meta-analyses were performed using subsets of studies that employed the different forms and measures of stress. These analyses yielded results that consistently paralleled the combined analysis.

Intuitively, stress should relate negatively to employees' at-

³ Interestingly, the present study and the two previous meta-analyses each used different corrections for statistical artifacts. Fisher and Gitelson (1983) corrected the observed correlations only for sampling error (i.e., computed the average weighted correlation) and reported mean correlations of $\bar{r} = -.34$ for role ambiguity and $\bar{r} = -.25$ for role conflict, across six samples each. Jackson and Schuler (1985) corrected observed correlations for three types of artifacts—sampling error, measurement unreliability, and range variation. They reported estimated population correlations of $\bar{r}_i = -.41$ ($SD_i = .09$) for role ambiguity (across 11 samples) and $\bar{r}_i = -.36$ ($SD_i = .16$) for role conflict (across 12 samples), with significant between-study variance remaining unaccounted for in both instances. The magnitudes of these estimated population correlations are noticeably higher than those obtained here, and the estimated population standard deviations are considerably smaller. These discrepancies may be attributable to (a) the greater number of samples and overall respondents included in the present analyses, (b) the fact that Jackson and Schuler (1985) corrected for range variation and we did not, or (c) both. A comparison of the sampled weighted mean values obtained in the two studies provides some insight into which of the two explanations seems more appropriate. We calculated the following sample weighted means and standard deviations: role ambiguity, $\bar{r} = -.183$, $SD = .250$, $N = 4,528$; role conflict, $\bar{r} = -.220$, $SD = .189$, $N = 4,989$. These values when compared with Jackson and Schuler's findings (role ambiguity, $\bar{r} = -.27$, $SD = .10$, $N = 2,890$; role conflict, $\bar{r} = -.24$, $SD = .14$, $N = 2,583$), suggest that the discrepancies between the two sets of meta-analyses are most likely attributable to the additional samples included in the present instances.

⁴ It is interesting to note that the average uncorrected correlation for overall motivation exceeded that for internal motivation, although the reverse was true after the correlations were corrected for statistical artifacts (see Table 3). This occurred because the larger correlations with internal motivation were found in the larger samples and because the average scale reliability for overall motivation was higher.

tachment to an organization. However, it is also likely that employees who become attached to and remain with an organization because of side bets are likely to experience greater strain. Thus, one can postulate a positive correlation between strain and calculative commitment. The moderator analysis by type of commitment did not support such a contention, and the negative correlation with calculative commitment was actually of slightly greater magnitude.

Occupational Commitment

Morrow (1983) discussed occupational commitment in terms of an employee's commitment to his or her occupation, profession, or career. Whereas OC focuses on one's attachment to the organization, occupational commitment focuses on one's attachment to a particular occupational group or profession. Overall, occupational commitment correlated $\bar{r}_i = .420$ with OC. The moderator analysis by type of commitment found a slightly, although not significantly, higher ($\bar{r}_i = .501, SD_i = .227$) corrected correlation with calculative as compared to attitudinal ($\bar{r}_i = .451, SD_i = .072$) commitment. Aranya and Jacobson (1975) and Aranya and Ferris (1983) proposed that professional and organizational commitment may be quite compatible and even develop over time. We would hypothesize that whether this occurs is contingent on the number and nature of developmental opportunities made available in one's organization. To date, however, this hypothesis has not been tested directly.

Union Commitment

Five studies examined the relationship between OC and union commitment and yielded a corrected correlation of $\bar{r}_i = .236$. Similar to occupational commitment, we would also expect that the relationship between OC and union commitment would be moderated by other factors such as current management-union relations. Along these lines, Angle and Perry (1986) examined the extent to which dual commitment (a measure that asks directly whether one is committed *both* to the organization and to the union) existed among bus drivers sampled from 22 different companies. They found that a higher degree of dual commitment existed in more cooperative climates. Further, this relationship was moderated by individuals' degree of participation in union activities; dual commitment was highest among more active drivers in cooperative climates. The findings from this study suggest that the correlation between union and organizational commitments is likely to be moderated by both situational and individual characteristics.

Job Satisfaction

The influence of job satisfaction and its components is one of the more thoroughly investigated topics in the OC literature. The findings presented in Table 3 illustrate that the correlations between job satisfaction and OC are uniformly positive, as none of the 95% confidence intervals included zero. Separating job satisfaction into intrinsic satisfaction, extrinsic satisfaction, and its components yielded corrected correlations in the range of $\bar{r}_i = .167$ (extrinsic) to $\bar{r}_i = .595$ (satisfaction with work itself).

Equally noteworthy is the fact that substantial between-study variance remained in each analysis.

We had hypothesized that attitudinal commitment would be related more strongly to overall job satisfaction and satisfaction with supervision, coworkers, and the job itself. Calculative commitment was hypothesized to correlate more highly with satisfaction with promotional opportunities and pay. The results of the moderator analysis by commitment type support the first four hypotheses, although satisfaction with promotional opportunities and with pay were also more highly correlated with attitudinal commitment.

Summary

The magnitudes of the correlations between OC and the correlates that appear in the middle panel of Figure 1 were among the largest effects obtained in the meta-analyses. Seven corrected correlations were categorized as large, 6 as medium, and only 1 (extrinsic job satisfaction) as small according to Cohen's (1969) conventions. Furthermore, the 95% confidence intervals included zero in only the occupational commitment and union commitment analyses.

The high degree of interrelationship between OC and the correlates may be interpreted in several fashions. First, it must be recognized that method and response biases are likely to have inflated the actual magnitude of these correlations. Questionnaire measures were almost always used to assess both OC and the affective responses. Although this same criticism applies to measures of many of the antecedents and consequences (e.g., job characteristics, leader behaviors, and behavioral intentions), others are less susceptible to such biases (e.g., sex, age, and turnover). Furthermore, close inspection of the scales that are commonly used to assess different affective responses reveals that they often contain very similar items (cf. Morrow & McElroy, 1986). For example, the item "I'll stay overtime to finish a job, even if I'm not paid for it" in the Lodahl and Kejner (1965) job involvement scale is conceptually quite similar to the item "I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful" in Porter's OC scale. Ferris and Aranya (1983) assessed professional (occupational) commitment by simply replacing the referent "this organization" in Porter's OC scale with "your profession." Not surprisingly, one observes high correlations between OC and other affective responses that are measured in such similar manners. Clearer definitions that include rules for both inclusion and exclusion are needed for the different affective responses, work commitments, and so forth. This will permit finer differentiation among constructs and clearer specification of their interrelationships.

The rather high correlations between the correlates and OC may also stem, in part, from shared linkages at a more abstract conceptual level in the nomological network (Schwab, 1980). That is, variables such as motivation, satisfaction, and commitment may be conceived of as rather specific aspects of a more generalized affective response to the work environment. In this sense, the magnitude of the correlations observed may be partly attributable to a generalized affect or halo impression. Such effects are most likely to occur as related to attitudinal as compared with calculative commitment. Researchers working with

these variables need to specify more clearly how different affective responses are interrelated, and how they are linked to various antecedents. It is unclear, for example, whether enriched jobs are likely to increase OC directly, or if such an influence is mediated by job satisfaction. Scholl (1981) differentiated the two concepts of motivation and commitment and defined the latter "as a stabilizing force that acts to maintain behavioral direction when expectancy/equity conditions are not met or do not function" (p. 593). This type of approach proposes a complex relationship between two rather distinct processes and warrants further development and application.

The causal precedence of organizational commitment and other affective responses has been questioned recently. For example, it has generally been assumed that job satisfaction is a cause of OC (e.g., Bluedorn, 1982; Koch & Steers, 1978; Steers, 1977). Alternatively, Bateman and Strasser (1984) have presented evidence from a longitudinal study that suggested that organizational commitment may cause job satisfaction. Williams and Hazer (1986) applied confirmatory modeling techniques to two sets of data and concluded that there is greater evidence that job satisfaction is a precursor of OC rather than the opposite. This series of studies has illustrated the importance of developing theoretically based models of causal processes, as well as the benefits of confirmatory modeling techniques. We encourage the expanded use of both in future research.

The causal precedence of stress and OC has also not received much attention. Stress is typically considered as an antecedent of commitment. Far less attention has been devoted to examining stress as a consequence of commitment. For example, role conflict stemming from incompatible demands placed on an employee by his or her supervisor and coworkers is likely to decrease commitment. Alternatively, highly committed employees are likely to experience greater stress stemming from work-nonwork conflicts (e.g., simultaneous desires to work overtime and to spend time with one's family). Further, employees who are highly committed to an organization may experience greater stress and anxiety following a widely publicized industrial accident or a strike than would a less committed employee. Research is needed to examine how OC may act to *increase* stress.

Consequences

Performance

Mowday et al. (1982) concluded that the least encouraging finding in the OC literature regards the weak relationship OC demonstrates with job performance. The results of the meta-analyses using others' (primarily supervisors') ratings of performance and output measures as performance criteria support their conclusion (\bar{r}_i s = .135 and .054, respectively). Furthermore, a substantial amount of between-study variance remained unaccounted for in both instances following corrections for artifacts. Few researchers predicted that commitment levels would influence performance, as most correlations were extracted from studies designed primarily to examine other relationships. The subgroup analysis failed to indicate that commitment type moderated the nature of these findings. In contrast,

Petty, McGee, and Cavender (1984) found an average correlation (corrected for sampling error and attenuation) of $\bar{r}_i = .31$ between job satisfaction and performance. Although higher levels of commitment may relate to improved job performance in some situations (e.g., Larson & Fukami, 1984), the present findings suggest that commitment has relatively little direct influence on performance in most instances.

Withdrawal Behaviors

As an antecedent, OC has most often been used to predict withdrawal behaviors. The results of the meta-analyses illustrate that OC correlates positively with attendance ($\bar{r}_i = .102$) and negatively with lateness ($\bar{r}_i = -.116$) and turnover ($\bar{r}_i = -.277$), although the magnitudes of these effects were relatively small. Commitment demonstrated much larger correlations with two turnover-related intentions: (a) intention to search for job alternatives ($\bar{r}_i = -.599$), and (b) intention to leave one's job ($\bar{r}_i = -.464$). OC exhibited no relationship ($\bar{r}_i = -.085$) with employees' perceptions of job alternatives.

The attendance meta-analysis represented the only instance when more than 75% of the between-study variance was accounted for by artifacts with sufficient power to conclude the absence of moderators. This was a somewhat surprising finding given the heterogeneity of the attendance measures that were used in the studies included (e.g., days attended, reverse-coded frequency, duration, excused/unexcused, or total number of days absent). Equally important, however, is that the magnitude of this relationship was one of the lower observed in these meta-analyses. This finding was not unexpected and is consistent with earlier nonquantitative reviews of the absence literature (e.g., Mowday et al., 1982; Reichers, 1985). As suggested by Steers and Rhodes (1978), OC is but one of a number of factors involved in the process of employee attendance. Furthermore, meta-analysis cannot test directly the presence of moderators, such as employees' ability to attend, that may operate at an individual level of analysis within a particular setting; meta-analysis can only evaluate moderators that differ between research settings. Thus, the homogeneity of study correlations between OC and attendance observed presently should not dissuade researchers from examining the potential influence of moderators that operate on an individual basis, as suggested by Steers and Rhodes' (1978) model, among others.

According to theory (Mowday et al., 1982), one might expect a slight negative correlation between commitment and lateness. Because lateness is a relatively spontaneous act and is also influenced by a wide array of factors beyond the control of an individual worker, the small corrected correlation found here was also anticipated. The largest zero-order correlation obtained was only $r = -.210$ by Clegg (1983), who also outlined several theoretical and methodological directions for future research that warrant consideration (e.g., data transformations to deal with nonnormal criterion distributions).

Mowday et al. (1982) predicted that the strongest and most predictable behavioral consequence of employee commitment should be lower turnover rates. The results of the meta-analysis support their contention, although the magnitude of the relationship ($\bar{r}_i = -.280$) is lower than those observed between commitment and several affective responses, and over 88% of the

between-study variance remains unaccounted for after corrections for artifacts. Contrary to our hypothesis, the moderator analysis by type of commitment showed turnover to be more correlated with attitudinal ($\bar{r}_i = -.287$) than calculative ($\bar{r}_i = -.250$) commitment. This difference, however, was not statistically significant, $t(19) = 1.08, p > .10$.

Although it is clear that OC is correlated with turnover, more recent studies have illustrated that the relationship is mediated by several cognitions and behavioral intentions (Arnold & Feldman, 1982; Bluedorn, 1982; Michaels & Spector, 1982; Mowday, Koberg, & McArthur, 1984; Stumpf & Hartman, 1984). The most popular theory of the turnover process has been a model outlined by Mobley, Griffeth, Hand, and Meglino (1979). The Mobley et al. model proposes that various aspects of the work environment (e.g., supervision practices and job content factors) influence employees' affective responses (e.g., job satisfaction and OC), which in turn may initiate withdrawal cognitions and decision processes that are then related directly to an individual's likelihood of turnover. Although Mobley et al.'s model includes several types of withdrawal cognitions and behavioral intentions, only perceived job alternatives, intention to search for job alternatives, and the intention to leave the organization have been reported frequently enough to permit meta-analyses. As expected, OC correlated strongly with both intentions, and these relationships were among the strongest observed in the meta-analyses and were higher than that obtained with actual turnover. Notably, however, the correlation between OC and perceptions of job alternatives was minimal.

Summary

The relationships between OC and employees' behaviors have not produced many large correlations. The results of the present set of meta-analyses suggest that these linkages are likely to be mediated or moderated by other factors. For example, the relationship between OC and performance is likely to be moderated by such factors as pay policies. One would expect that calculated commitment would exhibit a high positive correlation with performance in instances where pay is tied closely with performance (e.g., piece-rate systems), and less so where there is little connection (e.g., straight salary systems). Alternatively, attitudinal commitment could be expected to correlate more positively with performance when role expectations are clearly defined than when they are ambiguous. Certainly, other hypotheses may be formulated and tested explicitly in future research. It is clear that the relationship between OC and performance is not likely to be direct or straightforward.

Organizational commitment has demonstrated relatively high correlations with behavioral intentions, although its relationship with actual withdrawal behaviors has, at best, been only modest. This suggests that the influence of OC on behaviors is mediated by behavioral intentions. A recent meta-analysis conducted by Steel and Ovalle (1984) indicated that the average correlation between intention to quit and actual turnover was .50. In combination with the present results, this suggests that OC serves as a summary index of work-related experiences and influences behavioral intentions directly. In turn, the employees' intentions, perhaps in combination with perceived job alternatives and nonwork influences, have a more immediate

impact on behaviors. It is also likely that the relationships between OC and withdrawal behaviors are moderated as well as mediated (cf. Baron & Kenny, 1986). For example, calculative commitment may demonstrate a higher correlation with tardiness in instances where employees suffer a monetary loss for arriving late (e.g., a dock in pay). Alternatively, attitudinal commitment may influence tardiness more in situations where employees incur less tangible, yet more public sanctions for arriving late (e.g., a verbal reprimand). Here again, the relationship between OC and behaviors is not likely to be simple or direct.

THEORETICAL AND METHODOLOGICAL ISSUES

Throughout the course of our review of the OC literature published in the past decade and a half, and the meta-analyses results summarized above, we have observed some trends and encountered several methodological and substantive issues. In general, we would characterize the work in the early 1970s as mostly correlational, with little theoretical rationale for selecting variables or how to relate them to commitment. Steers (1977) suggested three categories of antecedents of commitment (i.e., personal characteristics, job characteristics, and work experiences) to which Mowday et al. (1982) added role states. This scheme seems to have guided much of the research in the late 1970s and early 1980s. In general, studies in this period compared the relative influence of variables from the four categories on OC. More recently, researchers have (a) considered more closely the nature of the nomological network related to the construct of OC, including different types and foci of work commitments; (b) developed and tested causal models of commitment, both as an endogenous variable and as a mediating variable; and (c) begun to test moderated relationships involving OC. These latter developments offer great promise for advancing understanding of how commitment influences employees' work behaviors. In the sections that follow we consider several of these and other trends and highlight areas for future research.

Definitions and Measurement of Organizational Commitment

Differentiating the two or more types of organizational commitment has received both theoretical and empirical attention recently. Conceptually, the distinction between attitudinal and calculated commitment has been recognized for some time (cf. Mowday et al., 1982; Reichers, 1985). Mowday et al. (1982) noted that at least 10 different definitions of commitment had been advanced but that most reflected the distinction between organizational commitment as an attitude or as a behavioral investment. Empirically, these two forms of commitment appear to be separable. Ferris and Aranya (1983) administered Porter's (attitudinal) scale and Hrebiniak and Alutto's (calculative) scale to a large sample of accountants. A simultaneous factor analysis of items from both scales yielded two dimensions with a factor pattern that conformed to the a priori placement of items to scales. The correlation between the two commitment measures was .39. In general, Ferris and Aranya (1983)

found higher correlations between several predictor variables and commitment measured with the Porter scale.

Similarly, the meta-analyses conducted separately by commitment type indicated that the magnitudes of correlations were significantly ($p < .05$) larger for attitudinal commitment in 9 of 18 comparisons. Of the 9 nonsignificant comparisons, only 4 (i.e., organizational tenure, stress, occupational commitment, and others' ratings of performance) demonstrated higher correlations with calculative commitment. Thus, the predictive validities of attitudinal commitment do appear to be higher than those for calculative commitment. Meyer and Allen (1984) have suggested that this trend may be attributable to deficiencies in the scales commonly used to assess calculative commitment. They examined the convergent and discriminant validities of five commitment scales in two separate studies. The five scales were Porter's measure, affective commitment and continuance commitment scales developed by Meyer and Allen, Ritzer and Trice's (1969) scale, and Hrebiniak and Alutto's (1972) instrument. The last two represent the most frequently used measures of calculative commitment. Meyer and Allen's findings illustrated that both the Ritzer and Trice and the Hrebiniak and Alutto scales are "saturated with affective commitment and, as such, do not allow the theory [i.e., side-bet theory of commitment] to be tested appropriately" (1984, p. 378). In contrast, their measure of continuance commitment was not significantly correlated with the affective commitment measure in either study and was significantly correlated with Porter's scale in only one study, and at a rather low magnitude ($r = .32$, $p < .05$) in that instance. They suggested that future investigations of side-bet theory "should use measures that more directly assess individuals' perceptions regarding the number and magnitude of the side-bets they have made" (p. 378).

In a separate study, McGee and Ford (1987) reexamined the differentiation between the two types of commitment using the affective and continuance commitment items offered by Meyer and Allen (1984). A forced two-factor maximum likelihood solution revealed a factor pattern that seemed to parallel the affective and continuance dimensions. However, a four-factor maximum likelihood solution identified multiple dimensions of continuance commitment, as well as a single dimension for affective commitment. McGee and Ford dropped the two items that constituted the fourth dimension and labeled the two remaining continuance commitment dimensions as (a) low alternatives and (b) high sacrifice. They found a significant *negative* correlation between affective commitment and the low alternatives subscale, and a significant *positive* correlation between the high sacrifice subscale and affective commitment.

O'Reilly and Chatman (1986) conducted two studies designed to examine different dimensions of psychological attachment to an organization. On the basis of principal components analyses of items adapted from other commitment scales, they identified three separate dimensions of psychological attachment: compliance, identification, and internalization. They then correlated factor scores on the three dimensions with a variety of other variables. The patterns of correlations between internalization and identification were identical across all other variables, whereas the correlations for compliance were either of lesser magnitude or in the opposite direction.

Although the O'Reilly and Chatman (1986) study does illustrate that attitudinal commitment may also be multidimensional, their results are far from compelling. First, given the fact that the correlations for identification and internalization (both generally considered to be aspects of attitudinal commitment) were consistent across all other variables, despite the use of orthogonal factor scores, the two dimensions appear to be tapping a similar construct. The compliance items (e.g., "How hard I work for the organization is directly linked to how much I am rewarded") appear to reflect better the attitudinal component of calculative commitment noted above than they do psychological attachment to the organization. Therefore, it is not surprising that factor scores for this dimension exhibited discrepant relationships with other variables, as compared with the identification and internalization scores. In brief, it is clear that the most popular measures and definitions of attitudinal commitment reflect multiple dimensions; for example, Mowday et al.'s (1979) includes the concepts of identification and a desire to remain and work for organizational goals. However, unless the more micro aspects of attitudinal commitment are demonstrated to have different relationships with other variables of interest, it serves little purpose to operate at a more micromedial level (T. D. Cook & Campbell, 1979).

In summary, it does appear that attitudinal commitment and calculative commitment represent separate constructs. The higher correlations with other variables that have been observed for attitudinal commitment may be attributable, at least in part, to the fact that calculative commitment represents a multidimensional construct that has not been adequately measured by currently developed scales. Extrapolating from McGee and Ford's (1987) work, it may be that dimensions of calculative commitment have exhibited opposite relations with many variables, which if combined in a single scale score, acts to attenuate the observed correlations. Attitudinal commitment may also be multidimensional, but its components appear to operate similarly with respect to other variables. Clearly, further scale development for calculative commitment is in order before any definitive statements can be made regarding the relative predictive validity of the two types of commitment. It is necessary to find out what types of costs and benefits individuals consider as important and how such investments are linked to their organizational memberships.

Multiple Foci of Work Commitments

At the onset of this article we argued that organizational commitment could be conceptually and empirically differentiated from other forms of work commitment (cf. Morrow, 1983; Morrow & McElroy, 1986; Reichers, 1985). The results from the meta-analyses support this position. The average corrected correlations among OC, the Protestant work ethic, and union commitment were medium (in the .20s), and those among OC, job involvement, and occupational commitment were high, but not excessively so i.e., in the .40s). Thus, although the different forms of work commitment illustrated varying degrees of interrelationship, the fact that none of the corrected correlations were particularly large supports the theoretical arguments that they represent separate constructs.

We had expected that attitudinal OC would correlate more

highly with other forms of work commitment, which also tend to be expressed as attitudes, than would calculative OC. Kidron (1978) examined the relationship between the Protestant work ethic and both types of OC in three samples. He found an average corrected correlation of .038 with calculative commitment and .214 with attitudinal commitment. In addition, Morrow and McElroy (1986) obtained a correlation of .42 between the Protestant work ethic and attitudinal OC. In our meta-analyses (see Table 5), attitudinal OC also correlated more highly with job involvement than did calculative OC. Occupational commitment correlated more highly with calculative OC, although the magnitude of this difference was not significant.

The relationship between OC and job involvement was the largest observed among the various foci of commitment. In general, most researchers have considered the two variables as independent influences on several work-related behaviors (e.g., effort expenditure and absence). Some, however, have suggested that job involvement and OC may differentially affect various outcome variables. For example, Wiener and Vardi (1980) hypothesized and found higher correlations among job involvement, work effort, and performance effectiveness, as compared with OC. Alternatively, OC correlated higher with organizational attachment indices.

Rafaelli (1986) examined the relationship among employee computer use, job involvement, and OC as related to employees' attitudes toward using computers. He found that both employees' job involvement and their OC tended to relate positively to their attitudes toward using computers. In addition, he found a significant interaction between usage and job involvement, with more positive attitudes being expressed by highly job involved employees who used computers more frequently. Interestingly, this interaction did not emerge with OC. Finally, Blau (1986) examined the joint influence of job involvement and OC as predictors of tardiness and absenteeism. He found no direct influence of involvement or commitment on either dependent variable, but he did obtain significant interactions. Specifically, the commitment level of employees who were highly involved with their jobs had little influence on their tardiness or lateness, both of which tended to be low. Further, employees who were not involved in their jobs but were committed to the organization also exhibited fairly low absence and tardiness rates. Alternatively, employees who were neither committed nor involved displayed particularly high absence and tardiness rates. Thus, OC had a large impact on the behavior of employees who were not involved with their jobs, but had relatively little impact on those who were. Clearly, more needs to be understood about how these two attitudes and other attitudes combine to influence individuals' behaviors.

The correlations between union commitment and OC were all drawn from studies that assessed attitudinal OC and were small to medium in size. Fukami and Larson (1984) examined the influence of personal characteristics, role-related perceptions, and work experiences on both union commitment and OC. In general, the pattern and magnitude of relations were similar in the two applications. Employees' education level was the single variable that tended to differ between the two equations, relating somewhat positively in the case of union commitment and negatively in the case of OC. The relationship be-

tween union commitment and OC represents a ripe area for future research. Adopting Reichers's (1985, 1986) multiple constituency approach, we would hypothesize that the relationship between these two forms of commitment would be moderated by current management-union relations. That is, we would expect positive correlations in instances of cooperation and negative correlations when relations are strained. Employees' union membership and degree of union participation, as well as their positions in the company, may also act as higher order moderators (e.g., Angle & Perry, 1986). Future research along these lines must sample a wide range of organizations that exhibit varying degrees of company-union cooperation and conflict to test these hypotheses adequately.

OC exhibited a moderate corrected correlation with occupational commitment (which included career and professional commitment). Aranya and Ferris (1983) examined the influence of dual commitments on organizational-professional conflict, job satisfaction, and intention to leave with samples of Israeli and U.S. accountants. OC and professional commitment were positively correlated, and both were correlated negatively with organizational-professional conflict. Notably, Aranya and Ferris (1983) reported that "the level of perceived conflict was found to be quite low" (p. 160). Blau (1985) examined the joint influences of job involvement, OC, and career commitment on job and career withdrawal cognitions among a sample of registered nurses over two survey administrations. Factor analyses at both points in time confirmed the existence of the three separate foci. Blau (1985) found significant negative correlations between job involvement and OC with job withdrawal cognitions but not with career withdrawal cognitions. Alternatively, he found significant negative correlations between career commitment and career withdrawal cognitions but not with job withdrawal cognitions. Job involvement, OC, and career commitment were all positively correlated at both times.

In sum, we would expect the relationship between OC and career commitment to be moderated by the job opportunities present in one's organization. To the extent organizations offer opportunities for employees to develop and perhaps to advance within their career tracks, the relationship is likely to be positive. Alternatively, to the extent an organization does not facilitate employees' career development or constrains their opportunities for advancement, we would expect the relationship between the two commitments to be negative. Here again, in order to test this hypothesis adequately, several organizations with varying degrees of career facilitation patterns need to be sampled.

Causal Models

Organizational commitment has recently been considered as a mediator variable in several causal models of employee behavior. Relatively few models, however, have considered OC as an endogenous variable. Mathieu (1988) formulated and tested a model of commitment among military training cadets using variables from each of the four categories of antecedents noted earlier. He found that Reserve Officer Training Corps cadets' levels of OC were enhanced to the extent that they were satisfied with their training, perceived their training as challenging and varied, experienced low role strain, and reported a high

need for achievement. In addition, perceived group relationships exhibited indirect effects on commitment, as mediated by other variables in the model. Other mediated influences were noted as well, in addition to a specification of the interrelationships among various antecedents of OC. Mathieu and Hamel (1989) developed and tested a causal model of OC using samples of nonprofessionals and professionals. They found support for direct influences of job satisfaction and mental health on levels of commitment. Notably, the influences of role strains, and perceptions of job and organizational characteristics, were mediated by their influences on employees' mental health and job satisfaction. This pattern of results was relatively consistent across the two groups. Thus, Mathieu and Hamel (1989) demonstrated that several of the antecedents of OC identified in previous research may be spurious because of their shared relationships with other affective responses not included in the analyses.

OC has more often been included as a mediator in causal models focused on predicting other employee reactions or behaviors. Podsakoff, Williams, and Todor (1986) found that OC mediated the influence of organizational formalization and role ambiguity on alienation among professionals and nonprofessionals. Ferris (1981) used OC as a mediator variable that linked various employee personal characteristics and work experiences to junior- and senior-level accountants' job performance. He found that the dimensions of attitudinal OC played significant mediational roles in both samples; however, the nature of the mediation differed. That is, among the junior-level accountants, increased job tenure and perceived utility of rewards influenced employees' willingness to exert effort, which in turn increased their performance. In contrast, among senior-level accountants, utility of rewards and occupational commitment had a positive influence on employees' desire to maintain organizational membership, whereas educational level exerted a negative influence. In turn, senior accountants' desire to maintain organizational membership had a positive influence on their performance levels. Thus, not only did OC act as an important mediator in the two samples, but the dimensions of OC exerted different influence in the two instances. This is the only study that we encountered that specified such differential effects for dimensions of *attitudinal* OC. The direction of the influences of the two dimensions, however, was consistent in both groups.

DeCotiis and Summers (1987) developed a causal model that predicted employee motivation, performance, and turnover. They found that perceptions of organizational climate mediated the influence of personal characteristics, and perceptions of organizational structure and processes, on employee OC levels. In turn, commitment had direct positive influences on employees' work motivation and objective measures of job performance, as well as direct negative influences on desire to leave and actual turnover.

The most common use of OC in causal models has been as a mediator of the influences of personal characteristics and work experiences on employee turnover processes. Dougherty, Bluedorn, and Keon (1985) and Lachman and Aranya (1986) developed models that depicted OC and job satisfaction as precursors of employees' intentions to remain in the organization. Further, Bluedorn (1982), Arnold and Feldman (1982), Mi-

chaels and Spector (1982), and Stumpf and Hartman (1984) all tested causal models of turnover that included OC as a mediator variable placed between employee personal characteristics and work-related experiences, and intentions to remain.

In terms of placing OC into a larger nomological network of relations, some general themes seem evident. First, the concept of psychological proximity, from field theory (Lewin, 1943), may be used to order the myriad of antecedents that have been examined in previous research. That is, affective reactions are likely to have the most immediate influence on individuals, followed closely by perceived role states. Factors more proximal in the work environment (e.g., job characteristics) should influence individuals' reactions more immediately than factors more removed, or distant, from individuals (e.g., organizational size and design). Second, field theory would also suggest that the factors in one's psychological environment are interrelated such that the influences of more distant factors will be mediated, at least in part, by their influence on more proximal factors (for examples of this approach, see Mathieu, 1988; Mathieu & Hamel, 1989; and Williams & Hazer, 1986). For example, one would expect variables such as organizational formalization to have a direct effect on the types of group processes that emerge as well as the leadership styles practiced within an organization. In turn, group processes and leader behaviors are likely to influence how employees perceive their jobs and their roles within the organization. These more proximal factors would then have the most direct influences on employees' OC levels, perhaps mediated by other affective responses (e.g., job satisfaction). Whether other affective reactions play a mediational role, or simply covary with OC levels, is an issue that has yet to be resolved unequivocally (cf. Bateman & Strasser, 1984; Williams & Hazer, 1986).

Individual variables have not been found to have many direct influence on OC levels. However, we would recommend that researchers explore more fully the role of individual variables as *moderators* of the influence of other variables. That is, we suspect that certain types of individuals will become more committed to organizations that offer certain types of opportunities (e.g., flexible benefits programs, day-care services, opportunities for rapid advancement, and a challenging job). Thus, individual variables may influence employees' perceptions of various aspects of the organization as well as their relative reactions to it.

In terms of how employees' OC levels relate to their behaviors, we believe that the literature on turnover processes has been the most theoretically and methodologically sophisticated thus far. The Mobley et al. (1979) model, for example, is built upon the theoretical foundation of Fishbein and Ajzen's (1975) attitude-behavior theory. This approach considers work attitudes as the results of beliefs concerning perceptions of the work environment. Such attitudes, combined with opportunities to act and associated beliefs, then constitute the immediate antecedents of behaviors. Research needs to continue along these lines and expand to consider the role of outside factors (e.g., economic conditions and family obligations) more thoroughly and how these processes develop and change over time (Mobley et al., 1979; Porter et al., 1974).

In summary, then, we advocate a greater use of causal modeling techniques in the future. However, we are not optimistic

that a "grand theory of OC" will emerge. Rather, we recommend that future research be directed at gaining a greater understanding of how the antecedents of OC may differ from one situation to another, as well as between different types of individuals. The generalizability of various causal relations can be tested directly by contrasting groups using techniques such as LISREL (Jöreskog & Sörbom, 1986). In this fashion a contingency-type framework of OC will develop.

Longitudinal Studies

Although longitudinal studies are becoming more prominent in the OC literature, no study has considered how the processes linking commitment with other variables change over various career stages. Mowday et al. (1982) suggested that the antecedents of OC are likely to change as one goes from the period of job choice, through initial socialization experiences, to stabilization and entrenchment. Several studies have focused on one or another of these stages, with initial experiences having received the greatest attention. Pierce and Dunham (1987) examined the influences of variables from each of the four broad categories of antecedents and hospital employees' propensity toward OC. They found that individuals' propensity toward OC, as well as variables from the four categories of antecedents, significantly predicted employees' actual OC 3 months later.

Porter, Crampon, and Smith (1976) examined the relationship between management trainees' OC and turnover during their initial 15 months of employment. They found that OC levels exhibited a substantial decrease just prior to the time of actual turnover. Fisher (1985) examined the relationship between stress, various forms of social support, and OC among newly graduated nurses in their first 6 months of employment. Contrary to her expectations, Fisher found that the negative relationship between stress and OC was stronger in conditions of high, as compared to low, social support. Finally, in the single study we encountered that examined OC over time and beyond the initial socialization period, Van Maanen (1975) found that OC levels were high when employees first entered the organization and steadily decreased over time. He did note, however, that the level of OC at month 30 was still fairly high and had apparently stabilized. He attributed this finding to a traditional strong department loyalty norm among the sample population of police officers he studied. It is also noteworthy that higher performing officers in Van Maanen's study initially reported greater OC, which decreased approximately the same amount and in the same manner as that of the lower performing officers.

Thus, with the exception of the Van Maanen (1975) study, no research to date has examined how OC develops at various career stages. Further, there has been very little work devoted to examining the impact of OC on other variables at different career stages. One exception was a cross-sectional study conducted by Werbel and Gould (1984). They compared the relationship between OC and turnover among nurses with varying amounts of organizational tenure. They found a stronger *negative* relationship between OC and turnover among nurses with greater organizational tenure. Werbel and Gould proposed that OC assessed in the first year or so of employment may actually

Table 6
Average Results for Multiple and Mono-Method Meta-Analyses

Result	Method-biased ^b analyses	Unbiased ^c analyses
Average ^a sample weighted \bar{r}	.289	.119
Average ^a \bar{r}_i	.351	.132
<i>N</i> of meta-analyses	33	15

^a Absolute value. ^b Includes perceived personal competence, Protestant work ethic, job characteristics, group-leader relations, organizational centralization, role states, correlates, intention to search, and intention to leave. ^c Includes all consequences, personal characteristics *except* those listed above, and organizational size.

reflect unrealistic expectations developed during the entry stage of socialization. They suggested that OC assessed further along in employment may better reflect employees' actual attachment to the organization. Alternatively, their findings may be restricted to study populations of nurses, which, as observed in the Fisher (1985) study reviewed above, have produced several counterintuitive results. Obviously, this remains an issue for future research.

Mono-Method Bias

Scanning the results of the meta-analyses presented in Tables 2, 3, and 4, it is tempting to conclude that OC has the strongest relationships with job characteristics, group-leader relations, role states, correlates, and behavioral intentions, as compared with personal and organizational characteristics, job performance, and the three withdrawal behaviors. However, method bias represents a viable alternative interpretation for these findings. That is, the former group of meta-analyses listed above all assessed the average relationship between two self-report measures, whereas the latter group evaluated the average relationship between self-reported OC and measures obtained from other sources (e.g., attendance), or self-report measures not normally considered to be overly susceptible to response biases (e.g., sex and position tenure). This distinction is exacerbated further by the fact that 32 of the 33 meta-analyses of method-biased correlations corrected for attenuation in both variables, whereas only 2 of the 15 unbiased analyses had reliability information available for the variable being correlated with OC. The implications of this potential method-bias confound are illustrated in Table 6. As shown, the average \bar{r} (absolute value, weighted by sample size), regardless of variable content, for the meta-analyses based on method-biased correlations ($\bar{r} = .289$) is 2.43 times the magnitude of that for the unbiased analyses ($\bar{r} = .119$). Comparing the average \bar{r}_i absolute values, which incorporate the corrections for attenuation, reveals that the average across the method-biased analyses (.351) is 2.66 times the magnitude of that for the unbiased analyses (.132). Thus, the conclusion that some variables exhibit higher or lower correlations with OC must be tempered by the fact that many such comparisons may be confounded by method bias.

A related concern deals with the influence of social desirability bias in survey research (Ganster, Hennessey, & Luthans, 1983). Arnold, Feldman, and Purbhoo (1985) and Luthans et al.

(1987) have found positive correlations between respondents' reported levels of OC and their scores on a social desirability index. These researchers have suggested that the study of commitment-related processes (as well as other relationships based on self-report measures) may be enhanced by including social desirability scales and partialing out such effects prior to the examination of other relations. We would add, however, that research is needed to determine what portion of shared variance between OC and social desirability measures is attributable to an artifact of measurement, and what portion reflects true variance in OC. That is, an alternative interpretation of positive social desirability-OC correlations is that higher levels of OC predispose individuals to behave in a positive fashion toward an organization, including their responses to filling out a survey. This possibility could be examined by using a multi-trait-multimethod approach (Campbell & Fiske, 1959) and determining the extent to which other variables associated with social desirability and OC responses covary across other situations and methods of measurement (cf. Fiske, 1987).

Power and Meta-Analysis

We would again like to mention the issue of power and meta-analysis (cf. Sackett et al., 1986). Several of the meta-analyses presented in this article were conducted using very few correlations. We decided to include such analyses here for completeness as well as to highlight areas that have not been examined extensively. Clearly, it would be premature to rule out the presence of moderators based on the results from only three or four studies. Further, the magnitude and even the direction of several of the \bar{r}_i values obtained could be altered by adding just a single large-sample study. This situation is analogous to the "file drawer problem" discussed by Rosenthal (1984). Nevertheless, the meta-analyses do help to reduce some of the subjectivity associated with traditional review techniques, although it would still be inappropriate to draw definitive conclusions on the basis of so few studies. Equally clear, however, is that even the results from several large-sample studies are not likely to change many of the \bar{r}_i values that were found (e.g., age and organizational tenure).

RECOMMENDATIONS FOR FUTURE RESEARCH

Throughout this review we have pointed toward areas where we feel future research is likely to be most productive. Below we have chosen to highlight eight such directions. Obviously, the list could be longer, but we feel the following represent the most pressing needs.

Measurement of OC

Further refinement of the methods of measuring OC is warranted, particularly in the case of calculative commitment. There is a need to know more about what individuals actually perceive side bets or investments to be, and how they are linked to their organizational membership. Research examining the OC of employees with varying amounts of stock ownership, or working in employee-owned companies, as contrasted with those working in traditional settings, may be particularly use-

ful. French and Rosenstein (1984) and Rhodes and Steers (1981) both found higher attitudinal OC among employees in employee-owned organizations. We would expect such differences to be even more pronounced for calculative OC levels.

The measurement of attitudinal OC may benefit from further scrutiny as well. However, despite some recent attempts to identify underlying dimensions of attitudinal OC, we are less enthusiastic about studies focused in this direction. Unless the dimensions of attitudinal OC are demonstrated to differentially influence other variables of interest, there seems little to be gained from working at a more micromediational level. One issue that does warrant attention, however, is the extent to which the desire-to-remain component on the Porter scale is distinguishable from other variables. That is, because a desire to maintain membership in one's current organization is considered a dimension of attitudinal OC (cf. Mowday et al., 1982), its relationship with intentions to remain has not been clearly differentiated. Future research needs to determine the degree to which these two concepts can be distinguished empirically, as well as conceptually. Again, confirmatory factor analysis methods (e.g., Jöreskog & Sörbom, 1986) are well suited for this purpose. We expect that the construct validity of attitudinal OC will benefit from the elimination of the "desire to remain" component.⁵

Causal Models and OC

We encourage the recent efforts that have begun to move in this direction. Theory-based models of how the antecedents of OC combine and jointly influence its development are needed. Furthermore, recent models of turnover-related processes have illustrated how OC, among other variables, combines with non-work-related factors to influence employees' behavior. Using cross-sectional data, causal models help to eliminate competing hypotheses for various relationships concerning OC and other variables, and are clearly preferable to zero-order correlational or multiple regression analyses. In combination with longitudinal data, the use of causal models permits one to test specific hypotheses concerning how OC develops over time. Obviously, gaining a more thorough understanding of the processes related to the causes and consequences of OC will better enable us to target organizational interventions aimed at managing commitment levels and subsequently their influences on employees' behavior.

Exploration of Moderated Relationships

To date, most research has considered simply linear relationships involving OC. Recent studies have illustrated moderated relationships involving OC as both a criterion (e.g., Luthans et al., 1987) and a predictor (e.g., Blau, 1986). In fact, we would encourage the development of causal models that include both

⁵ We had hoped to conduct separate meta-analyses between OC and intention to remain and turnover using studies that employed the 9-item version of Porter's scale (which drops the desire-to-remain items) in contrast to those that used the full 15-item version. Unfortunately, only one study that used the 9-item version presented the necessary correlations, rendering such contrasts meaningless.

mediated and moderated relationships as related to OC (cf. Baron & Kenny, 1986). The clearest benefit from such efforts will be the formulation and testing of relationships on the basis of sound theoretical framework, which these analytic techniques require. In addition, studies of this variety will begin to elucidate the boundary conditions within which certain personal or situational characteristics will exert influence on OC or limit its influence on employee behaviors.

Cross-Organizational Studies

A greater number of studies need to be conducted with employees sampled from a wide variety of organizations. This is imperative for many research questions. For example, the only manner in which the relationships between OC and organizational structural characteristics, career enhancement opportunities, union commitment relationships, and so forth, can be adequately tested is to sample employees from work environments that differ along these parameters.

Most studies to date that have investigated such relations have simply sampled employees from a single organization and correlated their perceptions of the organizational features and their OC levels; few have obtained any substantial correlations. There are two problems with this approach. First, because all employees are sampled from a single setting (or perhaps a limited number of settings), there is little or no variance in their perceptions of organizational characteristics, which restricts the magnitudes of correlations with other variables. Second, previous studies have examined relationships between aggregate features and OC by computing correlations at the individual level of analysis, where, in fact, they should be investigated using cross-level designs (cf. Rousseau, 1985). At issue is the fact that if researchers are interested in the influence of aggregate variables on employees' OC levels, then a sample of employees from different environments must be sought to ensure variance in the aggregate variables. Then, scores for the aggregate variables should be assigned to their respective members, which in turn can be analyzed in conjunction with other individual variables at the individual level of analysis in a cross-level design (cf. Rousseau). The study by Angle and Perry (1986) is a good illustration of this methodology, although they focused on dual commitment as a criterion and sampled companies from a single type of organization (i.e., bus companies).

Longitudinal Studies

As noted earlier, although a number of studies have investigated OC levels over time, most have been limited to the initial socialization period. There is a need to investigate how OC develops over time and what factors are most critical to employees at various career stages. For example, opportunities for advancement may increase an employee's commitment early in his or her career, yet may have relatively little influence upon nearing retirement. Ideally, these types of hypotheses should be examined by collecting multiple measures of OC and related variables from a single group of employees over time. At a minimum, however, suggestive evidence may be gained from comparisons of causal models developed with employees at differ-

ent career stages, within a particular population, using cross-sectional designs.

Negative Consequences of OC

The potential negative effects of high levels of OC represent another area of inquiry that has been largely overlooked. As suggested earlier, high commitment may lead to greater stress in some instances. Mowday et al. (1982) speculated that high commitment may have negative consequences for individuals, including career stagnation, family strains, and reduced self-development. Randall (1987), in a nonempirical essay, compared excessive levels of OC to a rekindling of the organizational man syndrome. Thus, high levels of employee commitment may lead to less innovation, creativity, and adaptation from an organizational standpoint.

Considered from a utility perspective (e.g., Boudreau & Berger, 1985), if poorer performers tend to become more committed, then increased levels of commitment could actually decrease organizational effectiveness as a result of *lower* absenteeism and turnover. It is probably true that higher levels of commitment are associated more with positive than negative consequences for employees and organizations alike. Nevertheless, attention needs to be directed toward identifying at what point increased commitment leads to detrimental affects. This perspective merely underscores the notion that "more is not necessarily better" (see Korman, Glickman, & Frey, 1981), and we should consider our charge as "managing commitment levels."

Impact of Organizational Interventions on OC

For the most part, studies of OC have adopted a correlational methodology; the influence of various organizational interventions on OC levels has received far less attention. In a goal-setting field experiment, Ivancevich and McMahon (1982) found that although goals per se had no direct influence on employees' OC, feedback did increase OC levels. In addition, among employees who were assigned goals, those who received self-administered performance feedback (i.e., tabulated their own progress) reported higher commitment than did those who received feedback from their supervisor.

Premack and Wanous (1985) performed a meta-analysis of five studies that examined the influence of realistic job previews (RJPs) on OC. They concluded that RJPs tend to have a modest positive influence on OC levels. On the negative side, Kemp, Wall, Clegg, and Cordery (1983) found no significant difference in commitment levels among employees working at a greenfield site in autonomous work groups, as compared with a traditional organizational design. Steel, Mento, Dilla, Ovalle, and Lloyd (1985) found no significant difference in employees' OC levels after introducing quality circle programs in two separate organizations. Further, Ivancevich (1980) found no significant differences in the commitment levels of engineers whose performance was assessed using behavioral expectation scales versus trait-based ratings. On the other hand, in a correlation study, Ogilvie (1987) did find significant relationships between employees' perceptions of the accuracy of a merit-based pay system and the fairness of promotional decisions and their OC

levels. Importantly, these influences were obtained after the effects of several traditional predictors of commitment (e.g., task characteristics and tenure) had been accounted for.

In summary, OC represents a useful criterion for a number of organizational interventions designed to improve employees' attitudes and behaviors. At a minimum, we would suggest that it is particularly applicable to efforts designed to influence employees' socialization processes, participation, ownership in the company, reactions to job enrichment, and so forth. Obviously, this list could be much longer.

Diversification of Research Methodologies

Related to the previous recommendation, we advocate a diversification of research designs in future research investigating OC. Cross-sectional designs are useful for generating causal hypotheses. However, longitudinal studies conducted over a sufficiently long period of time designed to examine changes in OC levels are needed to test causal hypotheses more directly. Further, to the extent that identified antecedents of OC can be manipulated and their effects evaluated in field experiments and quasi-experimental designs, we may develop greater confidence in, and understanding of, the causal influences on OC. In brief, the use of a variety of study methodologies in future research will help to discount mono-operational biases (e.g., T. D. Cook & Campbell, 1979) and will better enable us to advance toward a coherent theory of how OC develops over time. With such knowledge, we should be better equipped to design interventions to manage commitment levels.

In conclusion, it is clear that the concept of OC has been gaining attention in recent years, and it is likely to continue to do so in the future. Gaining a better understanding of how commitment develops and is maintained over time has vast implications for employees and organizations alike. We hope that this review has helped to direct those future efforts by identifying areas where questions remain. We recommend that research move beyond the more static approaches and begin to examine OC as related to other variables in more dynamic research designs. Furthermore, we hope that theoretical development begins to advance at the same rate as does empirical work. It seems clear that the relationships involving OC are neither simple nor universal. We hope that a meta-analysis written several years from now will be able to summarize contingency relationships involving OC and provide more definitive guidelines for practice.

References

- Aldag, R. J., & Brief, A. P. (1978). Supervisor style and police role stress. *Journal of Police Science and Administration*, 6, 362-367.
- Angle, H. L., & Perry, J. L. (1986). Dual commitment and labor-management relationship climates. *Academy of Management Journal*, 29, 31-50.
- Aranya, N., & Ferris, K. R. (1983). Organizational-professional conflict among U.S. and Israeli professional accountants. *Journal of Social Psychology*, 119, 153-161.
- Aranya, N., & Jacobson, D. (1975). An empirical study of theories of organizational and occupational commitment. *Journal of Social Psychology*, 97, 15-22.
- Arnold, H. J., & Feldman, D. C. (1982). A multivariate analysis of the determinants of job turnover. *Journal of Applied Psychology*, 67, 350-360.
- Arnold, H. J., Feldman, D. C., & Purbhoo, M. (1985). The role of social desirability response bias in turnover research. *Academy of Management Journal*, 28, 955-966.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Bateman, T. S., & Strasser, S. (1984). A longitudinal analysis of the antecedents of organizational commitment. *Academy of Management Journal*, 27, 95-112.
- Becker, H. S. (1960). Notes on the concept of commitment. *American Journal of Sociology*, 66, 32-42.
- Berger, C. J., & Cummings, L. L. (1979). Organizational structure, attitudes and behaviors. *Research in Organizational Behavior*, 1, 169-208.
- Blau, G. J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, 58, 277-288.
- Blau, G. J. (1986). Job involvement and organizational commitment as interactive predictors of tardiness and absenteeism. *Journal of Management*, 12, 577-584.
- Blau, G. J. (1987). Using a person-environment fit model to predict job involvement and organizational commitment. *Journal of Vocational Behavior*, 30, 240-257.
- Bluedorn, A. C. (1982). A unified model of turnover from organizations. *Human Relations*, 35, 135-153.
- Boudreau, J. W., & Berger, C. J. (1985). Decision-theoretic utility analysis applied to employee separations and acquisitions [Monograph]. *Journal of Applied Psychology*, 70, 581-612.
- Bruning, N. S., & Snyder, R. A. (1983). Sex and position as predictors of organizational commitment. *Academy of Management Journal*, 26, 485-491.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-105.
- Chassie, M., & Bhagat, R. S. (1980). Role stress in working women: Differential effect on selected organizational outcomes. *Group and Organization Studies*, 5, 224-233.
- Clegg, C. W. (1983). Psychology of employee lateness, absence, and turnover: A methodological critique and an empirical study. *Journal of Applied Psychology*, 68, 88-101.
- Cohen, J. (1969). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology*, 53, 39-52.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design & analysis issues for field settings*. Boston: Houghton Mifflin.
- DeCotiis, T. A., & Summers, T. P. (1987). A path-analysis of a model of the antecedents and consequences of organizational commitment. *Human Relations*, 40, 445-470.
- Dougherty, T. W., Bluedorn, A. C., & Keon, T. L. (1985). Precursors of employee turnover: A multi-sample causal analysis. *Journal of Occupational Behaviour*, 6, 259-271.
- Ferris, K. R. (1981). Organizational commitment and performance in a professional accounting firm. *Accounting, Organization, and Society*, 6, 317-326.
- Ferris, K. R., & Aranya, N. (1983). A comparison of two organizational commitment scales. *Personnel Psychology*, 36, 87-98.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

- Fisher, C. D. (1985). Social support and adjustment to work: A longitudinal study. *Journal of Management*, *11*, 39–53.
- Fisher, C. D., & Gitelson, R. (1983). A meta-analysis of the correlates of role conflict and ambiguity. *Journal of Applied Psychology*, *68*, 320–333.
- Fiske, D. W. (1987). Construct invalidity comes from method effects. *Educational and Psychological Measurement*, *47*, 285–307.
- French, J. L., & Rosenstein, J. (1984). Employee ownership, work attitudes, and power relationships. *Academy of Management Journal*, *27*, 861–869.
- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*, 287–322.
- Fukami, C. V., & Larson, E. W. (1984). Commitment to company and union: Parallel models. *Journal of Applied Psychology*, *69*, 367–371.
- Ganster, D. C., Hennessey, H. W., & Luthans, F. (1983). Social desirability response effects: Three alternative models. *Academy of Management Journal*, *26*, 321–331.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis in social research*. Beverly Hills, CA: Sage.
- Grusky, D. (1966). Career mobility and organizational commitment. *Administrative Science Quarterly*, *10*, 488–503.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, *16*, 250–279.
- Hall, D. T., Schneider, B., & Nygren, H. T. (1970). Personal factors in organizational identification. *Administrative Science Quarterly*, *15*, 176–189.
- Howell, J. P., & Dorfman, P. W. (1981). Substitutes for leadership: Test of a construct. *Academy of Management Journal*, *24*, 714–728.
- Hrebiniak, L. G. (1974). Effects of job level and participation on employee attitudes and perceptions of influence. *Academy of Management Journal*, *17*, 649–662.
- Hrebiniak, L. G., & Alutto, J. A. (1972). Personal and role-related factors in the development of organizational commitment. *Administrative Science Quarterly*, *17*, 555–573.
- Hunter, J. E., Schmidt, F. L., & Jackson, G. B. (1982). *Meta-analysis: Cumulating research findings across studies*. Beverly Hills, CA: Sage.
- Ivancevich, J. M. (1980). A longitudinal study of behavioral expectation scales: Attitudes and performance. *Journal of Applied Psychology*, *65*, 135–146.
- Ivancevich, J. M., & McMahon, J. L. (1982). The effects of goal setting, external feedback, and self-generated feedback on outcome variables: A field experiment. *Academy of Management Journal*, *25*, 359–372.
- Jackson, S. E., & Schuler, R. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, *36*, 16–78.
- James, L. R., & Tetrick, L. E. (1986). Confirmatory analytic tests of three causal models relating job perceptions to job satisfaction. *Journal of Applied Psychology*, *71*, 77–82.
- Jermier, J. M., & Berkes, L. J. (1979). Leader behavior in a police command bureaucracy: A closer look at the quasi-military model. *Administrative Science Quarterly*, *24*, 1–23.
- Jöreskog, K. G., & Sörbom, D. (1986). *LISREL: Analysis of linear structural relationships by the method of maximum likelihood*. Mooresville, IN: Scientific Software.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.
- Kemp, N. J., Wall, J. D., Clegg, C. W., & Cordery, J. L. (1983). Autonomous work groups in a green field site: A comparative study. *Journal of Occupational Psychology*, *56*, 271–288.
- Kidron, A. (1978). Work values and organizational commitment. *Academy of Management Journal*, *21*, 239–247.
- Koch, J. T., & Steers, R. M. (1978). Job attachment, satisfaction, and turnover among public sector employees. *Journal of Vocational Behavior*, *12*, 119–128.
- Korman, A. K., Glickman, A. S., & Frey, R. L. (1981). More is not better: Two failures of incentive theory. *Journal of Applied Psychology*, *66*, 255–259.
- Lachman, R., & Aranya, N. (1986). Evaluation of alternative models of commitments and job attitudes of professionals. *Journal of Occupational Behaviour*, *7*, 227–243.
- Larson, E. W., & Fukami, C. V. (1984). Relationships between worker behavior and commitment to the organization and union. *Academy of Management Proceedings*, *34*, 222–226.
- Lewin, K. (1943). Defining the “field at a given time.” *Psychological Review*, *50*, 292–310.
- Lodahl, T., & Kejner, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology*, *49*, 24–33.
- Loher, B. T., Noe, R. A., Moeller, N. L., & Fitzgerald, M. P. (1985). A meta-analysis of the relation of job characteristics to job satisfaction. *Journal of Applied Psychology*, *70*, 280–289.
- Luthans, F., Baack, D., & Taylor, L. (1987). Organizational commitment: Analysis of antecedents. *Human Relations*, *40*, 219–236.
- March, J. G., & Simon, H. A. (1958). *Organizations*. New York: Wiley.
- Mathieu, J. E. (1988). A causal model of organizational commitment in a military training environment. *Journal of Vocational Behavior*, *32*, 321–335.
- Mathieu, J. E., & Hamel, K. (1989). A causal model of the antecedents of organizational commitment among professionals and nonprofessionals. *Journal of Vocational Behavior*, *34*, 299–317.
- McGee, G. W., & Ford, R. C. (1987). Two (or more?) dimensions of organizational commitment: Reexamination of the affective and continuance commitment scales. *Journal of Applied Psychology*, *72*, 638–642.
- Meyer, J. P., & Allen, N. J. (1984). Testing the “side-bet theory” of organizational commitment: Some methodological considerations. *Journal of Applied Psychology*, *69*, 372–378.
- Michaels, C. E., & Spector, P. E. (1982). Causes of employee turnover: A test of the Mobley, Griffeth, Hand, and Meglino model. *Journal of Applied Psychology*, *67*, 53–59.
- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, *86*, 493–522.
- Morris, J. H., & Sherman, J. D. (1981). Generalizability of an organizational commitment model. *Academy of Management Journal*, *24*, 512–526.
- Morris, J. H., & Steers, R. M. (1980). Structural influences on organizational commitment. *Journal of Vocational Behavior*, *17*, 50–57.
- Morrow, P. C. (1983). Concept redundancy in organizational research: The case of work commitment. *Academy of Management Review*, *8*, 486–500.
- Morrow, P. C., & McElroy, J. C. (1986). On assessing measures of work commitment. *Journal of Occupational Behaviour*, *7*, 139–145.
- Mowday, R. T., Koberg, C. S., & McArthur, A. W. (1984). The psychology of the withdrawal process: A cross-validation test of Mobley's intermediate linkages model of turnover in two samples. *Academy of Management Journal*, *27*, 79–94.
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organizational linkages*. New York: Academic Press.
- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, *14*, 224–247.

- Ogilvie, J. R. (1987). The role of human resource management practices in predicting organizational commitment. *Group and Organization Studies*, 11, 335-359.
- O'Reilly, C. A., Bretton, G. E., & Roberts, K. H. (1974). Professional employees' preference for upward mobility: An extension. *Journal of Vocational Behavior*, 5, 139-145.
- O'Reilly, C. A., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, 71, 492-499.
- Parasuraman, S. (1982). Predicting turnover intentions and turnover behavior: A multivariate analysis. *Journal of Vocational Behavior*, 21, 111-121.
- Parasuraman, S., & Alutto, J. A. (1984). Sources and outcomes of stress in organizational settings: Toward the development of a structural model. *Academy of Management Journal*, 27, 330-350.
- Pearlman, K., Schmidt, F. L., & Hunter, J. E. (1980). Validity generalization results for tests used to predict job proficiency and training success in clerical occupations. *Journal of Applied Psychology*, 65, 373-406.
- Petty, M. M., McGee, G. W., & Cavender, J. W. (1984). A meta-analysis of the relationships between individual job satisfaction and individual performance. *Academy of Management Review*, 9, 712-721.
- Pierce, J. L., & Dunham, R. B. (1987). Organizational commitment: Pre-employment prosperity and initial work experiences. *Journal of Management*, 13, 163-178.
- Podsakoff, P. M., Williams, L. J., & Todor, W. D. (1986). Effects of organizational formalization on alienation among professionals and nonprofessionals. *Academy of Management Journal*, 29, 820-831.
- Porter, L. W., Crampon, W. J., & Smith, F. J. (1976). Organizational commitment and managerial turnover: A longitudinal study. *Organizational Behavior and Human Performance*, 15, 87-98.
- Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology*, 59, 603-609.
- Premack, S. L., & Wanous, J. P. (1985). A meta-analysis of realistic job preview experiments. *Journal of Applied Psychology*, 70, 706-719.
- Rafaeli, A. (1986). Employee attitudes toward working with computers. *Journal of Occupational Behaviour*, 7, 89-106.
- Randall, D. M. (1987). Commitment and the organization: The organization man revisited. *Academy of Management Review*, 12, 460-471.
- Reichers, A. E. (1985). A review and reconceptualization of organizational commitment. *Academy of Management Review*, 10, 465-476.
- Reichers, A. E. (1986). Conflict and organizational commitments. *Journal of Applied Psychology*, 71, 508-514.
- Rhodes, S. R., & Steers, R. M. (1981). Conventional vs. worker-owned organizations. *Human Relations*, 34, 1013-1035.
- Ritzer, G., & Trice, H. M. (1969). An empirical study of Howard Becker's side-bet theory. *Social Forces*, 47, 475-479.
- Rosenthal, R. (1984). *Meta-analytic procedures for social research*. Beverly Hills, CA: Sage.
- Rousseau, D. M. (1985). Issues of level in organizational research: Multi-level and cross-level perspectives. *Research in Organizational Behavior*, 7, 1-37.
- Sackett, P. R., Harris, M. M., & Orr, J. M. (1986). On seeking moderator variables in the meta-analysis of correlational data: A Monte Carlo investigation of statistical power and resistance to Type I error. *Journal of Applied Psychology*, 71, 302-310.
- Salancik, G. R. (1977). Commitment and the control of organizational behavior and belief. In B. M. Staw & G. R. Salancik (Eds.), *New directions in organizational behavior* (pp. 1-95). Chicago: St. Clair Press.
- Scholl, R. W. (1981). Differentiating organizational commitment from expectancy as a motivating force. *Academy of Management Review*, 4, 589-599.
- Schriesheim, C., & Kerr, S. (1974). Psychometric properties of the Ohio State leadership scales. *Psychological Bulletin*, 81, 756-765.
- Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior*, 2, 3-43.
- Spector, P. E. (1985). Higher-order need strength as a moderator of the job scope-employee outcome relationship: A meta-analysis. *Journal of Occupational Psychology*, 58, 119-127.
- Steel, R. P., Mento, A. J., Dilla, B. L., Ovalle, N. K., & Lloyd, R. F. (1985). Factors influencing the success and failure of two quality circle programs. *Journal of Management*, 11, 99-119.
- Steel, R. P., & Ovalle, N. K. (1984). A review and meta-analysis of research on the relationship between behavioral intentions and employee turnover. *Journal of Applied Psychology*, 69, 673-686.
- Steers, R. M. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly*, 22, 46-56.
- Steers, R. M., & Rhodes, S. R. (1978). Major influences on employee attendance: A process model. *Journal of Applied Psychology*, 63, 391-407.
- Steers, R. M., & Spencer, D. G. (1977). The role of achievement motivation in job design. *Journal of Applied Psychology*, 62, 472-479.
- Stevens, J. M., Beyer, J., & Trice, H. M. (1978). Assessing personal, role, and organizational predictors of managerial commitment. *Academy of Management Journal*, 21, 380-396.
- Still, L. W. (1983). Part-time versus full-time salespeople: Individual attributes, organizational commitment, and work attitudes. *Journal of Retailing*, 59, 55-79.
- Stone, E. F., & Gueutal, H. G. (1985). An empirical derivation of the dimensions along which characteristics of jobs are perceived. *Academy of Management Journal*, 28, 376-396.
- Stone, E. F., & Porter, L. W. (1975). Job characteristics and job attitudes: A multivariate study. *Journal of Applied Psychology*, 60, 57-64.
- Stumpf, S. A., & Hartman, K. (1984). Individual exploration to organizational commitment or withdrawal. *Academy of Management Journal*, 27, 308-329.
- Van Maanen, J. (1975). Police socialization: A longitudinal examination of job attitudes in an urban police department. *Administrative Science Quarterly*, 20, 207-228.
- Welsch, H. P., & LaVan, H. (1981). Inter-relationships between organizational commitment and job characteristics, job satisfaction, professional behavior, and organizational climate. *Human Relations*, 34, 1079-1089.
- Werbel, J. D., & Gould, S. (1984). A comparison of the relationship of commitment to turnover in recent hires and tenured employees. *Journal of Applied Psychology*, 69, 687-690.
- Wiener, Y. (1982). Commitment in organizations: A normative view. *Academy of Management Review*, 7, 418-428.
- Wiener, Y., & Vardi, Y. (1980). Relationships between job, organization, and career commitments and work outcomes—An integrative approach. *Organizational Behavior and Human Performance*, 26, 81-96.
- Williams, L. J., & Hazer, J. T. (1986). Antecedents and consequences of satisfaction and commitment in turnover models: A reanalysis using latent variable structural equation methods. *Journal of Applied Psychology*, 71, 219-231.
- Winer, B. J. (1971). *Statistical principles in experimental design* (2nd ed.). New York: McGraw-Hill.

Received March 25, 1988

Revision received February 23, 1989

Accepted March 23, 1989 ■