

## **Social Exchange and Emotional Investment in Work Groups<sup>1</sup>**

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*This study applied a social exchange perspective to examine three related aspects of work group behavior: individuals' assessment of the personal costs and rewards of group membership, the overall level of emotional investment in a group, and the external evaluation of group performance. Regression analyses of survey data from 28 ongoing student work groups (134 individuals) indicated that perceptions of personal rewards resulting from interaction over a ten-week period are an important precursor of emotional investment, defined as a relational orientation that encourages mutual caring, group loyalty, and commitment to the group as a whole. Consistent with our expectations, personal costs influenced neither emotional investment nor group performance after considering the effects of personal rewards. Emotional investment mediated the effects of personal rewards on externally rated group performance. Thus, emotional investment was a pivotal dimension of group effectiveness. Results extend our understanding of group behavior by acknowledging the relationship between personal and group development while confirming the compelling role of emotions in social exchange.*

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Work groups answer to three masters: (1) the organization and its emphasis on output (group performance), (2) the group and its need for relational development, and (3) group members and their personal interests (costs and rewards of group membership) (Hackman, 1990; McGrath, 1991). Although these three masters (organization, group, and individual) often make conflicting demands, work groups must acknowledge all three perspectives and must consider the demands made by each to perform effectively over time (Hackman, 1990).

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We were particularly interested in the associations among the three aspects of work group effectiveness. Specifically, we used a social exchange perspective to focus on relations among individuals' assessments of the personal costs and rewards of group membership, the overall level of emotional investment in the group, and the external evaluation of group performance. We used social exchange theory as a lens for examining group effectiveness because it addresses exchange interdependency, allowing a focus on the links between individual members and their groups. From this perspective, individuals appraise membership in a work group based on the personal costs and benefits of social interaction. Perceptions of individual costs and benefits influence a member's overall level of emotional investment in a group, which, in turn, influences work group performance. We define emotional investment as a composite of group loyalty, mutual caring, and commitment to the group as a whole.

### **Member-Group Exchange and Attachment**

Social exchange theorists view the behavior of social systems as a function of decisions that are made by individuals (Tallman, Gray, & Leik, 1991). Group members exchange tangible and intangible resources with other group members based on their dependence on others for resources (Emerson, 1972; Foa & Foa, 1974). Generally, social exchange theory assumes that actors seek exchanges for the highest expected rewards at the lowest expected cost. Successful resource exchange increases the interdependency and commitment among contributors (Kelley, 1979; Tallman *et al.*, 1991). With any given group, the type of resources and the value of resources that are exchanged will differ across individuals. The greater the number of resources that are exchanged, the greater the interdependency among group members.

While most agree on the core premises of social exchange, theorists have differed in their emphasis regarding three dimensions: level of analysis and type of collectivity, the role of structural differentiation, and the role of rationality in calculating exchange outcomes. We consider each in turn in relation to the design of the present study.

Parsons (1951), Homans (1958), and Thibaut and Kelly (1959) addressed the issues of level of analysis and type of collectivity. In early theorizing, Parsons (1951) differentiated person-to-person from person-to-collectivity attachments. Homans (1958) linked the perspectives of economics and behavioral psychology in his discussion of social behavior as a form of exchange. Homans viewed social approval as an important group-individual exchange that forms the basis of group cohesion. Drawing on small-group research, he focused on the person in the context of the group. Gouldner (1960) defined reciprocity as the mutually contingent exchange of benefits between two or more units, yet focused almost entirely

on dyads. Commenting on the work of Thibaut and Kelley (1959), McGrath (1984) observed "In principle, their theory can be extended to larger social units; but in practice, very little work has been done in that direction" (p. 197). In summary, although each of these researchers acknowledged that social exchanges occur across multiple levels of analysis and between a variety of types of collectivities, most prior research has focused on dyadic exchange between individuals (e.g., Blau, 1964; Gouldner, 1960; Hays, 1985; Homans, 1958; McGrath, 1984) or has focused on the relationship between an individual and his or her organization, including work on the links between social exchange and perceived organizational support (e.g., Konovsky & Pugh, 1994; Settoon, Bennett, & Liden, 1996) and research on psychological contracts (e.g., Rousseau, 1995).

The second topic, the role of structural differentiation, is central to the work of Gouldner (1960) and Blau (1964). Gouldner emphasized that exchange is not necessarily equivalent. Instead, social exchange is often unequal and thus becomes the basis for social system stability, division of labor, and power. Blau (1964) defined exchange as unspecified obligations (i.e., mutual support). His discussion of social exchange in groups concentrated on structural differentiation (such as the emergence of a division of labor and leadership) and group formation. Blau, like Gouldner, did not examine peer relationships in any detail, preferring to focus on issues of inequality and heterogeneity.

The role of rationality and emotion in calculating exchange outcomes is the third issue where social exchange theorists differ in their emphasis. Parsons (1951) identified three primary forms of attachment that provide links to a collectivity: cognitive (utilitarian), cathectic (emotional), and evaluative (normative). To date, most of the research on social exchange has focused on the cognitive aspects of relationships. Little empirical research examines the emotional aspects of social exchange. An exception is Emerson (1987) who suggested flaws in subjective utility functions and the theory of rational choice. Instead, he emphasized the important role of values as "simplifying emotional guides" (p. 39) in decision making regarding the roles of costs and benefits. "This theory of value is a theory of emotion or of motivation and arousal, rather than a theory of cognition in decision making" (p. 40). Thus, he considered the role of emotional aspects of social exchange in directing emerging social structure. Similarly, Lawler and colleagues (Lawler, 1992; Lawler & Yoon, 1996) proposed choice process theory linking choice processes with emotion and enduring affective attachment. Lawler focused on the cathectic attachment of actors to collectives, which forms the basis for group cohesion. In his framework, transitory emotions (based on a sense of control) lead to enduring emotional attachments to groups. This notion is akin to psychological research suggesting that emotional ties define emotional attraction and subsequent investment. From this perspective, emotional attraction to a group includes both instrumental and emotional factors (Berscheid, 1985; Thibaut & Kelley, 1959).

In the present study, we frame our research in terms of Rusbult's (1983) investment model of relationship commitment, applied to the group level of analysis, with an emphasis on performance outcomes. We build on the recommendation of Homans (1958) who emphasized the importance of research that is not conducted with ad hoc groups in the lab. Thus we examine social exchange in a work group context using ongoing groups rather than concocted or short-term experimental groups. Moreover, unlike other social exchange research and theory on collectivities, we do not focus on structural differentiation, power, leadership, or the division of labor. Instead, we study peer relationships in groups with low differentiation among the roles of members (Sundstrom, De Meuse, & Futrell, 1990).

We highlight the premise that emotional investment facilitates the survival of a work group. In contrast, most of the research on group effectiveness emphasizes group production (output) and does not examine either the costs and rewards of group membership or the emotional investments of members in their group. Excessive short-term emphasis on group output can have negative ramifications for the longer term viability and consequent performance of a work group (McGrath, 1997). There are two reasons for this. First, if short-term performance pressures are costly and rewards are negligible, the continuity of the group is at risk (Hackman & Oldham, 1980). Members may terminate their membership, and group performance will suffer. Second, if short-term group performance goals are emphasized over the consideration of personal interests, members may reduce their contributions of effort and knowledge to the group (Argote & McGrath, 1993). Here, members do not end their affiliation with the group, but instead reduce their social interaction and neglect relationships with other members. Again, group performance will be compromised. In summary, this research focuses on the key role of emotional investment as a mediator that links social exchange and group performance. We view this emphasis on emotional investment as the key contribution of the study.

### **Personal Rewards and Costs**

Understanding the link between social exchange and emotional investment requires understanding the nature of personal relationships. One of the best known models of social exchange and development in personal relationships is that of Altman and Taylor (1973) who examined relationship development in terms of social penetration. Social penetration is a systematic process of mutual self-disclosure where interactions are "critiqued" over time to determine if further investment is warranted. Altman and Taylor, like other social exchange theorists (e.g., Knapp & Vangelisti, 1991), assume that individuals use internal subjective processes to evaluate the personal costs and rewards of the exchange. Generally, if the overall assessment is positive, individuals continue to invest in the relationship through the mutual exchange of resources.

Clore and Byrne (1974) focused their social exchange work on costs. They suggested that unsatisfying and nonprogressing relationships are characterized by excessive personal costs. Other researchers, however, describe more complex models of ongoing relationships that emphasize the importance of both costs and rewards. For example, Braiker and Kelley (1979), Huston and Burgess (1979), and Eidelson (1980) argued that costs are inevitable because uncertainty and conflict accompany increases in relational investment. In other words, all relationships involve some costs and some rewards; the fact that a relationship persists does not indicate an absence of costs. For example, Hays (1985) documented personal costs and benefits in a 12-week, longitudinal study of friendship development among college students. If a relationship offered enough benefits, individuals were willing to tolerate the accompanying costs.

Social exchange theory (Homans, 1974; Thibaut & Kelley, 1959) views the development of personal relationships as successive stages of increasingly rewarding mutual exchanges. Relationship development includes the hierarchical development of mutuality (Levinger, 1974) or symmetrical reciprocity (Hartup & Stevens, 1997). A relationship progresses through hierarchical or developmental stages based on continuing and reciprocal opportunities that allow individuals to maximize personal rewards and minimize personal costs in the relationship (Drisgotas & Rusbult, 1992; Gabarro, 1987; Secord & Backman, 1964). Continuing investment in the relationship is based on mutual concern, cumulative interpersonal knowledge, and relational closeness (Hartup & Stevens, 1997; Huston & Burgess, 1979; Kelley, 1979; Levinger & Snoek, 1972).

We reasoned that cost-benefit assessments related to decisions to invest in relationships would occur in work groups as well. In dyadic research, Rusbult (1983) defined *rewards* as enjoyable or appreciated relational attributes. *Costs* are relational attributes that are annoying or disliked. Individuals are satisfied with relationships that provide high rewards and low costs. Empirical work testing Rusbult's investment model confirmed that rewards and costs explained a significant proportion of the variance in satisfaction, with rewards being a substantially stronger predictor (Bui, Peplau, & Hill, 1996).

Because reciprocity may signal involvement and attachment (Lydon, Jamieson, & Holmes, 1997), rewards may be a better indicator of reciprocity than costs. We anticipated that rewards could demonstrate reciprocity more clearly given the implications for member inclusion, mutuality, and loyalty (James & Cropanzano, 1994). Thus, we suggest that rewards should show a stronger relation (compared to costs) with emotional investment as it has in previous work (see Bui *et al.*, 1996).

Extending Rusbult's model and applying it at the group level, we posit that when overall aggregate evaluation of costs and rewards is favorable, groups promote mutual self-disclosure, reciprocal interdependence, and mutual concern for members—just as do dyads. We expected that groups characterized by perceptions

of higher average rewards and lower average costs would be more emotionally invested. Because “emotional and cognitive states are intertwined” (Lawler, 1992, p. 328), cost-benefit assessment is not just a cognitive process. For Hypothesis 1, we predicted that both personal costs and rewards would be significant predictors of the overall level of emotional investment among group members. We anticipated that personal rewards would be positively related to emotional investment in a group while personal costs would be negatively related to emotional investment.

### **The Emotion of Exchange**

Social exchanges are enacted so as to promote reassurance about the prospects for a relationship (Kelley & Thibaut, 1978). Exchange behaviors serve to acknowledge reciprocity in the service of a balanced and fair relationship (Clark & Mills, 1979) while communal behaviors are designed to facilitate closeness (Berscheid, Snyder, & Omoto, 1989) and trust (Holmes & Rempel, 1989). According to social exchange theorists, exchange interdependency motivates highly committed group members to contribute to group goals and to the satisfaction of other group members, even when making these contributions is costly to the self (Tallman *et al.*, 1991). These contributions to group welfare reflect the level of emotional investment in a group. As emotional investment increases, the setting changes from one where members exchange resources to one where the group strives to meet the personal needs of members. In existing relationships, emotional investment is based, in part, on past resource exchange and on a developmental time frame that allows for evolving perceptions of costs and rewards (Bui *et al.*, 1996; Hartup & Stevens, 1997; Tallman *et al.*, 1991).

There is broad agreement among social exchange researchers that as interpersonal relationships progress, there will be an accompanying increase in the involvement, intimacy, or closeness of the participants (Berscheid, 1985). Berscheid (1983) theorizes that, for interpersonal interaction, there is a high degree of uncertainty early in a relationship because paired individuals have not yet been able to predict each other's actions, emotions, cognitions, or motivations. With time, interpersonal interaction becomes more predictable and individuals become more dependent on one another for stability as the uncertainty is reduced. At the core of this concept of intimacy is a mutual concern for each other's welfare. This intimacy component might be viewed largely, but not exclusively, as deriving from the emotional investment in a relationship. For example, Sternberg (1986) surmises that intimacy is largely composed of emotional elements and seems to function in ways quite akin to those of emotions.

### **Emotional Investment**

In our research we extended aspects of Rusbult's (1983) investment model of relationship commitment and stability to the group level, using it to predict

performance rather than stability. Rusbult suggested that commitment is a function of relational satisfaction and investments, defined as the collective resources linked to a relationship. We modified Rusbult's model by suggesting that *emotional investment* (commitment) is a function of successful resource exchanges (satisfaction) which, in turn, influence performance. Our aim was to integrate the affectively charged concepts of satisfaction, investments, and commitment into a group-level property reflecting relational dynamics. Another reason for simplifying the model was that empirical tests of Rusbult's mediational components (i.e., satisfaction and commitment) have produced mixed results (Bui *et al.*, 1996; Rusbult & Martz, 1995). In the current study, emotional investment is a composite of group loyalty, mutual caring, and commitment to the group as a whole.

In relation to other research, our concept of emotional investment compares to feelings of mutual closeness and solidarity (Berscheid *et al.*, 1989; Harvey & Omarzu, 1997); to attachment "as an affective bond in which participants feel close and affectively connected to each other" (Reis & Patrick, 1996, p. 525), to commitment "as the tendency to maintain a relationship and to feel psychologically 'attached' to it" (Rusbult, 1983, p. 102), and to "connectedness," a composite comprised of closeness, interdependence, and emotional tone (Collins & Repinski, 1991).

At the group level, emotional investment begins as a function of assessments of rewards and costs; but as interdependency among group members increases, it may evolve into a communal orientation. Members who have experienced successful exchanges in a work group become more dependent on each another as their relationships develop (Wageman, 1995). With this dependence may come enhanced emotional support such as loyalty, trust, intimacy, and fun (Hartup & Stevens, 1997). To build relationships, group members must make contributions to each other's welfare (Davis, Zarnoth, Hulbert, Chen, Parks, & Nam, 1997) as well as to performance objectives (Walton & Hackman, 1986). In our research, we focus on whether emotional investment mediates the effects of rewards and costs on outcomes or whether exchanges influence outcomes directly (Clark & Mills, 1993; Lydon *et al.*, 1997). For work groups, performance is the most critical outcome to the organization.

### Emotional Investment and Group Performance

Relationships develop over time and vary in their stability, mutuality, and efficacy (Gabarro, 1978). According to social exchange theory, effective relationships that are based on continuing exchanges over time are often termed developed or developing relationships. Developed relationships imply ongoing mutuality—each party is committed to the other's well-being and efficacy (Levinger, 1974; Levinger & Snoek, 1972; Miller, 1997). Relational investment has a positive effect on social outcomes (Rusbult & Buunk, 1993). For example, with increasing development, communication is more efficient because "intended meanings are transmitted and

understood with rapidity, accuracy, and sensitivity to nuance" (Gabarro, 1987, p. 175). Thus, emotional investment may improve communication as an important aspect of effectiveness in teams (Smith, Smith, Olian, Sims, O'Bannon, & Scully, 1994). It may also influence task contributions that involve risk or high cost, consistent with particular needs in a group performance situation (Littlepage, Robison, & Reddington, 1997).

From an organization's perspective, group performance is the critical indicator of work group viability. Organizations provide groups with resources with the expectation that group performance will contribute to organizational effectiveness (Argote & McGrath, 1993). When groups enhance organizational outcomes, organizations facilitate group survival. If members depend on the group for desired outcomes, exchange interdependencies and mutuality are amplified. Moreover, structural interdependence and requirements for coordination increase the value of emotional investment (Hatfield, Cacioppo, & Rapson, 1992) while aligning individual, group, and organizational goals (Hackman, 1987). When group membership is valued and emotional investment is high, group performance improves the prospects for group continuity. Accordingly, for Hypothesis 2 we predicted that emotional investment would mediate the relationship between group performance and aggregated member perceptions of personal costs and rewards.

## METHOD

We used performance data on 28 work groups and member survey data aggregated to the group level from 134 individuals (60% male) at two points in time to assess our hypotheses. Respondents were engaged in regular, group-based work in two, ten-week undergraduate management courses. The average age of participants was 23 ( $SD = 4.06$ ); 64% worked an average of 17 hours a week ( $SD = 13.10$ ).

Based on social exchange theory, we designed this study to meet several important conditions. First, groups in the study were newly formed so that costs and rewards would be important in determining their level of emotional investment. That is, group members are more likely to approach potential exchanges in a tentative, calculative manner during the initial stages of group development (Walster, Walster, & Berscheid, 1978). Second, given that this was the initial gateway course, groups were composed of individuals who generally had not worked together. Thus, we assumed that previous relationships would not significantly influence exchange relationships and emotional investment in the current study. Third, tasks and time frames were designed so that members worked together often enough and long enough to develop interdependent social relationships (Sandelands & St. Clair, 1993). We did this by reserving eight 60-minute sessions and one 90-minute session for groups to work in class on their projects with consultation readily available.

On the first day of class, a teaching assistant assigned individuals to permanent five-person teams by randomly selecting group members from pre-class enrollment rosters. Subsequently, four students dropped the class and two individuals did not provide complete data, reducing the sample size from 140 to 135 individuals. All data were collected as part of regular class activities. Students were assured that their responses would remain confidential and they provided informed consent to participate in the research, which was described as a study of group instructional methods. Throughout the ten-week period, students completed both group and individual tasks as part of their regular course work. Group tasks influence both the motivation of members and the pattern of resource exchange among them (Hackman, 1992). Because we attempted to influence the interaction of group members, we describe the design of group work for this course in some detail below.

### Work Interdependencies

We created several facets of work interdependence that would presumably drive personal resource exchange among members. First, we had groups catalog the talents, skills, background, and experiences of their members so as to use this inventory as a basis for differentiation of member roles. We urged that such differentiation would enhance the effectiveness of their teams. Second, we assigned several projects and goals to initiate exchanges within these groups as well as to promote a social identity in relation to the other groups in the class (Brewer, 1991).

We told teams that, throughout the course, the instructor would call on groups for responses to questions regarding assigned cases or discussion questions from the text. In addition, the instructor could “cold-call” groups for responses to class exercises. When this occurred, a group had to designate its spokesperson within 2 minutes.

We required teams to present course material assigned in advance of class. Groups were given specific instructions to organize the content and form of their work. For *content*, they were told to: (1) prepare an executive summary, (2) provide a critical analysis of the material, (3) suggest important recommendations for practice, and (4) offer three to five questions for class members to answer to demonstrate understanding. For *form*, they were told to utilize multiple channels of communication to enliven and draw attention to their topic.

We required teams to conduct a group project for the course. Specifically, each team identified a job that would be a good candidate for job redesign and recommended changes to the structure of the job. To do so, each team worked with a practicing manager in the field on this project. We provided them with a four-step guide to completing the project, including diagnosis, interview, redesign, and feedback. Teams prepared a paper detailing their job redesign project.

Finally, we required teams to analyze three cases from Daft and Sharfman’s (1995) case reader. This was the last activity that groups completed in the course.

Teams were to summarize the core findings in the case and indicate linkages to course readings where appropriate. Before receiving their cases, students participated in a mini-workshop based on the case analysis protocol of Schlesinger, Eccles, and Gabarro (1983). This case analysis technique prescribes five main steps: (1) identify critical incidents and key people in the case, (2) examine critical incidents from the perspective of key actors, (3) distinguish problems from symptoms, (4) be conservative about assumptions, and (5) evaluate the final plan for action (i.e., feasibility, implementation, time frame, resistance, and systemic impact). For each case, each team was to produce a three-page (maximum), single-spaced memo that organized their analysis and proposed recommendations.

To reinforce exchange interdependencies, group members realized significant shared outcomes—65% of their course grade was group-based. Forty-five percent of a student's grade for the course was based on the group project, 5% was based on the team presentation, 5% was based on team case analyses, 35% was based on individual exams, and 10% was based on peer ratings. Peer ratings were based on an allocations of 100 points for group members "other than yourself." It was possible for someone to receive over 100 points. Peer ratings were anonymous and were collected by the teaching assistant on the last day of class. Students were to slip rating forms through a slit in a sealed box. Aggregated feedback to students regarding their peer ratings could be obtained after the end of the semester.

In an effort to create an organizational setting, teams were told that team members from groups that scored an A or better (93–100%) would be exempt from the final exam unless they needed to take the exam to make up for previous individual performance. In addition, at the end of the course the class met with the supervisors they had advised. The 90-minute session was attended by representatives from 22 out of 28 organizations. The purpose of the session was for supervisors to give student advising teams feedback regarding their diagnoses and recommendations for the job redesign project.

After working together for nine weeks, group members completed a survey that asked for their assessment of the personal costs and rewards they had incurred as a result of participating in their work groups. Ten days later and after finishing their final group project, students completed a second survey that included the items that measured emotional investment. External analysts evaluated the group cases after the end of the term. We considered group presentations and cases to be indicators of group learning, which made it difficult to consider them in our performance measure. That is, teams gave their presentations during different sessions of the class, with six weeks potentially separating the performance of any two teams. Half of the teams would clearly have developmental advantages in terms of both technical and social learning (Gersick, 1988).

### Measures

We tested our hypotheses at the group level of analysis. Personal costs and rewards were measured with three items each, adopted from a cost-benefit inventory developed by Hays (1984, 1985) based on his longitudinal studies of social exchange in personal relationships. Given the educational purpose of these work groups, the items focused on non-material resource exchanges. Emotional investment was measured with three items based on Hackman's (1982) assessment of member perceptions about the welfare of their group. To ensure that the self-report constructs represented separate factors, we conducted a principal components analysis on the nine items. Results indicated three separate factors that accounted for 66% of the variance—emotional investment, rewards, and costs. Individual items, factor loadings, and Eigenvalues are reported in Table I.

### Group-Level Properties

To ascertain whether the self-report scales could be aggregated to the group level, we used two complementary measures of within-group agreement (Edmondson, 1996). The first, the intraclass correlation coefficient (ICC), uses

Table I. Factor Analyses of Self-Report Items<sup>a</sup>

Item <sup>b</sup>	F1 Emotional Investment	F2 Rewards	F3 Costs
1. Members of our team feel a strong sense of loyalty toward the group.	.81	.24	-.01
2. Everyone in our work team cares about the group and works to make it one of the best.	.92	.03	-.11
3. We have no desire to change the membership of our group.	.90	.11	-.16
4. I feel needed by my group.	.15	.79	-.09
5. I feel comfortable expressing my ideas about how we should proceed with our work.	.10	.75	-.06
6. Members of my group listen to me.	.07	.77	-.04
7. I have too many extra responsibilities or commitments due to being friends with members of my work group.	-.11	.06	.76
8. I often compromise my plans or ideas in order to take into account the preferences of other group members.	.01	-.10	.74
9. I have had to sacrifice a great deal of my personal independence as a result of belonging to this group.	-.14	-.15	.70
Eigenvalue	2.98	1.52	1.43
Percentage of variance accounted for	33	17	16

<sup>a</sup>Factors resulted from principal components analyses using Varimax rotation. Items within factors were subjected to a cross-loading maximum cutoff of .25. The model accounted for a cumulative 66% of the variance.

<sup>b</sup>Items were measured on a 7-point scale with 1 = very inaccurate and 7 = very accurate.

Table II. Descriptive Statistics and Intercorrelations<sup>a</sup>

	<i>M</i>	<i>SD</i>	Cronbach's Alpha	ICC <sup>b</sup>	Median IRR <sup>c</sup>	1	2	3
1. Personal Costs	3.18	.67	.70	.62 <sup>d</sup>	.72			
2. Personal Rewards	5.70	.56	.72	.60 <sup>d</sup>	.78	-.36		
3. Emotional Investment	4.86	1.10	.85	.78 <sup>e</sup>	.67	-.42 <sup>d</sup>	.61 <sup>e</sup>	
4. Group Performance	85.86	8.31				-.39 <sup>d</sup>	.62 <sup>e</sup>	.81 <sup>e</sup>

<sup>a</sup> *N* = 28 groups.

<sup>b</sup> Intraclass correlation coefficient.

<sup>c</sup> Interrater reliability coefficient.

<sup>d</sup> *p* < .05, two-tailed.

<sup>e</sup> *p* < .001, two-tailed.

a one-way analysis of variance to compare between and within group variance (Kenny & LaVoie, 1985). The second measure of within-group agreement, the interrater reliability coefficient (IRR), compares actual variance to a measure of expected variance, unaffected by between-group similarities (James, Demaree, & Wolf, 1984). ICCs for all group-level variables were significant (ICCs ranged from .62 to .78) allowing us to form aggregate variables as group means of individual member responses.

The ICCs listed in Table II allow us to examine which variables best distinguish among units, while the IRRs demonstrate which variables have the highest within-group agreement (Edmondson, 1996). In this sample, personal rewards yielded the highest IRR (.78) indicating that members were most agreed in their assessments of rewards. In contrast, the ICC for emotional investment suggested that groups in this sample differed significantly in their relational orientation (ICC = .78).

### Group Performance

Two external analysts (second-year MBA students who were blind to the hypotheses of the study) rated group performance by evaluating case analyses prepared by student work groups. We chose two individuals who had participated on the school's MBA Case Debate Team, which competed at various tournaments. Before receiving their cases, these judges attended a miniworkshop based on the case analysis protocol of Schlesinger *et al.* (1983). This is the same case analysis technique students used to analyze their cases. The two judges rated three practice cases independently on each of five dimensions (0–20 points per dimension) and discussed their ratings with each other before rating a second set of three practice cases. After discussing the second set of practice cases, the judges finalized the procedure they would use for evaluating each of the five dimensions. The judges then read the cases and independently assigned numerical

scores for each dimension to each case. The judges ratings were averaged and assigned to groups (interrater agreement  $r = .94$ ). The range of group performance was 76% to 96%.

Means, standard deviations, Cronbach alpha's, and Pearson correlations among the variables are reported in Table II. Analysis of the psychometric properties of the survey items demonstrated acceptable internal consistency of the scales (e.g., Cronbach's alphas ranging from .70 to .85).

## RESULTS

### Tests of Hypotheses

We tested our hypotheses with hierarchical regression analysis. Hypothesis 1 concerned the relation between costs and rewards and emotional investment. We hypothesized that both costs and rewards would be significant predictors of emotional investment. We also predicted that rewards would have a positive effect and costs a negative effect on emotional investment. Regression analyses, which are summarized in Equations 1 and 2 in Table III, support this hypothesis [rewards:  $F(1, 26) = 15.35, p < .001$ ; costs:  $F(1, 26) = 5.42, p < .05$ ]. When costs and rewards were simultaneously regressed on emotional investment (see Equation 3 in Table III), only rewards contributed unique and significant variance [ $F(2, 25) = 8.89, p < .001$ ; rewards  $\beta = .53, p < .01$ ; costs  $\beta = -.23, n.s.$ ] which supported our theorizing that rewards would best demonstrate relational development.

Hypothesis 2 suggested that emotional investment would mediate the relation between costs and rewards and group performance. To test this hypothesis, we

Table III. Regression Analyses<sup>a</sup>

Equation	DV	IV	Adj $R^2$	$F$	Beta for IV's	Beta for Mediator
1	Emotional Investment	Rewards	.35	15.35 <sup>b</sup>	.61 <sup>b</sup>	
2	Emotional Investment	Costs	.14	5.42 <sup>c</sup>	-.42 <sup>c</sup>	
3	Emotional Investment	Rewards			.53 <sup>d</sup>	
		Costs	.37	8.89 <sup>b</sup>	-.23	
4	Group Performance	Rewards			.55 <sup>d</sup>	
		Costs	.37	8.90 <sup>b</sup>	-.19	
5	Group Performance	Emotional Investment	.65	50.15 <sup>b</sup>	.81 <sup>b</sup>	
6	Group Performance	Rewards			.20	
		Emotional investment	.66	27.03 <sup>b</sup>		.69 <sup>b</sup>

<sup>a</sup>  $N = 28$  groups.

<sup>b</sup>  $p < .001$ , two-tailed.

<sup>c</sup>  $p < .05$ , two-tailed.

<sup>d</sup>  $p < .01$ , two-tailed.

conducted mediated regression analysis (Baron & Kenny, 1986; James & Brett, 1984). First, as reported in Equations 1 and 2 in Table III, when we regressed emotional investment on rewards and on costs, the results were significant. Second (see Equation 4 in Table III), we regressed the ratings of group performance on both rewards and costs [ $F(2, 25) = 8.90, p < .001$ ]. Only rewards were a significant predictor of performance [rewards  $\beta = .55, p < .01$ ; costs  $\beta = -.19, n.s.$ ], thus costs were dropped from further analyses. Equation 5 indicated that the hypothesized mediator (emotional investment) accounted for 65% of the variance in group performance. Finally in equation 6, we regressed rewards and emotional investment on group performance [ $F(2, 26) = 27.03, p < .001$ ] (emotional investment  $\beta = .69, p < .001$ ; rewards  $\beta = .20, n.s.$ ). The analysis demonstrated that emotional investment completely mediates the relationship between rewards and group performance.

## DISCUSSION

Overall, social exchange theory proved useful as a framework for examining the role of emotional investment in group effectiveness. Our results suggest that rewards are an important precursor of emotional investment which, in turn, mediates group performance. As in previous research, costs did not influence either emotional investment or group performance after considering the effects of rewards. In the language of social exchange theory, members must realize rewards (although they cannot prevent costs) in their resource exchanges with their work group to realize relational closeness and loyalty. As Tallman *et al.* (1991) theorize, growing levels of individual commitment to a group may motivate members to put group goals above personal gain. Importantly, groups that exchange the greatest number and variety of resources are more likely to create an environment for self-sacrifice and altruistic behavior (Tallman *et al.*, 1991).

This study builds on prior work in social exchange theory and integrates social exchange with research on work group effectiveness. The results extend our understanding of group settings by acknowledging the relationship between personal and group development in team performance. With the increasing prevalence of work teams (Guzzo & Dickson, 1996; Guzzo & Shea, 1992), issues regarding the impact of teams on individual employees are emerging. A recent study reported on the personal expectations of employees who are asked to participate in teams (Jones, 1996). The study, sponsored by the American Society for Quality Control in conjunction with a sample of Fortune 500 companies, suggested that employees view teams as a means for personal development and social identity. From an exchange perspective, achieving closeness and attachment in relational development may promote both social assimilation based on perceptions of similarity (Pelham & Wachsmuth, 1995) and collective achievement as reported in the current study.

We note, however, the possibility that an exclusive emphasis on emotional investment could prove detrimental for work groups. That is, an excessive emotional focus might prompt a marked decrease in the openness of group members to dissenting views, deviant behavior, or irreconcilable information (Hackman, 1992). Groups may develop and implement grossly inappropriate plans as a result of their neglect and dismissal of incongruous information (Janis, 1982). These concerns may be particularly evident in task environments characterized by multiple dependencies (e.g., raw materials, human resources, market demands) that are also unstable, thus creating uncertainty that can only be addressed through careful information processing and strategy development (Daft, 1998). An intemperate emotional focus can also limit a group's ability to perform effectively when new ideas or perspectives (i.e., innovation) are required (Hackman, 1992). For balance, social exchanges should involve a combination of task and socio-emotional dimensions given that emotions permeate both aspects of work group behavior (Barsade & Gibson, 1998).

Our study is not without limitations. No final causal analysis or inferences are possible given the correlational nature of the design. Although the hypothesized model suggests a specific direction based on social exchange theory, causality can not be demonstrated without further research. Inasmuch as empirical examination of emotional investment supported its conceptualization as a mediator, it is possible that the direction of this relation could be reversed. For example, a different model where group performance is antecedent to emotional investment which, in turn, leads to assessment of costs and rewards could account for our results. Another alternative is the possibility of reciprocal relations among the constructs in the model (Hackman, 1987). However, the theoretical foundation of this research, social exchange theory, argues against these alternative causal orders. Social exchange theory clearly conceptualizes evaluation of costs and benefits as prior to decisions of whether to invest effort and time in the maintenance of social relationships. Additionally, the timing of data collection was consistent with our theoretical model. First, we obtained an assessment of costs and rewards. Ten days later, we surveyed respondents about their level of emotional investment. Both of these data collections occurred before participants knew the outcome of their case analyses or peer ratings. Finally, group performance was assessed by external analysts after the end of the course. We recommend that future research examine the causal ordering of these constructs in an experimental setting in the laboratory.

A second limitation of the study is the particular sample and time frame. Respondents were college students assigned randomly to ongoing work groups with a duration of ten weeks. Although a ten-week study is longer than the typical study conducted in an experimental laboratory, ten weeks is a limited duration for an ongoing work group. Given the important findings of Gersick (1988, 1989), our groups are more similar to task forces or limited-duration project teams than to "permanent" ongoing work groups. Secondly, Kelley and McGrath's (1985) findings

on the influence of time limits in work groups and Gersick's research on the role of specific deadlines for group tasks may have direct relevance to this study. The deadline for group project reports occurred at the end of the course so groups did not face immediate pressures for performance. Instead, they had some slack time to create a stable and supportive social environment (emotional investment) as a basis for addressing future performance goals and continuing to fulfill the interests of individual members. Future research could benefit from contrasting emotional investment over time in groups with specific time deadlines with that of groups with more open-ended expectations. Argote and McGrath (1993) suggest that task and organizational contingencies influence the methods and timing for how work groups satisfy multiple demands: (1) for production in the service of the organization, (2) for group preservation, and (3) for satisfying the interests of individual group members.

In conclusion, results of this study enrich our understanding of groups through our application of social exchange theory to the group level of analysis and our focus on the key mediating role of emotional investment. Our results indicated important relations among the three demands placed on work groups. Results can also be viewed as reinforcing the importance of multiple stakeholder perspectives: rewards to individual members, emotional investment in the group, and performance contributions to the organization.

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