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Factors Associated with Continuance Commitment to FAA Matrix Teams

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16. Abstract

Several organizations within the FAA employ matrix teams to achieve cross-functional coordination. Matrix team members typically represent different organizational functions required for project accomplishment (e.g., research and development, engineering, quality assurance, legal, acquisition, and customers). The matrix team strategy decentralizes decision-making to the level of a project leader, so that knowledge relevant to the decision can be collected and outcomes closely monitored. While there are several factors that influence productivity of matrix teams, member turnover can have a substantial impact. Thus, identifying the factors that affect a productive member's continued membership to the team is important.

This report summarizes data gathered as part of a research task initiated at the request of the Associate Administrator for NAS Development (AND-1). Questionnaires were developed to evaluate how well existing AND matrix teams were functioning. These data will also serve as a baseline against which to gauge future development of the matrix team program. The present paper examined two issues: (i) the relationship between perceptions of the quality of member-team interactions and individual member commitment to remain on the team (continuance commitment) and, (ii) whether or not that relationship might be influenced by the degree to which a member identified with the team as opposed to his/her individual office, function, or profession. Results from 141 members of 22 FAA matrix teams indicated a significant relationship between the quality of member-team interactions and continuance commitment. Moreover, team identification moderated the magnitude of the relationship between interaction quality and continuance commitment. Specifically, regardless of team identification, when members perceived member-team interactions to be of high quality, they also reported commitment to continuing on the team. However, this relationship was particularly critical for those members whose identification with the team was weak. For them, the quality of interactions among team members was strongly related to continuance commitment. Based on these results, efforts by project leaders to increase the number of and quality of interactions between matrix team members and to encourage member identification with the team are likely to reduce unwanted turnover behaviors.

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FACTORS ASSOCIATED WITH CONTINUANCE COMMITMENT TO FAA MATRIX TEAMS

INTRODUCTION

Many organizations employ matrix teams to achieve cross-functional coordination. Matrix team members typically represent the different organizational functions relevant to project accomplishment (e.g., research and development, engineering, quality assurance, legal, acquisition, clients). The matrix team strategy decentralizes decision-making to the level of a project leader, so that knowledge relevant to the decision can be collected and outcomes closely monitored (Kolodny, 1979).

Turnover is particularly problematic for matrix teams, although it has been virtually overlooked in recent decades as attention was focused on organization-level turnover. Ironically, individuals might be more likely to negotiate reassignments to other duties or teams than they are to leave their organization. Yet in either case, team or organizational turnover, team productivity is likely to suffer. Withdrawal from teams whose members operate interdependently can require substantial adjustment (Moreland & Levine, 1988). Even if it is possible to find a replacement with similar technical expertise, an incoming member is likely to lack the previous incumbent's knowledge of team dynamics, member idiosyncrasies, and team history. Consequently, team group dynamics would have to shift somewhat from project development to team building until the new member is assimilated. Thus, identifying the factors that affect the departure of productive team members is important.

The purposes of the present paper were twofold. First, we examined perceived member-team exchange quality as it relates to commitment to remain on the team (i.e., continuance commitment). Second, in line with recent work on social identity theory in organizations, we examined moderating effect of team identification on the e[illegible]ge quality-commitment relationship.

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Commitment

Research on organizational commitment has been conducted with the implicit assumptions that the antecedents of commitment can be influenced by management (Angle & Perry, 1983) and that the outcomes of commitment are favorable (Meyer, et al. 1989). Theorists have viewed organizational commitment from a variety of perspectives. For example, Staw (1977) characterized it as identification with, and involvement in, the organization. Kanter (1968) mentioned the strength of social attachments to co-workers and support for workplace rules. Farrell and Rusbult (1981) described commitment as an assessment of the costs and benefits that employees associate with remaining in or leaving the organization. Regardless of perspective, researchers generally agree that employees who are committed to an organization are less likely to leave.

Most definitions of organizational commitment have focused on the relationship between an individual and the entire organization. However, Reichers (1985) suggested that commitment can have multiple constituencies, such as to senior management. Similarly, Morrow (1983) pointed out that commitment can have multiple referents -- values, career, job, organization, and union. In line with our interest in matrix team turnover, we add "team" to this list.

Our focus on the team as a target constituency reflects the accrued investments that team members weigh when considering continued membership. Consistent with the investment approach to conceptualizing team commitment, we suggest that an important element of team dynamics that might bear on the decision to remain or leave is member-team exchange norms.

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Member-Team Exchange Quality

Social exchange consists of obligations that are based on trust, whereas economic exchange is comprised of fairly explicit obligations to take place at a specific time and is enforced by formal contract (Keeley, 1988). Organ and Konovsky (1989) noted that the exchange between a worker and his/her organization is a mixture of economic and social exchanges. A recently developed construct focusing on social exchange in teams is "member-team exchange," which reflects the extent to which information, help, and recognition between an individual team member and the team is reciprocal.

Originally discussing this construct as "team-member exchange," Seers (1989) indicated that it reflects the interactions between the team member and the team as a whole. This approach to exchange focuses on one's perceived role in relation to the team. According to Seers, member-team exchange is related to, but different from, variables such as cohesion and Graen and Cashman's (1975) concept of leader-member exchange. While cohesion involves the extent to which the team functions as a unit rather than a collection of independent individuals, member-team exchange reflects one's role within the context of the team. In contrast to leader-member exchange, which represents a dyadic relationship between supervisor and employee, member-team exchange involves one's relationship with team members collectively. Seers (1989) found that member-team exchange quality significantly predicted subsequent job satisfaction. Members who perceive greater levels of reciprocal exchange between themselves and other members may have a greater investment in the team and thus be less likely to consider leaving the team.

> ***Hypothesis 1.*** Perceptions of member-team exchange quality are positively related to expressions of team commitment in terms of intent to stay (continuance commitment).

Team Identification

Recent applications of social identity theory to organizations suggest that the extent to which employees identify with their employer, occupation, or other work-relevant constituency has an effect on attitudes and behaviors at work (e.g., Ashforth & Mael, 1992; Brown & Williams, 1984; Brown, Condor, Matthews, Wade, & Williams, 1986; Kramer, in press; Whetten, Lewis, & Mischel, 1992; Witt, in press). Central to social identity theory is the notion that concern about relationships with different groups is an important determinant of individual behavior (Jackson, 1981).

Ashforth and Mael (1989, p. 21) noted that one's social identity has two functions. First, "it cognitively segments and orders the social environment, providing the individual with a systematic means of defining others." Second, it "enables the individual to locate or define him- or herself in the social environment." Ashforth and Mael identified four key characteristics of social identification. First, identification is a perceptual cognitive construct; i.e., it is not necessarily associated with specific moods or behaviors. Second, it typically is maintained in situations involving failure. In other words, identification can develop even in the absence of interpersonal cohesion or similarity, but still have a profound effect on behavior and affect (Turner, 1985). Third, identification is distinct from internalization (O'Reilly & Chatman, 1986). Fourth, one's social identity may be derived from the organization, work group, department, union, or other constituencies at work.

Stryker (1977) suggested that one's commitment to their identity determines the extent to which that identity shapes behavior. Indeed, a person who lists "anonymous philanthropist" as number one on his/her list of responses to the Kuhn and McPartland (1954) Twenty Statements Test (i.e., "Who Am I?" Test) is likely to hold different social attitudes than a person who lists "professional wrestling fan." Similarly, employees who identify most closely with their team may be likely to hold different job attitudes than those who identify most closely with their occupation or other organizational constituencies.

An important issue is the measurement of team identification. Identity theory holds that the position of an identity in one's identity hierarchy is important. Thus, team identification may be assessed by the selection of team- vs. other constituency identities.

Given Seer's (1989) definition of member-team exchange as reflecting one's role within the context of the team, we suggest that team identification might influence the relationship between perceptions of member-team exchange quality and team continuance

commitment. Team members who identify primarily with their team have likely internalized the team's mission and goals. For them, the team is a strong component of the self-concept at work. Therefore, the existence of norms for high reciprocal exchange quality is likely to have less influence on team continuance commitment than for members who identify with referents/constituencies outside the team.

Hypothesis 2. The relationship between perceptions of member-team exchange quality and team commitment is moderated by identification with the team versus other work-relevant constituencies. Specifically, the perceived exchange quality-commitment relationship is less salient for members who identify with the team than for those who do not.

Method

Subjects

A total of 235 surveys were disseminated to matrix team members employed by a federal agency, of which 177 (75.3%) were returned. Because of missing data, analyses were run only on 141 (60%) cases. Participants completed surveys voluntarily and anonymously. Most (60.5%) of the team members indicated that they had no previous experience in a matrix team, while 21% reported over three years of experience.

Measures

We revised the Hrebiniak and Alutto (1972) organizational commitment measure (M = 16.60, SD = 3.53, a = .91) to assess team commitment. The four items measure the employee's calculative involvement with the team by assessing the propensity to leave the team as a function of alternative inducements . High scores reflect greater continuance commitment.

We assessed team identification with one item (M = 1.81, SD = .40) asking participants to indicate with which of five possible responses they most closely identified. These responses were "your team," "your profession or occupational specialty (what you do)," and three organizational referents, ranging from the fairly immediate functional work unit to the global organization. Responses were recoded into two categories: (a) individuals who selected their team, and (b) those who did not.

We assessed member-team exchange quality with the Seers (1989) 9-item Team-Member Exchange Quality scale (M = 30.99, SD = 6.53, a = .84). These items measure the perceived extent to which information, help, and recognition are reciprocal between the individual member and the team as a whole. High scores reflect perceptions of greater exchange quality.

To identify the team turnover rates, we asked team leaders in a separate survey to indicate the team's turnover over the past 12 months. Of the teams, 41% had turnover rates between 0% and 20%. The other rates were: (a) 36% (21-40% turnover), (b) 14% (41-60% turnover), (c) 4.5% (61-80% turnover), and (d) 4.5% (81-100% turnover). We also asked the team leaders to indicate the frequency of team meetings. Their responses indicated that 18% of the teams met once a week or more often, 5% met at least twice a month but less often than once a week, 14% met once a month, 27% met once every two months, and 36% met less often than once every two months.

Analyses

We were concerned with the possibility that our test of hypothesis 1 might reflect an artificially high relationship because of the single data source. Because common method variance would influence relationships to be in the same direction and thus mask any interaction effect, we did not consider it as strong a threat to our test of hypothesis 2. Following McFarlin and Sweeney (1992), we conducted confirmatory factor analyses (CFA) to determine whether or not member-team exchange quality and team commitment were unique variables in this study. Initial CFA indicated that the exchange quality scale was not unidimensional. We removed four items to form a 5-item exchange quality scale (M = 16.6, SD = 4.3, = .85) and then tested the null model, a one-factor model, and a two-factor model. Because team identification was assessed by one item, it was not included in the CFA. The two-factor model provided the best fit (Weighted Least Squares solution: Normed Fit Index = .99, Goodness of Fit Index = .99, Root Mean-Squared Residual = .05). The Maximum Likelihood solution was similar. These results suggest our predictor and criterion variables were unique. Although we report results of analyses on the 5-item exchange quality scale, we also tested

the hypotheses with the original, 9-item version; the results of the hypotheses tests were essentially the same.

A number of factors might confound the exchange quality-commitment relationship. For example, the frequency of team meetings, individual member previous experience in matrix teams, and team turnover could affect both the exchange quality and commitment levels. Thus, to test hypothesis 1, we computed both zero-order and partial correlations to control for their possible confounding effects. We used hierarchical moderated multiple regression analysis (Cohen & Cohen, 1975) to test hypothesis 2, regressing team commitment scores on team identification scores, team turnover rates, the frequency of team meetings, the number of months of member previous experience in matrix teams, and exchange quality scores. We then added the cross-product of exchange quality and team identification into the equation.

In hierarchical moderated multiple regression analysis, the statistical significance of the increment in R2 with the addition of the cross-product term is typically used as the criterion of the effect size of the interaction. However, researchers (e.g., Champoux & Peters, 1987) have argued that Δ R2 does not adequately indicate the nature of the impact of the moderator variable. Alternative measures of the effect size of the interaction, such as the standardized impact of the moderator on the regression slope (Champoux & Peters, 1987) and the semi-partial correlation of the interaction term (Cohen, 1978), provide conservative estimates of the effect size of the interaction term, because they -- like the ΔR^2 -- assess the average effect across the entire range of values of the predictor variable (Witt, 1992). Cohen (1977) identified three levels of criterion effect sizes -- .20 = small, .50 = medium, and .80 = large. Adopting these criteria, we assessed the effect of the moderator variable in terms of the differential impact of the moderator on the criterion at different levels of the predictor (Witt, 1992), in addition to the ΔR^2.

Results and Discussion

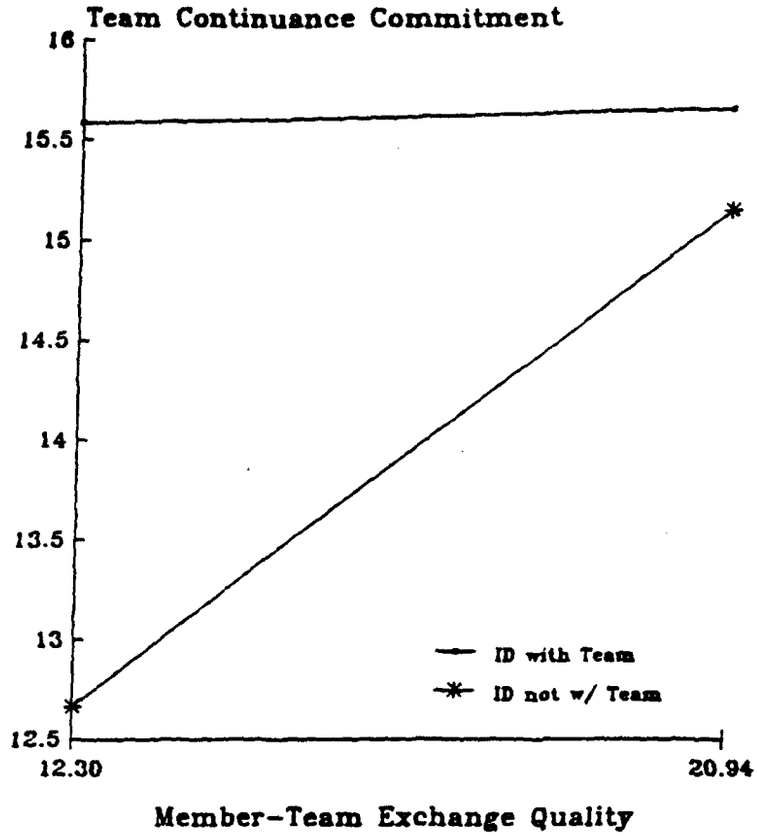
The intercorrelation matrix is presented in Table 1. Confirming hypothesis 1, perceptions of exchange norms were positively related (zero-order: $r = .32$, $p < .01$; partial: $r = .25$, $p < .01$) to team commitment. Consistent with hypothesis 2, the cross-product term added significant variance (adjusted $R^2 = .23$, $F = 6.3$, $p < .01$; $\Delta R^2 = .034$, $F = 5.7$, $p < .02$) over-and-above the variance explained by the main effects, indicating the presence of an interaction. To identify the form of the interaction, we plotted slopes for those identifying and not identifying with their team. As shown in Figure 1, the relationship between member-team exchange quality and team commitment was considerably weaker among employees who identified primarily with their team. Among the team members who reported identifying with the team, continuance commitment remained comparatively high, regardless of perceived levels of exchange quality.

Table 1. Intercorrelation Matrix

Variable	1	2	3	4	5
1. Team identification					
2. Exchange quality	-.18 [a]				
3. Team commitment	-.27[b]	.32[b]			
4. Team turnover rate	.14	-.19[a]	-.05		
5. Number of meetings held	-.24[b]	.24[b]	.31[b]	-.02	
6. Previous experience	-.09	.15[a]	.18[a]	-.09	.26[b]

Note: [a] = $p < .05$; [b] = $p < .01$.

Figure 1. Team Continuance Commitment Regressed on Member-Team Exchange: The Moderating Effect of Team Identification



Note: $Y = (-.51 + .38f)X + (-8.2f + 26.6)$, where f = one standard deviation below the mean of the moderator (or the mean, or one standard deviation above the mean), Y = the team commitment score, and X = the team exchange score. Only member-team exchange quality scale scores within +/- one standard deviation from the mean are plotted.

Figure 1 highlights the interactive effects. The impact of team identification on team commitment decreased as the level of perceived exchange quality increased. Among team members perceiving very low levels of exchange quality, members identifying with the team were considerably more committed to the team compared to members identifying elsewhere. Team identification yielded the following differences (at plus one standard deviation of the moderator compared to minus one standard deviation of the moderator) in predicted values of team commitment divided by the standard deviation of team commitment (i.e., standardized group differences): (a) .14 standard units of team commitment among employees with scores one standard deviation above the mean of member-team exchange; (b) .49 standard units of team commitment for those with scores at the mean of member-team exchange; and (c) .84 standard units of team commitment for employees with scores at one standard deviation below the mean of member-team exchange. Applying Cohen's (1977) effect size categories, the effect of team identification on team commitment was large when exchange scores were at one standard deviation below the mean, small when at the mean, but trivial when at one standard deviation above the mean.

Team members identifying with their team expressed significantly greater commitment (M = 18.4, SD = 2.3) and perceived slightly more exchange quality (M = 32.7, SD = 5.6) than members identifying elsewhere (commitment: M = 16.1, SD = 3.7, F = 11.4, p < .01; exchange quality: M = 30.1, SD = 6.7, F = 2.9, p = .09).

Our data suggest that high levels of member-team exchange quality should be an objective for teams. At high levels of perceived member-team exchange quality, members regardless of identification target reported high team continuance commitment. Efforts to increase reciprocity of quality exchanges between members and to encourage member identification with the team are likely to reduce unwanted turnover.

Becker (1992) argued that global organizational commitment should not be assessed, because such an approach ignores the multiple foci and antecedents of commitment. He advocated the matching of the focus of the independent variable to that of the dependent variable. In the present study, we focused on perceptions of member-team exchange quality as an antecedent of continuance commitment to the team. This approach and the examination of team identification as a possible moderator of that relationship is consistent with Becker's advice. In line with the multiple commitment literature (e.g., Morrow, 1983; Reichers, 1985), our results suggest that the matrix team is a constituency to which some employees are committed. Moreover, the results extend work on social identity theory by demonstrating the moderating effect of team identification on the exchange quality-commitment relationship.

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