

Group Process-Work Outcome Relationships: A Note on the Moderating Impact of Self-Esteem¹

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Self-esteem was hypothesized to moderate relationships between peer group interaction and two work-related variables, job performance and job strain. The study found support for the general hypothesis. Peer group interaction had a greater impact on the two work-related variables for low than for high self-esteem individuals.

The importance of interactional processes in influencing group behavior has been a topic of continuing interest in the study of groups within organizations (Heinen & Jacobson, 1976; Shiflett, 1979; Zander, 1977). Although some scholars (Janis, 1972; Steiner, 1972) generally view group process as something that prevents a group from actualizing optimal effectiveness, researchers in the field of organizational behavior traditionally have emphasized the importance and potential of group interaction processes in enhancing individual work outcomes. Building on a metatheory that depicts the primary work group as the most important subsystem within an organization (Likert, 1961), such researchers have sought to increase work effectiveness by building integrative and supportive interpersonal relationships among group members. According to this line of reasoning, a supportive (or "open") group interaction process serves to vitiate emotional blocks to group functioning, increase perceived self-worth, and allow a group to focus its resources on task performance.

There is general support for the notion that a positive interpersonal group atmosphere facilitates members' task performance, even though it is still unclear whether changes in members' interpersonal relationships are

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directly responsible for this result (Beer, 1976). For example, in a classic study, Bowers and Seashore (1966) demonstrated that team-oriented inter-member behaviors positively affected group members' satisfaction and performance. Elsewhere, in an exhaustive review of the group productivity literature, Stogdill (1972) found positive intragroup relationships to be associated with increased organizational productivity when group esprit and drive were high.

Although an examination of the group effectiveness literature of recent years reveals a reduction in the number of studies directly examining group supportiveness-member effectiveness hypotheses per se, there appears to be a growing interest in investigating the impact of related group processes within another metatheoretical context—sociotechnical systems theory. The concept of autonomous work groups arising from this perspective refocuses attention from group process per se to the group process-technology interface (Cummings, 1978; Cummings & Griggs, 1977). A description of the theory of autonomous work groups is beyond the focus of the present study; however, it should be noted that sociotechnical systems theory incorporates several of the same elements basic to the participative value tradition discussed previously. Sociotechnical designers typically use the group (rather than individual jobs) as the basic unit of organization (Cummings, 1978). Moreover, although group development must consider the technical abilities and other such characteristics of group members, it is vitally important that the interrelational or social skills of group members be molded in such a way as to prevent dysfunctional interpersonal problems and permit a group to concentrate its energies on task performance. Thus, it is generally argued that autonomous work groups in which interpersonal trust and collaboration are high will be more effective than similar groups in which interpersonal trust and collaboration are low. Empirical support for this contention is available from a variety of sources; for example, see Kolodny and Kiggundu (1980).

As evidenced in both traditional and emergent conceptualizations in the organizational behavior field, the subject of group process has achieved wide visibility. Paradoxically, however, rarely has research concerning group process quantitatively examined the ways in which particular types of group interactions affect individual group members' work related outcomes (Hackman & Morris, 1975). Generally, research in this area has focused on the interrelationships of dynamic group process components (e.g., norms, cohesiveness, conformity) or has confounded the direct effects of group process on work outcomes with other parameters (e.g., *autonomous* work groups are productive and satisfying). In reaction to this situation, one purpose of the present study was to examine the direct relationship between a group process variable, peer group interaction (PGI), and two work related outcomes, job performance and job strain. As conceived here, PGI encompasses those member behaviors that influence interpersonal relations, communication, and decision making within

work groups. Specifically, PGI can be thought of as incorporating activities such as encouraging team effort and group goal attainment, developing and exchanging job related information, and contributing to mutually satisfying relationships through attentive/supportive interpersonal behaviors. Such behaviors should be perceived by individual work group members as affecting intragroup relations, commitment to group objectives, and acceptance of procedures established to accomplish these objectives (Likert, 1967).

Developing this reasoning further, the principal purpose of the present study was to determine whether individual differences among group members have a moderating effect on the relationship of PGI with the aforesaid work related outcomes. Viewed from an interactionist perspective (Magnusson, *in press*), to the degree that PGI reflects existing social conditions for group members, it is possible that member individual differences may moderate the influence that PGI has on each member.

One individual difference variable that has been suggested to influence the effects of interactive processes on group members is that of self-esteem (Hackman, 1976; Jewell & Reitz, 1980; Zander, 1977). Conceptually, self-esteem "expresses an attitude of approval or disapproval, and indicates the extent to which the individual believes self to be capable, significant, successful, and worthy" (Coopersmith, 1967, pp. 4-5). The development of such attitudes and beliefs involves both cognitive and affective processes in that a person must engage in an act of self-identification as well as form an emotional evaluation of the perceived self. This latter assessment may be either positive or negative and will vary in intensity, depending on the nature of both the situation and one's attributions of self-competence. In this regard, a growing collection of findings indicates that variations in self-esteem across individuals may be related systematically to a wide range of attitudinal/behavioral differences. For instance, low self-esteem individuals, as compared to those with high self-esteem, have been shown to (a) perform less effectively under stress (Shrauger & Rosenberg, 1970), (b) be more persuasible (Wells & Marwell, 1976), (c) engage more frequently in role modeling (Weiss, 1978), (d) lack initiative and confidence (Crandall, 1973), and (e) have depressed aspirations (Rosenberg, 1965).

Research also indicates that high self-esteem individuals, as compared to those with low self-esteem, tend to rely more on their own self-perceptions and less on cues or dynamics from their surrounding job environment to direct their work activities (Tharenou, 1979). Translating this tendency within the group context, to the extent that individuals experience low self-esteem, they would be expected to be more reliant on the immediate milieu within the group to provide performance cues and information (Hackman, 1976) and to accede more readily to group influences (Jewell & Reitz, 1980). Given that low self-esteem individuals are more susceptible to group influences, it is logical to surmise that PGI will be more salient for such persons and that they more likely will benefit from

increases in this process variable. Viewed broadly, as an indicator of positive sociopsychological supportiveness, PGI may function to counteract the negative attitudinal/behavioral proclivities associated with low self-esteem. Thus, *it was hypothesized that PGI generally will increase individuals' job performance and decrease their job strain and these effects will be significantly pronounced for those with lower self-esteem.*

Method

Subjects

Questionnaires were administered to 206 nursing employees at a large multiservice hospital located in the Southeast. Respondents released to participate in the study included employees working all three shifts of the hospital's 6 services and 24 wards. Although 193 usable questionnaires were returned, responses missing from scales relevant to the present study reduced the effective sample size to 164. Respondents dropped from the study did not differ demographically from those retained in the analyses. All measures except performance were gathered by using a survey questionnaire administered during work hours.

Measures

Peer group interaction was identified through a factor analysis of 52 items comprising the leadership, organizational climate, satisfaction, and group process dimensions of the Survey of Organizations questionnaire (SOO) (Taylor & Bowers, 1972). Because the factor structure reported in the SOO manual is not necessarily stable (Schriesheim & Kerr, 1977), a principal components analysis of the replies of the 193 subject sample was performed. Four factors were extracted using an item factor loading of .50 as a cutoff point. Three factors accounting for 95.1 percent of the common variance were considered interpretable. Following the procedures of Korth and Tucker (1975), the stability of these three factors was examined. Factor structures were determined within randomly selected halves of the sample, and congruency coefficients between the two structures were computed. All coefficients were greater than .95 ($p < .05$), indicating sufficient factor stability.

One of the three interpretable factors (consisting of 18 items) was composed of SOO scales pertaining to intragroup relations—peer interaction, work facilitation, peer goal emphasis, peer support, and group process. This factor was labeled peer group interaction (PGI) and was scored by summing across participant responses to the relevant items. It is noteworthy that aspects of the PGI measure parallel several of the summary variables suggested by Hackman and Morris (1975) as influencing variations in group members' work behavior: interaction facilitation as team

performance strategy; work facilitation as supplementing ability; goal emphasis and peer support as supplementing arousal and effort. Thus, PGI appears to tap an important type of group interactional process that influences member behavior. It should be recognized that PGI was composed of a set of perceptions held by individuals about group interaction processes. As such, it reflects a subjective assessment of actual events experienced by an individual in interaction with other group members. Operationally, PGI conforms to what Payne, Fineman, and Wall (1976) have referred to as a "perceived organizational characteristic"; that is, the unit of analysis is based on individuals, the element of analysis is the work group, and the nature of measurement is descriptive.

Employee performance was measured using supervisor ratings. Approximately two months after the survey questionnaire data were collected, nursing supervisors evaluated their immediate staff members across five dimensions: quantity of work, quality of work, knowledge of work, dependability, and overall performance. In making the necessary assessments, supervisors were instructed to rate each of their subordinates by "comparing his/her performance in terms of his/her co-workers." Though only an approximation of a forced distribution technique per se, this procedure has been shown to be successful in assuring greater variance in performance ratings (Steers, 1975). The five dimensions were considered to be related, and they were summed to form a global performance index.

Job strain was measured using two indices, propensity to leave and job tension. Propensity to leave was defined by a 3-item instrument developed by Lyons (1971) specifically for use with nursing personnel. The job tension measure also was composed of three items developed by Lyons in the same study.

Self-esteem was measured using the self-confidence scale of Gough and Heilbrun's (1965) Adjective Check List (ACL). Test-retest reliability coefficients reported for the self-confidence scale vary from .63 to .73 for periods of 10 weeks to 5½ years. Wells and Marwell (1976) note that the use of multiple item checklists (such as the ACL) permits a thorough sampling from the domain of self-esteem descriptors, which in turn increases validity and generality of measurement. Support for use of the ACL's self-confidence scale as a measure of self-esteem has been provided by Crandall (1973). Subject responses were standardized (*T*-scores) in accordance with norms presented in the testing manual.

Analyses

A moderated multiple regression procedure was used to test for the hypothesized interaction effects. By using full and restricted regression models, it is possible to determine the amount of variance owing to interaction effects beyond that amount explained by main effects alone. Standard statistical tests are available to determine if the interaction of interest

contributes significantly to the variance explained by the full model. Plots were used to determine the direction of significant interactions that were obtained.

Results

Descriptive statistics for the study variables are shown in Table 1. Coefficient alpha reliability estimates for the variables are displayed in parentheses along the diagonal of the correlation matrix. As Table 1 indicates, that portion of the hypothesis concerning the relationship between PGI and job strain is supported. Significant negative correlations were obtained between PGI and both propensity to leave and job tension. However, the correlation between performance and PGI was not significant, suggesting only partial confirmation of the hypothesis addressing direct relationships between PGI and work-related outcomes.

Table 2 presents analyses concerning the moderating effects of self-esteem on the relationship between PGI and the above work related outcomes. For each of the dependent variables, the interaction of self-esteem and PGI adds significantly to the variance explained. Figure 1 shows the nature and direction of these interactions. It should be noted that the plots

Table 1
Descriptive Statistics and Intercorrelations Among Study Variables

Variables ^a	M	SD	r					
			1	2	3	4	5	
1. PGI	3.30	.81	(.96)					
2. Tension	2.44	.94	-.31*	(.76)				
3. Propensity to leave	2.13	.90	-.31*	.30*	(.79)			
4. Performance	3.62	1.05	.10	-.11	-.04	(.96)		
5. Self-esteem	51.19	8.58	.06	.01	-.02	.08	(—) ^b	

^aAll scales, except self-esteem, were composed of 5-point Likert-type items. Coefficient alpha reliability estimates are in parentheses.

^bNot applicable.

* $p < .01$

Table 2
Results of Moderated Regression Analyses
for Propensity to Leave, Tension, and Performance

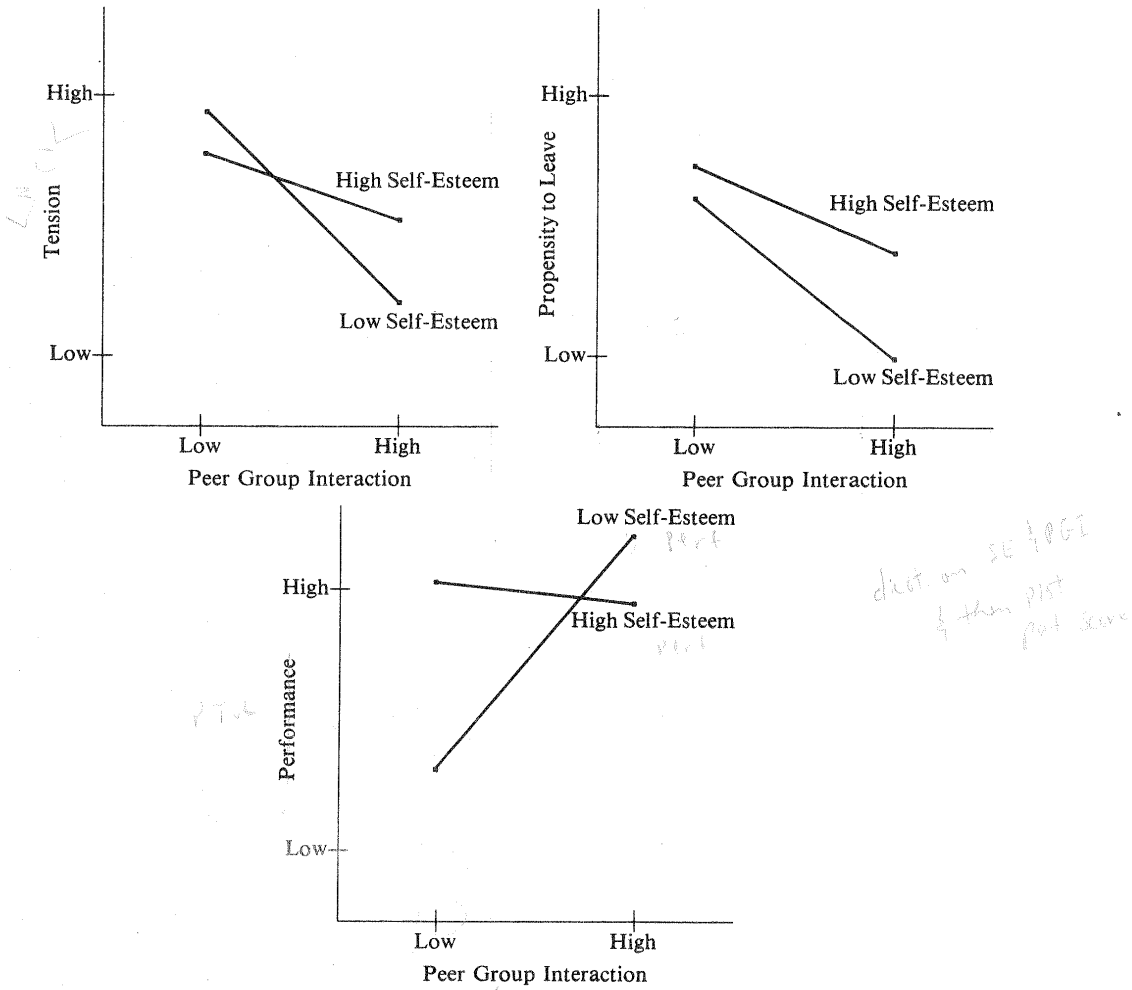
Dependent Variables ^a	R ² s Adding in		
	Self-Esteem R ²	Interaction Term R ² _m	F ^b
Tension	.10	.12	3.95*
Propensity to leave	.10	.12	3.97*
Performance	.01	.04	4.93*

^aR² = coefficient of determination, derived from PGI + self-esteem; R²_m = coefficient of determination derived from PGI + self-esteem + PGI × self-esteem.

^bSignificance of increase (R²_m - R²)

* $p < .05$

Figure 1
Significant Interactions Between
Peer Group Interaction and Self-Esteem



represent but one configuration of many that could be drawn using continuous variables. In keeping with Hunt, Osborn, and Larson (1975), reference points for the plot lines were determined within \pm one standard deviation from the respective means.

As hypothesized for both propensity to leave and job tension, PGI had a stronger effect on individuals with lower self-esteem than on those with higher self-esteem. High PGI reduced job tension and propensity to leave for both groups, as shown previously in Table 1. Moreover, given the sensitivity of low self-esteem individuals to group influence, it is not surprising that for such individuals PGI reduced their tension and propensity to leave to a greater degree. The plot lines concerning the interaction of PGI

and self-esteem vis-à-vis performance also evidence a moderating effect. High self-esteem individuals performed better under conditions of lower PGI; low self-esteem individuals performed better under conditions of high PGI. However, an inspection of the lines indicates that the low self-esteem individuals' performance differed more in relation to differences in PGI. Thus, it appears that the interaction hypothesis also is confirmed with regard to individual performance: PGI had a greater performance effect for low self-esteem persons than for high self-esteem persons.

Discussion

The findings of this research indicate that it is important to consider group members' self-esteem in examining the impact of group interactional processes on work related outcomes. Although PGI was positively associated with reduced tension and propensity to leave, this relationship was more marked for individuals with low self-esteem than for those with high self-esteem. Almost by definition, low self-esteem individuals are likely to be more dependent on their peers for task and sociopsychological support. Thus, unsurprisingly, variations in their affective state are determined somewhat by the nature of their interactions with co-workers. Although there was no direct relationship between PGI and performance, the results indicate that the performance of low self-esteem (compared to that of high self-esteem) persons is more likely to be enhanced by high PGI and diminished by low PGI.

In this study the interaction concerning performance is the only relationship for which self-esteem leads from a nonsignificant relationship (Table 1) to a significant relationship (Table 2). An explanation for this effect evolves from research showing that employees who prefer to work in interactive groups display higher motivation and satisfaction when work tasks involve teamwork (Lorsch & Morse, 1974; Morse & Wagner, 1978). Assuming that individuals with lower self-esteem would prefer working in an interactive context (because of their proclivity toward a reliance on others for job-relevant information), it follows that such individuals would possess greater performance potential on tasks requiring high levels of interpersonal coordination. The subjects of the present study, nursing personnel, have been described as operating in a context in which "technically required cooperation" is important (Cummings, 1978). Thus, the PGI-performance interaction may have occurred because lower self-esteem individuals were subject to a higher motivating potential given the context of interactive nursing units. Where PGI was perceived to be high, this motivational predisposition could be realized in the form of collaborative work performance. Where PGI was perceived to be low, lower self-esteem subjects may have felt less inclined to perform because of their perception that few or no supportive stimuli existed to energize and assist their efforts. In contrast, the performance of high self-esteem individuals, because of their positive self-regard and attributions of self-competence, would not be expected to change in response to different levels of PGI;

they are more likely to be capable of initiating and regulating their own performance.

Research suggests that in circumstances requiring technical cooperation and coordination, sociotechnical groups are more likely to be employed (Cummings, 1978). Although this study focused on individual perceptions of group process and did not assess PGI at a group level of analysis, it at least can be suggested that these results illustrate the importance of the sociotechnical group concept when technological interdependence is high and linkages among parts of the organization are complex. Furthermore, these results would appear to have implications for those theoretical perspectives that emphasize the importance of work groups in the effective operations of an organization. For example, in considering the sociotechnical approach to organization, some authors have emphasized that the social skill as well as the more often discussed technical skill component of a work group must be established in order for autonomous work units to function successfully (Kolodny & Kiggundu, 1980). Process consultation and other group development activities have been proposed for this purpose (Cummings, 1978; Hackman & Morris, 1975). Assuming that PGI describes the general type of social process dimension that would be affected by group development efforts, these findings further suggest that the self-esteem levels of individuals involved in such programs must be recognized in order to insure maximal success. Accordingly, group members might be made aware not only of their dependency on positive group interactions, but also of how individual differences regarding such processes could affect group functioning. Speculatively, different types of training goals (e.g., training high self-esteem persons to be team oriented) could be established for low and high self-esteem individuals in order to reach an optimal blend of interactional processes within a group.

These results have several implications from a managerial perspective. Those involved in managing groups should recognize explicitly the importance of individual differences in attempting to affect work related outcomes. It appears that peer group interaction not only provides socio-psychological support for lower self-esteem individuals, but also mitigates the effects of job strain. Moreover, although the benefits of group interaction for lower self-esteem persons clearly have been indicated by the present study, it can be conjectured that such interaction may contribute to the continuing perceived self-worth of higher self-esteem persons in the work group. Thus, this research intimates that managers encourage the development of appropriate integrative relationships among all group members.

The present study also suggests that managers may facilitate performance by differential selection of the job assignments of low versus high self-esteem individuals. The placement of low self-esteem individuals in roles requiring interpersonal interaction and teamwork would seem advised. In contrast, high self-esteem individuals, less dependent on their peers for task and sociopsychological support, may be more compatibly assigned tasks requiring independence of judgment or action.

Future research is needed to determine the causal relationships among group interaction processes and work related outcomes and to investigate further the role of individual self-esteem in influencing intragroup dynamics and task effectiveness in work groups. Additional conceptual and operational development of group process measures also is necessary: the perceptual (vs. behavioral) measures employed in the study may have influenced the present results. However, as Hackman and Morris (1975) note, objective measures of group process are not sufficiently developed for use except in controlled situations.

Though significant, the limited magnitude of the interaction effects reported invites constructive replication. Given the exploratory nature of this research and the high complexity and diversity of the phenomenon being studied (Cummings, 1981), small effects are not unexpected. Further refinements in research strategy and hypothesis generation should permit a more powerful assessment of the impact that groups have on employee behavior.

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