

CAUSE OR EFFECT?: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN TOP MANAGEMENT TEAM GROUP DYNAMICS AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

The group dynamics of top management teams have been linked with organizational performance in a number of recent studies. These studies most often discuss their findings as though differences in group process cause the differences in organizational performance. They do not test the alternative possibility that some third contextual variable (e.g., economic recession, political events, etc.) caused organizational performance, which then caused changes in top management team process. The paper explores the causal relationships between top management team group dynamics and organizational performance in nine large companies. Results reveal that the intellectual flexibility of the team, decentralization of power within

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the group, and leader openness to dissent are significantly correlated with past organizational performance. These results provide tangible evidence for the often discussed, but seldom studied, argument that organizational performance can cause changes in top management team dynamics. The authors conclude by arguing that a greater understanding of when performance predicts group process and when group process predicts performance is necessary for understanding how to obtain and sustain superior organizational performance.

INTRODUCTION

A growing body of research links top management team group dynamics with organizational performance. For example, relationships have been found in a mining company (Janis, 1985), the computer industry (Eisenhardt & Zbaracki, 1992; Frederickson & Iaquinto, 1989), other high tech companies (Hackman, 1990), and in a sample of top management teams from a variety of large corporations (Peterson, Owens, Tetlock, Fan, & Martorana, 1998). Most of this class of research discusses top management team decision-making as though the causal link runs from top management team group dynamics to organizational performance (March & Sutton, 1997). In our recent paper (Peterson et al., 1998), for example, we found that successful top management teams of large American companies were more likely to have decentralized and flexible decision making structures than those that were unsuccessful. The interpretation given to these finding would most commonly be to recommend that managers experiencing problems should create relatively decentralized decision making structures in their organizations. But would this be an appropriate recommendation? Is this an accurate account of the causal chain of events in organizations? Or should we hold out the possibility that some third contextual factor (e.g., economic or regulatory climate, new competition, political events, etc.) caused organizational performance, which then affected the group dynamics of the top management team? Answers to these questions have a profound impact both on managerial practice and on our theoretical accounts of the relationship between group process and outcomes. In this chapter we take a second look at the companies in our earlier work to conduct exploratory work on the causal relationship between top management team dynamics and organizational performance.

The discussion about the relationship between group process and outcomes has taken shape over the last twenty-five years. Although there has been some theoretical interest in the relationship between group process and outcomes dating back to Maier's (1950) work on effective discussion leaders, it was Irving Janis (1972, 1982, 1985, 1989) who made the arguments most persuasive in his books, *Victims of Groupthink* and *Crucial Decisions*. Janis was a strong proponent of the notion that the group dynamics of top policy-making teams have a powerful causal impact on the outcomes of their organizations. He particularly

argued that top management teams should use thorough deliberation, statistical and technical data, and extensive processing of information in group decision making. To be "effective" in decision making, groups should carefully survey their objectives, conduct an extensive and dispassionate search for relevant information, and make contingency plans once an option has been selected. Specific advice for leaders includes both accepting criticism of her or his own judgments openly and displaying impartiality by withholding policy preferences at the outset of the group discussions (Janis, 1982). Janis (1972, 1982) cites as examples of this kind of decision making the Marshall committee's success in planning the rebuilding of Europe after World War II, the Kennedy administration's decision making during the Cuban Missile Crisis, and the success of a variety of other American foreign policy decisions (Herek, Janis, & Huth, 1987).

Janis' process-outcome approach to top management team decision making does, of course, have its critics. The gentle critics argue that some group process variables are more important than others for predicting future organizational performance. These critics particularly disagree with Janis about the level of information processing required for top policy-making teams to be successful (e.g., Payne, Bettman, & Johnson, 1992; Suedfeld, 1988, 1992; Tetlock, 1992). They argue that openness to new information is more important for top policy-making teams than an extensive discussion of available information. In short, they maintain that a simple strategy employed toward a well-defined end is oftentimes superior to the complex and conflict-ridden strategy Janis advocated. The strong critics, on the other hand, question whether the process-outcome relationship exists at all (e.g., Cohen, March, & Olsen, 1972; Lindblom, 1980; Starbuck, 1985). They argue that organizational decision making is a quasi-random process of matching decision makers, problems and opportunities, and potential solutions. There is no reason, accordingly, to expect any relationship between top management team decision making process and organizational performance. Where there are relationships, they could just as easily be a reverse-order correlation of outcomes driving group process.

The critics notwithstanding, some consensus has emerged across the social sciences that process-outcome relationships exist. Support for the notion comes not only from Janis (1972, 1982, 1985, 1989), but from other psychologists (e.g., Hackman, 1990; Hackman & Morris, 1975; Peterson, 1997; Zander, 1993), management theorists (Argyris, 1985; Eisenhardt, 1989; Eisenhardt & Zbaracki, 1992; Goodman, Ravlin, & Schminke, 1990), political scientists (Allison, 1971; George, 1980), and communication scholars (Gouran, 1982; Hirokawa, 1985; Poole, 1983). An impressive body of research supports the notion that group process and outcomes are causally linked.

The Paucity of Outcome-Process Research

Despite all of the attention to the relationship between group process and outcomes, the question of causal direction has received very little empirical or theoretical attention. Most scholars acknowledge the possibility of reverse or reciprocal causality, but discuss the results as though process causes outcomes (see Dailey & Johnson, 1997 for a notable exception). This state of affairs seems ironic given the stream of research that suggests outcome-process linkages rather than process-outcome linkages may exist.

The first piece of the research stream that suggests the possibility that outcomes affect group process is the literature on implicit theories of successful group decision making. Staw (1975) documented that when students believed that a group had been successful, they retrospectively attributed greater cohesiveness, quality of communications, task conflict (confronting others about differences in viewpoints, ideas and opinions), openness to new ideas, motivation levels, ability, satisfaction and role clarity to the team than if they believed the team had been unsuccessful. Guzzo, Wagner, Maguire, Herr and Hawley (1986) confirmed that implicit theories of the process-outcome relationship operate, but also found that they are particularly sensitive to negative rather than positive outcome information. These studies demonstrate that people's cognitive recall of group process information is affected by outcome knowledge. The evidence for whether experienced outcomes (versus manipulated feedback) actually cause differences in group process in these studies is indirect, however.

More direct research exists in the literature on the effects of individual feedback on performance. Not only has research documented implicit theories about the relationship between decision making and performance, it also documents that performance feedback to individuals results in subsequent performance changes (see Kluger & DeNisi, 1996 for a review). Thus, these results nicely document that implicit theories of successful decision making process do affect subsequent performance. Lindsley, Brass and Thomas (1995) take these results one step further by arguing that individuals, groups, and organizations are not distinct categories, but parts of a larger whole. They argue that processes that operate at the individual level of analysis also operate at the organizational level. Specifically, they argue that the self-efficacy processes Bandura (1982) hypothesizes at the individual level must also operate at the group and organizational levels. They build on Bandura's (1982) notion of self-efficacy to construct a case for organizational performance-efficacy spirals—performance should affect self-efficacy, which in turn affects performance, which affects self-efficacy, and so on. The reciprocal causation hypothesized in this model causes organizations to spiral downwards or upwards. They do note, however, that high interdependence among the variables makes trying to identify unidirectional causality futile.

In a similar vein, Staw, Sandelands and Dutton (1981) argue that cognitive processes that operate at the individual level also operate at the group and

organizational level with the threat-rigidity effect. Their review of the literature in this area suggests that receiving a threat leads to restriction of information flow and constriction of control in individuals, groups and organizations. Restriction of information and constriction of control then lead to a "rigid" or well-rehearsed response rather than a thoughtful or novel response. By this argument, poor financial performance of an organization (i.e., a threat to the management team's future control of the organization), should lead to intellectual rigidity and centralization of control in top management teams. Peterson et al. (1998) found such a relationship between poor organizational performance, restriction of information (intellectual rigidity-flexibility), constriction of control (decentralization-centralization of power), and lack of leader openness (individual-level rigidity).

The question arises, therefore, why has so little attention been paid to doing outcome-process research? There are at least two possible explanations for this lack of attention. The first revolves around the pitfalls and problems of doing such analyses. There are a variety of logistical problems in doing this kind of research. First, investigating the causal direction of the correlations between outcome and group process requires multiple measures of process and/or performance to do lagged comparisons. These kind of data are difficult to obtain in an applied setting. It is often difficult enough to find performance correlates in simple cross-sectional data sets, let alone adding time-sensitive collection requirements. The difficulty most researchers already have with gaining access at one point in time is compounded with the need for continued access over a greater length of time. One additional hazard is that long-term access to an organization that knows it is being watched over a long period of time could also cause Hawthorne-type effects that could produce false results. Finally, self-report measures of group process may create false effects as people have intuitive ideas about the process-outcome relationship that can be manufactured by the participant who knows the current performance of the organization (cf. Staw, 1995).

The difficulties of conducting outcome-process research notwithstanding, March and Sutton (1997) have suggested that a better explanation for the lack of research in outcome-process effects is the conflicting demands placed on organizational researchers. Although the demand for scientific rigor in research suggests that outcome-process effects are plausible, the demand on organizational researchers to produce practical applications for their research leads researchers away from doing these kind of analyses. Serious investigation of outcome-process effects can undercut the elegant stories organizational researchers might wish to tell students and corporate clients. We respectfully suggest here that this need not be so. A better understanding of which group processes produce which outcome(s) and which outcome(s) produce which group processes can help researchers give more detailed recommendations for how to obtain and sustain improved organizational performance.

The Current Study

The current study is an exploratory attempt to look at the feedback mechanism between top management team group dynamics and organizational performance. We look at a variety of top management team group dynamics measured at one time and correlate them with financial performance measures at multiple times in nine large American companies. More specifically, we correlate financial performance with top management team group dynamics two years prior, during, and two years after the process measure.

In our past work together (Peterson et al., 1998), we investigated the top management teams from seven companies at two historical junctures—one when the team was successful (defined as satisfying strategic constituencies [Pfeffer & Salancik, 1978]) and one when the team was unsuccessful. We found that the group dynamics of successful teams were significantly different from those of the unsuccessful ones. Successful teams demonstrated greater intellectual flexibility, enhanced sense of control over their environment, increased optimism about the future, greater cohesion within the team, more opinionated and forceful leaders, a greater willingness to take risks, a stronger sense of ethics and more decentralized decision-making systems. We were unable to determine from those data, however, the direction of causality. We did not know, for example, whether intellectual flexibility and decentralized decision-making systems causes better performance or whether performance causes these group dynamics (i.e., a threat-rigidity effect). We attempt to elucidate this question here in two ways. First, we have collected process data from two additional companies to look at a slightly larger universe of top management teams. Second, we have also collected financial performance data for two years prior, during, and two years after the group process measures for the top management team. This allows us to correlate the group dynamics of the nine top management teams with organizational performance before, during, and after the time period in which the group process was studied.

In summary, the goal of this paper was to explore the causal relationships between top management team group dynamics and organizational performance. More specifically, we hoped to begin to shed some light on specific aspects of top management team process that cause bottom-line firm performance, and which of those group processes might also be a result of past organizational performance. Existing research suggests that we should hypothesize a wide variety of past group dynamics to predict future, but not past, firm performance (Janis, 1982, 1989). The causal direction should run from group process to changes in performance. On the other hand, other research suggests that we should hypothesize past firm performance to affect future levels of cohesion and intellectual flexibility (Staw, 1975), but also leader openness, centralization of power, and again intellectual flexibility (Staw, Sandelands, & Dutton, 1981). We studied these hypotheses by looking at one measure each of top management team dynamics

from nine companies at two different times. For each measure of top management team process, we looked at time lagged performance data—two years prior, during and after the time period studied.

METHOD

This study looked at nine large American companies and their top management teams. Where possible, we studied each team during two time periods—when the company was successful (defined as satisfying strategic constituencies) and unsuccessful. Cases were sought where the top management team was producing outcomes and products acceptable to all core constituencies or to none of their core constituencies. Wide scholarly and popular consensus that companies were flourishing or languishing was required. The cases had to provide evidence that demonstrable consensus held both inside (e.g., rank and file employees) and outside (e.g. Wall Street) of the company.

The teams studied were the CEO and their direct report subordinates of the following companies: (a) CBS News in the unsuccessful (1982-1984) period and in the successful (1978-1979) period, (b) Chrysler in the unsuccessful (1989-1990) period and in the successful (1984-1985) period, (c) Coca-Cola in the unsuccessful (1978-1979) period and in the successful (1984-1986) period, (d) Disney in the unsuccessful (1980-1984) period and in the successful (1985-1987) period, (e) General Motors in the unsuccessful (1985-1986) period and the successful (1993-1994) period, (f) IBM in the unsuccessful (1988-1990) period and in the successful (1979-1980) period, (g) Kodak in the unsuccessful (1990-1993) period and the successful (1994-1996) period, (h) RJR Nabisco in the unsuccessful (1988) period and in the successful (1986-1987) period and (i) Xerox in the unsuccessful (1977-1979) period and the successful (1985-1986) period. We studied the top management *team* in each case, not just the CEO's leadership style. We focused on times that were going extremely well or times that were going extremely poorly, without regard to whom was CEO. Leader strength varied enormously as a result. The sample ranged from Lee Iacocca, who had complete control of virtually every aspect of Chrysler (in both good and bad times) to J. Paul Austin at Coca-Cola who had an advanced case of alzheimers and controlled almost nothing during the time studied. Hence, we measured team dynamic effects as well as leadership effects (for a discussion of leadership effects, see Peterson, Owens, & Martorana, 1998). Two sets of measures were taken for each team—group process data from the top management teams at one time, and financial performance data before, during and after the time of the group process data.

Top Management Team Process Measures

The group process measures for this study were taken using the Organizational Group Dynamics Q-sort (GDQ) (see Block, 1978 for details on the q-sort method in general, Peterson, Owens, & Martorana, 1999 for details of this instrument). The Q-sort methodology was selected to allow for a systematic approach to studying elite level groups that are normally not open to quantitative study. Such groups are normally accessible only through historical case studies. The raw data for the group process measures were derived from such historical case studies of top management team decision making. Two case histories were preferred, but not required, for each of nine corporations in successful and unsuccessful times (14 cases had two sources and 4 had only one source). Each of the selected case histories was translated into the standardized data language of the Organizational GDQ. The 100-item Organizational GDQ assesses a wide variety of possible patterns of organizational group dynamics. The GDQ provides: (a) a common descriptive language for capturing expert assessments of corporate group dynamics, (b) a standardized metric for interjudge and intergroup comparisons, and (c) a systematic framework for accumulating insights across case studies (cf. Block, 1978 on Q-sort methodology in general; see Peterson et al., 1999 for details of the Organizational GDQ).

The texts for each historical case, the time period covered, and the chief executive with operating responsibility for the corporation at the time Q-sorted are all listed in Appendix A. Cases were selected by the following four criteria: (a) only *Fortune 500* size companies were sorted,¹ (b) all sources had to include sufficient detail about group dynamics to permit hypothesis-blind Q-sorters to perform a Q-sort of the group (books that focused exclusively on corporate strategy, market share, etc. were excluded), (c) companies that are publicly traded (to allow for publicly available financial information), and (d) all cases had to occur within the past 25 years. This last criterion for selection was included to allow for some level of control for general economic and regulatory climate. This was accomplished generally by sorting cases within the last 25 years, but more specifically by sorting both positive and negative cases in the same time period (e.g., CBS News successful and Coca-Cola unsuccessful in 1978-1979 and Coca-Cola successful and General Motors unsuccessful in 1985-1986). Time period and leader were allowed to vary among the comparison cases.

Financial Performance Data

We collected a variety of financial performance measures from annual corporate reports. We collected data for measures of: (a) annual growth in income, (b) annual growth in sales, and (c) return on assets. Data were collected for the period two years prior to, during, and two years after the group process measures. These measures were all highly correlated and provided similar results,

so we chose annual growth in income to simplify reporting here. Results for the other measures provided no new significant correlations not found in the results reported here.

RESULTS

Reliability of the Q-Sort Assessments

Three measures of Q-sort reliability were computed: (a) interrater agreement (do readers of the same case study interpret the text in similar ways?), (b) intertext agreement (do different historical accounts lead readers to similar conclusions?), and (c) internal consistency of the process indicator scales (do conceptually related items intercorrelate?). Interrater reliability was good with an average Pearson correlation of .77, ranging from .54 to .86 (based on 90 interrater comparisons). These reliabilities are within the normal range for widely used psychological tests and justified proceeding to the next level of analysis: collapsing across raters to create composite Q-sorts for each case. Intertext agreement was also good. Thirteen correlation coefficients between Q-sort composites were computed from different authors' perspectives on the same group (multiple sources were used for the successful and unsuccessful cases of CBS News, Chrysler, Coca-Cola, General Motors, IBM and Xerox, and the unsuccessful RJR Nabisco case). The average correlation was .83, with a range from .71 to .90. This level of intertext agreement justified collapsing across texts to create supercomposites that could be compared directly to each other and to the financial data. The average Cronbach alpha coefficient for the eight process indicator scales was .90. Individual coefficients were .97 for intellectual rigidity-flexibility, .95 for closed-open leadership, .87 for centralization-decentralization of power, .86 for control-crisis, .91 for pessimism-optimism, .85 for factionalism-cohesiveness, .86 for corruption-legalism, and .94 for risk aversion-risk taking.

Dependent Measures

Table 1 presents the process-indicator scale scores for all 18 supercomposite Q-sorts (collapsed across raters and texts).

Table 2 presents partial correlations, controlling for size of the firm,² between the three group process variables and the financial performance of the firm during 5 different time periods. The correlation matrix largely confirms our hypotheses. Leader openness, intellectual flexibility, and centralization of control all show significant correlations with *past* organizational performance in the expected direction. Group cohesiveness was the only hypothesized process variable that did not correlate significantly with past performance. Cohesiveness was correlated with performance only in the same time period as the group process measures

Table 1. Process Indicator Scores for Group Composite Q-Sorts

Group	C-O	R-F	C-D	P-O	F-C	C-L	A-T	C-C
CBS News –	3.6	4.1	3.7	5.1	4.8	3.9	7.9	6.0
CBS News +	7.0	6.6	6.5	8.1	6.1	7.2	5.4	3.3
Chrysler –	2.6	2.9	3.5	3.2	4.7	4.2	4.6	7.8
Chrysler +	3.8	4.7	3.8	7.5	6.1	5.3	7.4	5.1
Coca-Cola –	2.1	3.5	3.6	4.9	3.8	4.1	3.4	6.0
Coca-Cola +	6.3	5.4	4.2	7.5	6.3	6.3	8.1	4.3
Disney –	4.8	2.7	4.1	6.4	5.4	4.8	2.5	5.9
Disney +	7.2	6.1	5.6	7.3	6.2	6.3	7.0	4.1
General Motors –	2.9	3.1	2.7	5.9	5.2	4.0	7.1	5.1
General Motors +	7.5	7.1	6.2	5.9	6.3	6.1	7.7	6.3
IBM –	4.1	3.9	3.3	5.1	5.3	4.5	2.3	5.3
IBM +	7.0	6.2	4.8	7.3	6.0	6.3	6.8	3.4
Kodak –	4.5	2.3	3.4	5.2	6.0	4.3	2.6	6.7
Kodak +	6.6	6.0	6.3	6.0	5.0	6.6	6.4	5.0
RJR –	3.2	3.4	2.7	7.3	4.9	3.0	6.9	6.7
RJR +	5.0	5.3	3.7	6.3	4.5	3.8	7.3	4.6
Xerox –	4.8	3.5	3.9	7.0	5.5	4.0	2.6	5.1
Xerox +	7.0	7.1	5.8	6.4	6.1	6.3	7.8	5.0

Notes: Scores are collapsed across texts. The higher the score, the greater the second attribute.

- C-O = closed-open leadership;
- R-F = intellectual rigidity-flexibility;
- C-D = centralization-decentralization of power;
- P-O = pessimism-optimism;
- F-C = factionalism-cohesion;
- C-L = corruption-legalism;
- A-T = risk averse-taking;
- C-C = sense of control-crisis.

were taken. Optimism was also significant only in the time the process measures were taken. Finally, willingness to take calculated risk was the only group process measure significantly correlated with current and future performance, but not with past performance.

DISCUSSION

The discussion is divided into two sections that explore, (a) limitations and alternative explanations for the findings of the study, and (b) the implications of the findings for top management teams research and process-outcome relationships.

Limitations and Alternative Explanations for the Study

There are at least two potential alternative interpretations for the data presented. First, it could be that the raters read differences into the group processes based on their implicit theories of successful and unsuccessful groups. Although the raters

Table 2. Partial Correlations Between Income Growth and Top Management Team Group Dynamics Controlling for Firm Size

TMT Group Dynamic	Time Period				
	2 to 1 yrs prior	1 to 0 yrs prior	period studied	0 to 1 yrs after	1 to 2 yrs after
Closed-Open Leadership	.53**	.49**	.42*	.40*	.05
Rigidity-Flexibility	.53**	.48**	.47**	.16	.20
Centralization-Decentralization	.57**	.56**	.34	.37	.15
Pessimism-Optimism	.21	.15	.64**	.05	.14
Factionalism-Cohesiveness	.32	.26	.40*	.37	.06
Corruption-Legalism	.42*	.35	.25	.40*	.06
Risk Aversion-Taking	.17	.21	.40*	.35	.42*
Control-Crisis	.00	.10	-.20	-.26	.15

Notes: * = $p < .10$,

** = $p < .05$.

Scores are collapsed across texts. The higher the score, the greater the second attribute.

were hypothesis-blind, it was not possible to shield them from the relative success or failure of the groups they rated. While there is no way to completely dismiss this interpretation, there is evidence to suggest that this is not the cause of the results reported here. All four raters for this study were asked to sort a "prototypical group that is most likely to fail to achieve its objectives" and a "prototypical group that is most likely to achieve its objectives." The analysis yielded a composite "failure" sort that was only moderately correlated with unsuccessful group sorts (average $r = .40$ with a range from .19 to .63). The process indicator scale scores for the composite failure ideal type diverged significantly from average scores of the unsuccessful groups, however. The unsuccessful groups demonstrated greater cohesion (1.3), less corruption (1.6), and more flexibility (1.0) than the composite failure sort. The composite "success" sort was more strongly correlated with successful groups (average $r = .51$ with a range from .23 to .79). The process indicator scale scores for the composite success sort differed significantly from average scores of the successful groups, however. The successful groups showed greater rigidity (1.6), stronger leadership (1.2), more corruption (1.1), and greater centralization of authority (1.7) than the composite success sort. Given these differences, it seems reasonable to conclude that the preconceptions of the Q-sorters did not cause the differences detected.

The second and related alternative explanation revolves around the historical texts from which Q-sorts were derived. The case study authors themselves were not blind to the success or failure of the group at the time the case was written. Perhaps they reasoned "backwards" from outcome information to confirm their own implicit theories of the process-outcome relationship (Staw, 1975). They may have looked selectively for decision making precursors of success and failure in the appropriate groups. Again, there is evidence to suggest that this does not explain the results of the study reported here. In a number of instances one author

had only immediate outcome knowledge (based on date of publication) and the other author had longer term knowledge of events that one might expect to change interpretation of group dynamics. For example, one of the texts used to sort Chrysler Motors in 1984-1985 was published in 1985 while the other was published in 1994 (after the problems at Chrysler during the 1980s become public in 1990). If knowledge of the eventual outcome of the group changes the portrayal of the group, then one would expect the 1994 source to portray the 1985 group dynamics at Chrysler in much more negative terms than the one published in 1985. This did not occur ($r = .84$). Such differences in outcome knowledge exist in three of the seven successful cases (Chrysler, IBM and GM³). The average intertext reliability for these sources ($r = .81$) is not significantly different from those of the other successful cases ($r = .85$), or those of the unsuccessful cases ($r = .83$). Another testable hypothesis is that authors of cases who were participants in unsuccessful groups might also have written cases that are somehow different from those of outside observers. These differences were not found. In three cases, one of the texts was written by a member of the decision making group—David Kearns was President and later CEO of Xerox, Ed Joyce was Vice President of CBS News during the time studied, and Bill Leonard was Vice President of CBS News during the time studied. The intertext reliability for these cases ($r = .78$) was not significantly different from those with only outside sources ($r = .85$).

There is, of course, no way of completely dismissing the possibility that author participation or outcome knowledge has some effect on retrospective accounts of group decision making. The analyses presented here do shift the burden of proof to those who still hold such suspicions. Such critics would need to explain not only the wide agreement among textual perspectives, but also the complex correlational patterns reported here and in Peterson et al. (1998).

Beyond the potential alternative explanations, there are two closely related limitations that should be recognized. The first is the type of organizations studied here. All nine of the organizations are large, American companies that caught the public eye in recent history. It is unknown whether the results will replicate with smaller, less visible companies in the United States or elsewhere. Second, the data reported here are all generated from second or third order sources (managers' accounts of process or the accounts of authors who interviewed top management team members). The implications of this limitation are also unknown. However, this limitation should be weighed against the benefits of the methodology—the Organizational GDQ allows systematic comparisons across top management teams that would not otherwise be open to quantitative study.

Implications for Top Management Teams Research

The results reported here have both theoretical and practical implications for top management teams. The implications for the research community revolve around the need for further research aimed at understanding the underlying causal

structure between group process and outcomes. Our results strongly suggest that scholars who are already researching process-outcome relationships need to do more than simply acknowledge the possibility of reverse and reciprocal causality. We have evidence to suggest that some group process measures predict current and future financial performance (i.e., optimism, group cohesion, and risk taking) while others are a result of past organizational performance (i.e., leader openness, intellectual flexibility, and decentralization of authority). Future research should investigate this issue with multiple and longitudinal measures of both financial performance *and* group process. If scholars want to make a causal argument for process causing outcomes, evidence should be collected to rule out reverse causality where possible, or to at least suggest that it is not the best explanation for the data. If we had only looked at current and future results, the implications of our research would look very different from the ones we draw here.

Our results also partially vindicate the strong critics of Irving Janis. Leader openness, intellectual flexibility, and decentralization of authority were all related to past, as well as current, organizational performance. However, these results clearly do not fully support the strong critics. The number of significant relationships, prior and post, is problematic for their perspective. The results are actually more supportive of gentle critics who argue that certain process measures are more critical than others for future group success. In particular, risk taking and leader openness best predicted current and future performance. Why these two process measures predicted performance, while others did not, is a subject for future research to elucidate. Neither risk taking nor leader openness were definitively hypothesized from the existing literature reviewed here. More research is needed to determine which group processes produce financial performance and which group processes are a product of financial performance.

Further research is also needed to understand the full causal structure underlying the relationship between group decision making process, the feedback groups receive, and the outcomes groups experience. More specifically, scholars need to better understand the relationship between implicit theories of group process, performance feedback, and changes in future group process and outcomes. Past experimental research has linked performance feedback to retrospective accounts of group process (e.g., Staw, 1975; Guzzo et al. 1986), but not to subsequent behavioral changes. If the research community is to understand the increasingly important topic of group and organizational learning, we must first understand the effect performance feedback has on future behavior as well as accounts of past behavior. The most important issue is how groups interpret and respond to the information they receive. Do groups and organizations "learn" from feedback? Does positive feedback reinforce past behavior? Could negative feedback lead to changes in subsequent group behavior? Pushing this notion even further, the question becomes whether there is a Pygmalion effect for performance feedback in groups. Does believing bogus or inaccurate feedback have the power to change the behavior of a group? For example, does bogus positive feedback change the

mental image members have of their group so that subsequent interactions are actually "improved"? These are important questions for understanding how groups change, grow, and learn over time.

The results reported here are also part of a larger set of findings that lend support to the existing research on the threat-rigidity hypothesis and the feedback-performance mechanisms. There is much more to learn about process-outcome relationships, however. Which group process variables best predict future organizational performance? What is the strength of the process-outcome relationship? How does group process feedback (as opposed to performance feedback) affect subsequent group process and outcomes? Is the threat-rigidity framework the best way to understand past performance predicting current group process? Further attention to these questions is necessary to fully understand the group process-outcome relationship.

The final implications of this research are for managerial practice. The causal structure underlying the relationship between process and outcomes matters to managers. It matters to managers, for example, whether centralization of control is antecedent to, or caused by, poor performance. If a centralized or closed decision making process is generally antecedent to poor performance, then it should be avoided. It may not be possible to avoid it, however, if centralization is a natural and reasonable response to threat from the outside environment. Indeed, Staw et al. (1981) note that a "rigid" response to threat is adaptive in many circumstances. The scholarly community does not have good advice on such issues now. We believe greater attention to the question of when performance predicts process and when process predicts performance will enable us to give better advice.

Appendix A. Historical Cases and Texts Used (Unsuccessful Cases Listed First)

<i>Group</i>	<i>Time</i>	<i>Leader/CEO</i>	<i>Texts</i>
CBS News			
U	1982-4	Van Gordon Sauter	Boyer, P. J. (1988). <i>Who killed CBS? The undoing of America's number one news network</i> . New York: Random House. Joyce, E. (1988). <i>Prime times, bad times</i> . New York: Doubleday.
S	1978-9	Richard Salant	Boyer, P. J. (1988). <i>Who killed CBS? The undoing of America's number one news network</i> . New York: Random House. Leonard, B. (1987). <i>In the storm of the eye: A life-time at CBS</i> . New York: G. P. Putnam's Sons.
Chrysler			
U	1989-90	Lee Iacocca	Ingrassia, P. & White, J. B. (1994). <i>Comeback</i> . New York: Simon & Schuster. Levin, D. P. (1995). <i>Behind the wheel at Chrysler</i> . New York: Harcourt Brace.

(continued)

Appendix A (Continued)

Group	Time	Leader/CEO	Texts
S	1984-5	Lee Iacocca	Gordon, M. M. (1985). <i>The Iacocca management technique</i> . New York: Levin, D. P. (1995). <i>Behind the wheel at Chrysler</i> . New York: Harcourt Brace.
Coca-Cola U	1978-9	Paul Austin	Allen, F. (1994). <i>Secret formula</i> . New York: HarperCollins. Pendergrast, M. (1993). <i>For God, country and coca-cola</i> . New York: Macmillan.
S	1984-6	Roberto Goizueta	Allen, F. (1994). <i>Secret formula</i> . New York: HarperCollins. Pendergrast, M. (1993). <i>For God, country and coca-cola</i> . New York: Macmillan.
Disney U	1980-84	Ron Miller	Flower, J. (1991). <i>Prince of the magic kingdom</i> . New York: John Wiley.
S	1985-87	Michael Eisner	Flower, J. (1991). <i>Prince of the magic kingdom</i> . New York: John Wiley.
General Motors U	1985-6	Roger Smith	Ingrassia, P. & White, J. B. (1994). <i>Comeback</i> . New York: Simon & Schuster. Lee, A. (1988). <i>Call me Roger</i> . Chicago: Contemporary Books.
S	1993-4	Jack Smith	Ingrassia, P. & White, J. B. (1994). <i>Comeback</i> . New York: Simon & Schuster. Maynard, M. (1996). <i>Collision course</i> . New York: Birch Lane Press.
IBM U	1988-9	J. Paul Akers	Carroll, P. (1993). <i>Big blues: The unmaking of IBM</i> . New York: Crown. Ferguson, C. H., & Morris, C. R. (1993). <i>Computer wars: The fall of IBM and the future of global technology</i> . New York: Random House
S	1979-80	Frank Cary	Carroll, P. (1993). <i>Big blues: The unmaking of IBM</i> . New York: Crown. Sobel, R. (1981). <i>IBM: Colossus in transition</i> . New York: Times Books.
Kodak U	1990-93	Kay Whitmore	Swasy, A. (1997). <i>Changing focus</i> . New York: Times Books.
S	1994-96	George Fisher	Swasy, A. (1997). <i>Changing focus</i> . New York: Times Books.
RJR Nabisco U	1988	F. Ross Johnson	Burrough, B., & Helyar, J. (1990). <i>Barbarians at the gate</i> . New York: Harper & Row. Lampert, H. (1990). <i>True greed</i> . New York: New American Library.

(continued)

Appendix A (Continued)

Group	Time	Leader/CEO	Texts
S	1986-7	F. Ross Johnson	Burrough, B., & Helyar, J. (1990). <i>Barbarians at the gate</i> . New York: Harper & Row. Lampert, H. (1990). <i>True greed</i> . New York: New American Library.
Xerox U	1977-9	C. Peter McColough	Jacobson, G. & Hillkirk, J. (1986). <i>Xerox: American samurai</i> . New York: Macmillan. Kearns, D. T., & Nadler, D. A. (1992). <i>Prophets in the dark: How Xerox reinvented itself and beat back the Japanese</i> . New York: HarperCollins.
S	1985-6	David Kearns	Jacobson, G. & Hillkirk, J. (1986). <i>Xerox: American samurai</i> . New York: Macmillan. Kearns, D. T., & Nadler, D. A. (1992). <i>Prophets in the dark: How Xerox reinvented itself and beath back the Japanese</i> . New York: HarperCollins.

Note: U = unsuccessful groups; S = successful groups.

APPENDIX B

Organizational Group Dynamics Q-Sort Scale Items

Closed-Open Leadership

33. Peculiar, even pathological, conduct by the leader is tolerated.

versus

*** Peculiar or pathological conduct is not tolerated.

61. *** The leader behaves in a stable, predictable manner.

versus

The group leader behaves in an unpredictable, even mercurial, manner.

81. The group leader is insensitive to other points of view within the group and society at large.

versus

*** The leader is a good listener (i.e., pays careful attention to what others say, good at understanding divergent viewpoints).

92. *** The leader respects the concerns and feelings of other group members and honors private understandings with them.

versus

The leader shows contempt for other group members (i.e., may attempt to bully or intimidate them).

94. ***The relationship between the group leader and other group members is remarkably easygoing and relaxed (i.e., people feel free to speak their minds, even to joke).

versus.

The relationship is formal and tense (e.g., no spontaneity or humor).

Intellectual Rigidity-Flexibility

19. The group refuses to abandon failing or unsound policies in response to serious setbacks (i.e., an aversion to serious self-criticism).

versus

***The group adjusts failing policies in a timely fashion (i.e., the group recognizes shortcomings and attempts to cut its losses by making midcourse changes).

37. There is a great deal of xenophobia or suspiciousness toward outsiders within the group.

versus

***The group is open to a wide range of cultural and intellectual influences.

40. Dissent is not acceptable even within private group meetings; the group ostracizes dissenters and punishes them severely.

versus

***Private criticism within group meetings is not only acceptable, it is actively encouraged as a way of improving decision making.

58. ***Group members are highly attuned to their environment and major changes occurring around them.

versus

Members are extremely slow to recognize the major changes occurring around them.

65. Key group members are megalomaniacs who have lost all sense of their limitations.

versus

***Key group members are balanced people who know the limits of their own skills and usefulness to the organization.

66. ***The group places heavy emphasis on consultation and soliciting expert advice.

versus

The group places little emphasis on consultation and expert advice.

68. The group leader is insulated from criticism.

versus

***The leader is exposed to a wide range of views and arguments (Note: Item refers to whether the leader is exposed and not whether leader responds [see items 92 & 40]).

71. *** Key members are open, confident people who are willing to consider that they might be wrong.

versus

Key members of the group are defensive, insecure people who respond sharply to any criticism.

74. *** The group recognizes that painful and divisive choices cannot be avoided.

versus

The group believes that trade-offs can be avoided (i.e., that it will be possible to achieve everything on their wish list).

78. *** The group demonstrates a capacity for "double-loop learning" (i.e., the capacity not just to monitor performance with respect to established indicators, but also to undertake periodic reassessments of performance indicators to ensure they are measuring the right things).

versus

The group has no capacity for self-reflective learning (i.e., group shows no interest in rethinking indicators of success that are customary to the organization).

81. The group leader is insensitive to other points of view within the group and society at large.

versus

*** The leader is a good listener (i.e., pays careful attention to what others say, good at understanding divergent viewpoints).

88. The group subscribes to a rigid, dichotomous view of the world (i.e., there are good guys and bad guys and nothing in between).

versus

*** The group has a flexible multidimensional world view (i.e., good guys are not always good, bad guys are not always bad, and reasonable people can often disagree over what counts as good or bad.)

98. *** The group assumes that most policy decisions require a fluid process, weighing competing values and making subtle trade-off judgments (i.e., decisions are made in many ways depending on the circumstances).

versus

The group assumes there are clear right and wrong, good and bad ways of making decisions (i.e., the process by which decisions are made is rigid).

Centralization-Decentralization of Power

4. The group deeply dislikes delegating power and sharing responsibility (i.e., control must be all or nothing).

versus

*** The group appreciates the value in delegating power and living with fluid, power-sharing relationships.

5. The group believes in a top-down, pyramidal and control-oriented style of management (i.e., lots of rules, checks, and surveillance).

versus

***The group believes in a bottom-up style of management that encourages initiative and self-control among employees with minimal reliance on formal rules and surveillance.

6. ***The group is aware of and believes that it should be responsive to community concerns.

versus

The group is oblivious to or ignores community concerns.

12. The group cloaks its deliberations in the highest secrecy.

versus

***The group is remarkably open about its deliberations with those outside the group.

53. Power is concentrated within a small sub-group.

versus

***Power is dispersed across a wide range of constituencies and interest groups.

82. ***The group believes that it should be responsive to employee concerns.

versus

The group is oblivious to employee concerns (in extreme cases may even be hostile to employee concerns).

Note: *** = direction of q-sort item that measures the extreme end of the right hand side of the scale.

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NOTES

1. Our sorts included one top management team that is not a financially separate entity with publicly available results. CBS News is only one segment of CBS (which was a separate company on the *Fortune 500* list at the time). This was included on the list because the news operation was perceived as the core of the network at that time. We used Nielsen ratings of the evening news in place of sales and income growth. The results reported in this paper are identical with or without those data in the sample.

2. A variety of firm size measures were tested (total sales, total assets, etc.). All measures yielded the same results. Data reported in Table 3 are controlled for total sales of the company.

3. In 1995, after *Comeback* was written, GM experienced a slacking of energy and negative financial results that are reported in *Collision Course*.

REFERENCES

- Allison, G. T. (1971). *Essence of decision: Explaining the Cuban Missile Crisis*. Boston: Little, Brown.
- Argyris, C. (1985). *Strategy, change and defensive routines*. Boston: Pitman.
- Bandura, A. (1982). Self-efficacy: Toward a unifying theory of behavioral change. *American Psychologist*, 37, 122-147.
- Block, J. (1978). *The Q-sort method*. Palo Alto, CA: Consulting Psychologists Press.
- Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly*, 17, 1-25.
- Daily, C. M., & Johnson, J. L. (1997). Sources of CEO power and firm financial performance: A longitudinal assessment. *Journal of Management*, 23, 97-117.
- Eisenhardt, K. M. (1989). Making fast strategic management decisions in high-velocity environments. *Academy of Management Journal*, 32, 543-576.
- Eisenhardt, K. M., & Zbaracki, M. J. (1992). Strategic decision making. *Strategic Management Journal*, 13, 17-37.
- Fredrickson, J. W., & Iaquinto, A. L. (1989). Inertia and creeping rationality in strategic decision processes. *Academy of Management Journal*, 32, 516-542.
- George, A. L. (1980). *Presidential decision-making in foreign policy: The effective use of information and advice*. Boulder, CO: Westview.
- Goodman, P. S., Ravlin, E., & Schminke, M. (1990). Understanding groups in organizations. In L. L. Cummings & B. M. Staw (Eds.), *Leadership, participation, and group behavior* (pp. 333-385). Greenwich, CT: JAI Press.
- Gouran, D. S. (1982). *Making decision in groups: Choices and consequences*. Glenview, IL: Scott, Foresman.
- Guzzo, R. A., Wagner, D. B., MacGuire, E., Herr, B., & Hawley, C. (1986). Implicit theories and the evaluation of group processes and performance. *Organizational Behavior and Human Decision Processes*, 37, 279-295.
- Hackman, J. R. (1990). *Groups that work (and those that don't)*. San Francisco: Jossey-Bass.
- Hackman, J. R., & Morris, C. G. (1975). Group tasks, group interaction process, and group performance effectiveness: A review and proposed integration. *Advances in Experimental Social Psychology*, 8, 45-99.
- Herek, G., Janis, I. L., & Huth, P. (1987). Decision making during international crises: Is quality of process related to outcome? *Journal of Conflict Resolution*, 31, 203-226.
- Hirokawa, R. Y. (1985). Discussion procedures and decision-making performance: A test of a functional perspective. *Human Communication Research*, 12, 203-224.
- Janis, I. L. (1972). *Victims of groupthink*. Boston: Houghton Mifflin.
- Janis, I. L. (1982). *Victims of groupthink (2nd edition)*. Boston: Houghton-Mifflin.
- Janis, I. L. (1985). Sources of error in strategic decision making. In J. M. Pennings (Ed.), *Organizational strategy and change*, pp. 157-197. San Francisco: Jossey-Bass.
- Janis, I. L. (1989). *Crucial decisions: Leadership in policy-making and management*. New York: Free Press.
- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, meta-analysis, and a preliminary feedback interventions theory. *Psychological Bulletin*, 119, 254-284.
- Lindblom, C. E. (1980). *The policy-making process (2nd edition)*. Englewood Cliffs, NJ: Prentice-Hall.
- Lindsley, D. H., Brass, D. J., & Thomas, J. B. (1995). Efficacy-performance spirals: A multilevel perspective. *Academy of Management Review*, 20, 645-678.
- Maier, N. R. F. (1950). The quality of group decisions as influenced by the discussion leader. *Human Relations*, 3, 155-174.

- March, J. G., & Sutton, R. I. (1997). Organizational performance as a dependent variable. *Organization Science*, 8, 698-706.
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1992). *The adaptive decision maker*. New York: Cambridge University Press.
- Peterson, R. S. (1997). A directive leadership style in group decision making can be both virtue and vice: Evidence from elite and experimental groups. *Journal of Personality and Social Psychology*, 72, 1107-1121.
- Peterson, R. S., Owens, P. D. & Martorana, P. V. (1999). The group dynamics q-sort in organizational research: A new method for studying familiar problems. *Organizational Research Methods*, 2, 107-136.
- Peterson, R. S., Owens, P. D. & Martorana, P. V. (August 1998). Organizational performance and CEO personality: Explaining more of the variance through top management team group dynamics. Best Papers Proceedings of the Academy of Management.
- Peterson, R. S., Owens, P. D., Tetlock, P. E., Fan, E. T., & Martorana, P. V. (1998). Group dynamics in top management teams: Groupthink, vigilance, and alternative models of organizational failure and success. *Organizational Behavior and Human Decision Processes*, 73, 272-305.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.
- Poole, M. S. (1983). Decision development in small groups III. A multiple sequence model of group decision development. *Communication Monographs*, 50, 321-341.
- Starbuck, W. H. (1985). Acting first and thinking later: Theory versus reality in strategic change. In J. M. Pennings (Ed.), *Organizational strategy and change* (pp 336-372). San Francisco: Jossey-Bass.
- Staw, B. M. (1975). Attributions of the 'causes' of performance: An alternative interpretation of cross-sectional research on organizations. *Organizational Behavior and Human Performance*, 13, 414-432.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 26, 501-524.
- Suedfeld, P. (1988). Authoritarian thinking, groupthink, and decision making under stress: Are simple decisions always worse? *Society*, 25, 25-27.
- Suedfeld, P. (1992). Cognitive managers and their critics. *Political Psychology*, 13, 435-453.
- Tetlock, P. E. (1992). The impact of accountability on judgment and choice: Toward a social contingency model. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 331-376). New York: Academic Press.
- Tetlock, P. E., Peterson, R. S., McGuire, C., Chang, S., & Feld, P. (1992). Assessing political group dynamics: A test of the groupthink model. *Journal of Personality and Social Psychology*, 63, 403-425.
- Zander, A. (1993). *Making boards effective*. San Francisco: Jossey-Bass.