The Classics and the Contemporary: A New Blend of Small Group Theory

Deborah Ancona. 617-253-0568
MIT Sloan School. E52-582
Cambridge, MA   02139

and

Abstract

This paper summarizes the results of several studies aimed at developing an "external perspective" toward the study of effective group interaction. These studies of five consulting teams and forty-five new product teams show that groups develop distinct strategies toward their environment that are related to managerial ratings of performance and to internal group process. The findings are moved to a more general theory of groups through the application of the work of George Homans and Kurt Lewin. This new theory argues that group behavior should be viewed as a series of escalating cycles of interaction between groups and their environment. Groups help "create" their environments through the permeability of their boundaries. Environments present a set of constraints to which the group must adapt. Different rates of revolutionary environmental change require that teams employ different strategies.

This paper is about groups. Yet the research presented here differs from that usually found in the dominant social psychology paradigm. This research uses on-going organizational teams, not one-time laboratory groups. The tasks of these organizational teams are complex and evolving, not simple and set. The task allocators are managers, not academics.

The key element that differentiates this research, however, is its focus. Rather than sitting on the group boundary and looking inward, the research lens includes both behaviors within the group and those directed outward, toward other parts of the organization, i.e., an "external perspective" (Ancona, 1987).

In a world of hypothesis generators and testers, this paper is backwards. That is, it begins with data and ends with theory. This orientation follows our state of knowledge about groups' external activities. Since very little was known about external group activity prior to the work presented here, the first stages of research were necessarily description and classification (Gladstein & Quinn, 1985; Kerlinger, 1973). This early work allows us to move on to the task of inferring relationships among variables and positing hypotheses that go beyond the data and attempt to create a more general theory of groups.

My major sources in this movement from description to theory building are the classic works of George Homans and Kurt Lewin. Both were grand theorists who worked with real groups and modeled the interaction between internal and external group activity. Unfortunately, much of this early work has been either ignored or forgotten. Nevertheless, it provides an important guide to a more mid-range theory of groups. Thus, this paper ends with a melding of data and classic theory, resulting in some new models of group behavior.

The External Perspective

The impetus for the first study on the external perspective came from a study of one hundred sales teams in the telecommunications industry (Gladstein, 1984). Following the dominant internal paradigm, the study tested two competing models of group performance: the

humanistic model and the decision-making model. The humanistic school concentrates primarily on maintenance behaviors; that is, behaviors that "build, strengthen, and regulate group life" (Philip & Dunphy, 1959: 162). The school is characterized by a normative approach that encourages openness and the building of trust within a group (Likert, 1961). The decision-making school concentrates on particular task behaviors, behaviors aimed at solving the group's objective task. Decision theorists posit that behaviors such as weighting individual inputs according to knowledge and skill and discussing performance strategies for novel problems (Hackman, Brousseau, & Weiss, 1976; Hoffman, 1979) will improve group performance.

During preliminary interviews, salesmen frequently spoke of the importance of their interactions with their firm's installation and repair teams. Thus, several survey questions were added to pursue how teams interacted with other groups within their organization. It was hypothesized that these relationships would form another dimension to the task behaviors of the group.

The results were surprising. First, group members did not perceive process as separating into the traditional task and maintenance components (Bales, 1958; Philip & Dunphy, 1959; Schein, 1988). Instead, process was seen as divided into an internal and an external component; behaviors taking place among group members versus those with outsiders. Second, while internal group process predicted solely team-member satisfaction and team-rated performance, external process was associated only with sales revenue, i.e. an objective, external measure of performance. Thus, an aspect of group process that had been virtually ignored in the literature facilitated organizational performance indicators in ways that internal processes did not. Unfortunately, we still knew very little about what those external activities were.

Our external perspective began with the simple realization that organizational group process was not fully represented by internal activities. Group members interact with one another, but they are also proactive with outsiders; seeking information and resources, interpreting signals, and molding external opinion. Common sense suggests that causal arrows move in both directions from the group to the environment and back again. Thus, although the

4

environment does constrain action and shape beliefs, it probably is not deterministic. Similarly, the group is not omnipotent, but it can help determine external definitions of task and performance.

Several research questions guided a series of studies aimed at fleshing out this new approach to group behavior. In addition to asking the traditional question, "How does the group influence individuals?" we now asked "How does the organization influence the group?". Rather than asking "How do individuals attend to and map the group?" our question became "How does the group reach out to its environment?". In essence, we added the study of the dynamics between teams and their environment to the study of internal group dynamics.

A longitudinal study of five consulting teams (Ancona, 1990), and forty-five new product teams in five high-technology organizations (Ancona & Caldwell, 1987; 1988; 1992; 1991b) yielded four key findings. First, organizational teams develop a distinct set of external activities and strategies toward their external environment. Second, these activities are positively and significantly related to managerial ratings of performance. Third, there is a complex interaction between internal and external process that appears to change over time. Finally, just as teams show patterns of internal dynamics, e.g., midpoint transitions (Gersick, 1988; 1989) and conflict over power (Schein, 1985), so too do they display particular dynamics with their external environment. Each finding in our studies will be explained in more detail below.

External Activities and Strategies

Although the bulk of small group research has focused on internal dynamics, some researchers have examined external initiatives. Adherents of the information processing school have monitored the amount of information exchanged between teams and their environment, positing that groups must match their information processing capability to the information processing demands of the task environment (Allen, 1984; Gresov, 1989; Nadler & Tushman, 1988). However, by focusing primarily on the frequency, rather than the content, of this

communication, these studies have not addressed the broader question of the purpose and nature of those interactions (Ancona & Caldwell, 1991).

In direct contrast to the information processing theorists, researchers examining particular organizational phenomena have concentrated on specific activities enacted by groups. For example, those studying innovation have focused on boundary spanning and the transfer of technical information across team boundaries (Allen, 1984; Aldrich & Herker, 1977; Katz & Tushman, 1979), those studying interdependence have focused on intergroup coordination (Malone, 1987), and those studying power and resource allocation have focused on political or persuasive action with external constituents (Dean, 1987; Pfeffer, 1981). Because they were studying specific organizational phenomena these researchers did not use the group as a focal unit. As such, they have not tried to map the full range of external activities that groups use to deal with a broad set of environmental demands (Ancona & Caldwell, 1991).

Ancona and Caldwell (1987; 1991) attempted to complement existing theory by specifying the range of external activities new product teams use to meet environmental demands. The data included a log of all of the external activities of two teams for two weeks, interviews with thirty-eight new product team leaders and managers, and surveys from 45 new product teams. Factor analysis results suggested three major styles of external action within the organization: ambassador, task coordinator, and scout.

Ambassador activity includes both buffering and representation. Examples of buffering include such things as protecting the team and absorbing outside pressure. One new product team leader said this activity was best explained by Tom West, a major character in the *Soul of a New Machine (Kidder, 1981)*, who said " I don't pass on the garbage and the politics". Representational activities include persuading others to support the team and lobbying for resources. Members carrying out these activities communicate frequently with those above them in the hierarchy such as top R & D management, top division, and even top corporate management (Ancona & Caldwell, 1990).

Task coordinator activity is aimed at coordinating technical or design issues. Examples of activities in this set include discussing design problems with others, obtaining feedback on the product design, and coordinating and negotiating with outsiders. Individuals carrying out these activities show high levels of communication laterally through the organization with such groups as R & D and manufacturing (Ancona & Caldwell, 1990).

Scout activity involves general scanning for ideas and information about the competition, the market, or the technology. This activity set differs from previous ones in that it relates to general scanning as opposed to handling specific coordination issues. Individuals carrying out this activity show high levels of communication with marketing, sales, and R & D (Ancona & Caldwell, 1990).

External initiatives seem to be necessary for a group to obtain key resources in their environment. Ambassadorial activities establish access to the power structure of the organization and enable the group to manage vertical dependence. They protect the team from excessive interference from the top, and facilitate the group's legitimacy and survival by identifying key threats, securing resources, and promoting the team's image. Task coordinator activities provide access to the work-flow structure; they enable the group to manage horizontal dependence. They fill in many of the gaps left by formal integrating systems. Through coordination, negotiation, and feedback, groups establish stronger relationships with other organizational units that can contribute to the group's performance. Scout activities provide access to information enabling the group to increase its expertise. They let the group update its information base, providing new ideas and up-to-date information about technologies and markets (Ancona & Caldwell, 1991).

While the first part of this research program documented and described a full set of external activities, it did not examine how teams organize themselves to carry out their external strategies. In other words, not all groups have the capacity or willingness to engage in all three activities. Some teams specialize, some are generalists, and others engage in no external activity at all. We use the term strategy to label these patterns of external activity. This is not to suggest

that such patterns are necessarily intentional, just that they were exhibited consistently over a given period of time.

Our analysis suggested that groups clustered into four distinct strategies, having similar scores on the ambassador, task coordinator, and scout variables. The first strategy concentrates on ambassador activity and very little else; we labeled it Ambassadorial. The second combined scout activities with some task coordination; we called it Technical Scouting. The third strategy was low on all dimensions, with some minimal scout activity. We labeled this pattern Isolationist. Finally, the fourth strategy had members who felt responsible for both ambassadorial and task coordinator activities, but little scouting. This strategy avoided general scanning; it focused on external interaction to both persuade others that its work was important, and to coordinate, negotiate, and obtain feedback from outside groups. We called it Comprehensive.

The four strategies that emerged in the new product team sample closely resembled those derived in the qualitative study of five consulting teams. While no ambassadorial teams were present in the latter, three other strategies were found. Informing groups, like Isolationists, remained relatively isolated from their environment. They made decisions using information that group members already had and defined their task themselves. Parading teams, like Technical Scouts, had high levels of passive scanning of the environment. They collected lots of information about the environment and were very visible to outsiders. Probing teams, like Comprehensives, sought outside feedback on their ideas and promoted their achievements within their organization. Probing teams also tested new ideas with outsiders to get early commitment, and revised their knowledge of the environment through external contacts. This convergence of the two distinct data sets provides some support for the validity of the findings. Although different names were used to identify the strategies across studies, for the remainder of the paper only the Ambassadorial, Technical Scouting, Isolationist, and Comprehensive will be used.

Activities, Strategies and Performance

Results from the new product teams (Ancona & Caldwell, 1991) indicated that external activities were definitely related to performance. Furthermore external action was more strongly related to management ratings of performance than frequency of communication, the variable suggested by information-processing theorists. The interaction of different team strategies provided important insights into the dynamics of performance. While ambassadorial activity was a key to external ratings of performance, its effects over the long term seemed to hold only when teams also engaged in task coordination. Pure ambassadorial and comprehensive teams moved along within budget and on schedule in the early months after they had formed. By the time their work was completed, however, the ambassadorial teams were rated as poor at innovation and team operations, while comprehensives continued to be the highest performers. This suggested that while managing the power structure alone may help speed a group along in its formative stages, as it formulates the work, contact with both the power and work-flow structures is needed to maintain performance. Not surprisingly, the process of moving through the complexity of producing a final product was facilitated when the teams got input from people throughout the organization. Thus, the combination of ambassadorial and task coordination activity allowed comprehensives to be effective both early and late in their life cycle.

Not all task activity was productive, however. Too much scout activity was related to low performance ratings. It may be that such teams constantly reacted to general environmental data and became unable to commit to producing a specific end product at a specific time. Alternatively, high levels of scouting may have reduced team members' efforts in the more performance-relevant external activities or into building effective internal processes (Ancona & Caldwell, 1991).

A very different pattern emerges when a team rated its own performance. Groups felt that they performed well when they concentrated their efforts internally; their perceptions of performance were negatively related to frequency of external communication and positively related to clear goals and priorities and high cohesiveness. Thus, as in the original study of sales teams,

9

predictors of management-rated and team-rated performance were very different (Gladstein, 1984; Ancona & Caldwell, 1991).

Similar findings surfaced among the five consulting teams. The highest performers, as rated by top management one year after team formation, were the comprehensive teams, who combined upward persuasion with lateral feedback seeking, coordination, and testing of solutions. The lowest performer was the isolationist team, which remained isolated from both its external task environment (the customer) and top management. They were incorrect either in thinking that they had sufficient information to complete the task by themselves or in assuming that their performance would be evaluated independent of the process and visibility they displayed during the team's lifetime. In the middle were the scouting teams who were very visible in the external environment, but were not viewed as achieving the task.

Although top management rated only the comprehensive teams as high performing, both the scouting and the comprehensive teams rated themselves as performing well at the end of one year. The comprehensive teams were quite satisfied because their efforts were recognized. The scouting teams, however, were angry because they felt unappreciated for all they had done.

The findings of the two studies support one another and suggest that external interaction that focuses on influencing top management and coordinating work across the organization will lead to the highest ratings of performance by top management. Furthermore, it is only in these teams that internal and external ratings of performance match one another and are positive.

Internal and External Activity

Most previous research suggests that external activities interfere with the development of effective internal operations. The internal cohesion that exists under conditions of groupthink (Janis, 1982, 1985) can promote external stereotyping and eliminate the import of external information that might damage group consensus. The intergroup literature (Smith, 1983, 1989) also suggests a negative relationship between internal and external activities. Groups can be

underbounded--having many external ties but an inability to coalesce and motivate members to pull together their external knowledge--or overbounded--having high internal loyalty and a complex set of internal dynamics but an inability to reach out to the external world (Alderfer, 1976; Sherif, 1966). Finally, the conflict literature predicts intensified intragroup conflict when group members collect information from outsiders with different goals, cognitive styles, and attitudes (Schmidt & Kochan, 1972; Shaw, 1971).

Yet not all studies indicate a negative relationship. In a study of eight task forces, Gersick (1988) found that groups undergo a mid-point change where they fundamentally shift their basic assumptions and operating procedures. The study suggests that teams may deal with internal and external demands sequentially, first acting on initial information from the environment in isolation, and then emerging to get further feedback and information from outsiders.

The studies discussed here show a complex relationship between external and internal process (Ancona & Caldwell, 1991). Frequency of external communication is not significantly related to internal task processes (e.g. the ability to set goals and priorities), but is significantly and negatively related to cohesiveness. Yet frequency measures group all types of communication together and mask the fact that not all external communication interferes with internal process. Ambassadorial action is significantly and positively related to internal task processes and marginally and positively related to cohesiveness. Task coordinator activity is not related to internal process, while scout activity is negatively related to both internal task process and cohesiveness.

Thus, while continuous general scanning seems to interfere with a team's ability to set goals and cohere, external activity aimed at influencing powerful outsiders facilitates internal action. An isolationist strategy is also positively related to internal process particularly cohesiveness.

The consulting teams showed a change in the relationship between internal and external activities over time. Comprehensive team members were initially very dissatisfied with their teams. They were frustrated with poorly formulated goals, lack of direction, and the fact that the

group often worked in small subgroups rather than as a whole. However, over time, as they pulled together their information about the environment and had positive feedback from the top management, satisfaction with internal processes increased. In contrast, scouting teams were extremely satisfied in the first few months but frustrated later because their work was not appreciated. The isolationist team in this study was very dissatisfied with their internal process throughout their history.

Thus, ambassadorial and comprehensive teams may not be cohesive initially, but they come together as they come to effectively interact with their environment. Results are more equivocal for scouting and isolationist teams. These teams seem to ignore their environment and enjoy cohesiveness and goal clarity, or suffer in their internal process due to negative external ratings of performance. It may be that scouting and isolationist teams are internally cohesive until they finally realize that they have failed to gain external legitimacy, after which their cohesion breaks down.

Group-Environment Dynamics

While the preceding sections describe a group as a free actor following a chosen strategy toward the environment, in reality this picture is too simple. The study of the five consulting teams (Ancona, 1990) shows that the environment reacts to a team, and then both team and context influence one another. The interactions between a group and its environment have patterns similar to the patterns of interaction between the members and the group itself in that there are struggles for identity and power. Just as individuals often spend time at the start of a group trying to determine what role they will play in the group, and which members will have power, so too, do groups play out these same issues with key external constituents.

The themes of power and influence appear to play an important role in group-environment relations, with top management being a key player. Teams begin to act and, through their actions, top management clarifies what it wants the teams to do. For example, it was not until each of the

consulting teams planned a different customer approach that the head of the organization realized that he wanted one unified approach. As top management begins to understand what it wants, it sets constraints and provides direction. Teams then react in a variety of ways; some welcome the direction, some try to shape the new directives, and others become resentful. For the latter, power struggles can occupy a great deal of time and energy and produce a lot of resentment.

Thus, an environment influences a team by setting limits on activity and by picking particular teams as models of effective performance. There is often a great deal of conflict as teams fight to maintain their autonomy in the face of these limits. A team can influence its environment by promoting its action as the model for effective task performance. Teams are not equally skilled in this influence process.

The external environment also plays the role of echo chamber (Ancona, 1990). Early in the consulting teams' existence, not much concrete information was available, so teams were not labeled by top management. Yet when the head of the organization felt that enough time had elapsed that output should have been visible, a review was set up. Afterward, information about how the teams performed and what top management liked got fed into the rest of the organization and amplified quickly. If a team was in trouble before the formal review, afterwards it was in bigger trouble because it now had a "problem" reputation. On the positive side, teams that were congratulated for their work developed a positive image, making it easier for them to continue on a successful track.

Thus, the first comparative, evaluative information--even if it is based on limited data-- becomes big news. The environment changes whispers into roars, making it incumbent upon groups to manage the information and images they send out early in their life cycle. These images appear to get cast in concrete in the groups we studied: the initial reputations were intact a year later, despite efforts to change them; instead data were interpreted by top executives to support their original impressions. The inability to influence top management early on can be devastating to a team since they control resources and rewards. In short, early labeling creates self-fulfilling prophecies.

Finally, the environment acts as a selection mechanism. By creating a set of teams to meet new external market demands the organization gets a wide variety of responses. This variety is useful to the organization for some period of time, until it becomes difficult to sustain. In choosing some responses over others, top management selects an organizational response. During the process some teams succeed and others fail. Indeed, two of the five consulting teams were finally disbanded and reconfigured to be more like the others. From a team standpoint this process is quite painful. However, from an organizational standpoint this may be an efficient way to discover new ways to meet environmental demands.

The Classics

While the research presented in this paper has started to clarify some of the dynamics between teams and their environments, it remains highly specific and stays at the classification level rather than at the more general, abstract, theoretical level. To move in the latter direction, I shall examine the work of George Homans and Kurt Lewin. As was the style at the times they were writing, from the 1930's to the 1950's, both wrote at a very abstract level, creating a multitude of dissertation topics in paragraph after paragraph of hypothesis generation. Their style was to go back and forth between theory and data, slowly propelling the knowledge generation process. They both spent much of their long careers studying groups in their natural settings. They conceptualized the environment as a fundamental influence on a group, even though each is better known for his work on internal group dynamics. As I selected portions of their work to be presented here I kept an external perspective on group action in mind. Therefore, I only summarize their theoretical work if it specifically highlights the nature of group-environment interaction.

George Homans

Homans believed that all of sociological theory could follow from a theory of the small group. In *The Human Group* (1950), he used the data from five case studies (the bank wiring room at the Western Electric Company's Hawthorne Works; the Norton Street Gang; a family in Tikopia, an island of Polynesia; Hilltown, a New England town; and an electric equipment company), to develop and illustrate a general theory of groups. After describing each group, Homans analyzed the description in terms of the theory he developed from all five cases. He attempted "to give one general form in which the results of observations of many particular groups may be expressed" (p. 21). "...the theory will show the group to be an organic whole; and the theory will be built up through careful examination of the link between social concept and social observation" (p. 17).

Homans first analyzed the group as a set of mutually dependent elements: activity, interaction, and sentiment. Activity refers to things that group members do, such as soldering metal or bowling. Interaction is independent of what group members may be doing, but instead refers to the fact that "some unit of activity of one man follows...or is stimulated by, some unit of activity of another" (p. 36). For example, when a wireman completes his work on one terminal and moves to the next, this is a signal to the solderman to begin work on the first terminal. Sentiment refers to the internal state of group members and must be inferred. The nature of the interdependence among the elements emerges from the data and is illustrated through a series of hypotheses such as, "if the frequency of interaction between two or more persons increases, the degree of their liking for one another will increase and vice versa". In other words, activity, interaction, and sentiment feed on one another such that an increase (decrease) in one is often followed by an increase (decrease) in the other.

The internal workings of a group are further divided into an external and an internal system. The external system interacts with the environment and includes those behaviors that enable the group to survive in its environment. When members work together to produce output

15

their internal interaction is part of the external system. The internal system includes behavior that goes beyond the demands of the initial situation and changing environmental conditions. For example, the external system in the bank wiring room included communication patterns, physical positioning, and work allocation that was determined by the work flow and formal organizational rules. The informal cliques that developed as part of the group's internal system followed closely, but not directly from this external system. Over time, the cliques deviated more and more from the external system as norms and rituals evolved that concerned interpersonal interaction and sentiment more than work.

But Homans did not solely model internal processes. He was quick to point out that the group is an organic whole surviving in an environment. Thus, the group is a system which "reacts on the environment and may to some extent change it, is itself to some degree modified by the environment, and is constantly adjusting and readjusting within itself" (p. 90). The group and the environment are therefore not cause and effect, but a dynamic equilibrium system. The basic elements of the group represent a non-unique solution on how to survive in the environment. The environment encompasses physical, technical, and social components. For the men in the wiring room it included the shape of the room and the location of benches, their tools, and other workers in the organization. According to the theory, if the environment were to change, the team's scheme of activity would change, as would its scheme of interaction and sentiment due to the mutual dependence of the basic elements with each other and with the environment. These changes in the external system would be elaborated by the internal system, which, in turn, would have an impact on the environment.

The elements of Homans' model encompass a complex series of interactions both within the group and between the group and its environment. The environment presents some initial and subsequent conditions to which a team must adapt. Adaptation is determined by the environment and by the interaction of the elements of the internal and external system.

Homan's contribution to the external perspective is this depiction of the group as a set of interdependent systems that interact with the environment. This depiction suggests that group

16

behavior not be viewed in isolation at one time, but as continuing cycles of interaction between the group and its environment. After all, if all the elements of the systems within the group are interdependent, and the group is interdependent with the environment, then changes in any one system have ramifications for the other systems, creating feedback loops. Also, because of the mutual dependence of the elements, a relatively small departure can have relatively large results. The result are cycles of behavior. Homans' work goes on to suggest what the nature of some of those cycles might be.

Homans provides evidence to suggest that groups and their environments can enter positive or negative feedback cycles, for instance, cliques formed in the bank wiring room. Members then became increasingly bound to one another, developed increasingly complex and elaborate norms, and increasingly differentiated themselves from other cliques. Because these norms reinforced behaviors that also led to outcomes valued by the organization, interaction with the environment was positive, and reinforced the continued elaboration of the internal system. As can be seen in the Hilltown example, however, this cycle can be turned around through a change in the group or its environment. As Hilltown developed, people had to band together to build the town. They were interdependent for their survival; as a result, complex bonds developed. Over time, however, people became more self-sustaining, lessening interaction, activity and sentiment. This change in the reinforcing cycle was exacerbated by a change in the environment. Whereas early on, the town was the center of most activity in the region, later, conditions around the town improved, attracting townspeople to outside organizations. This, in turn, fueled the decrease in the number and strength of interactions, shared activities and sentiments, until they "had become centrifugal rather than centripetal" (p. 360). Thus, the hypothesis that "interaction is accompanied by friendliness among the members only if the group as a whole is maintaining itself in its environment" is only one of many hypotheses that show this property of groups to have reinforcing positive or negative cycles of interaction with their environments.

The new product team and consulting team studies both offer support for Homans' cycles of interaction. Comprehensive strategies resulted in positive performance ratings from top

management and, in turn, facilitated internal group process and cohesiveness. Positive feedback loops fueled a cycle of improving internal and external process and performance. The negative, and escalating cycle is seen in scouting and isolationist teams. While these teams maintained positive internal processes in the short term, despite negative external evaluations (by being oblivious to the evaluations or banding together to fight them), internal processes eventually deteriorated.

Homans' posits a cycle of increasing or decreasing complexity, in addition to the positive and negative feedback loops. In this cycle, increases in the complexity of the environment generate an increase in the complexity of the group's external activities, which, in turn, increases the complexity of interaction in both the external and the internal system and vice versa. This cycle can also move in the opposite direction of decreasing complexity.

This cycle could be used to explain the difficulties scouting teams had in completing their products. By continuously opening up their boundaries to diverse information and conflicting views, these teams had to develop complex internal mechanisms to process that information and resolve conflicts. These teams often got so caught up in the internal work needed to continuously coordinate activities to meet changing conditions that they failed to make adequate progress. Interestingly, although these groups had to adapt to the complex environment, they also created that environment by collecting information. This notion of the impact of boundary permeability is well developed by Lewin.

Kurt Lewin

Kurt Lewin, often referred to as the father of social psychology, was a key proponent of studying actors in relation to their environment. He argued that behavior and development depend upon the state of the person and the environment; which are mutually interdependent. One of Lewin's major contributions was the concept of lifespace, where person and environment are one "constellation of interdependent factors" (Lewin, 1951).

18

According to Lewin (1951), the environment serves as a constraint to an actor. Physical and social conditions, e.g. lack of ability and social prohibition, limit the variety of life spaces by creating boundaries on the psychological field. In addition, the field is personal in that it is seen through the needs of the individual. de Rivera (1976, p 21) interprets Lewin's description of a landscape as seen by a civilian in peacetime versus a warscape as seen by a soldier in danger:

> "Away from the front the horizon spreads out in all directions, and he notices the presence of homes. However, as he approaches the line of battle the scenery takes on a "directness". The horizon ends abruptly at the front, and instead of homes, he notices shelters from enemy fire. Within these shelters he sees "firewood" rather than the "furniture" he sees in homes. There is a corresponding change in behavior. It is not possible to march as rapidly toward the front as toward a distant horizon; it is possible to destroy a shelter, whereas it is impossible to treat a home in such a callous way".

(de Rivera, 1976: 21.)

Thus, Lewin, like Homans, does not create a deterministic environment. He posits that while behavior may be determined by the situation, people are also capable of making choices that determine the meaning of their situation. People can always choose to either take the responsibility of asserting meaning and accepting the consequences, or of passively allowing someone else to determine the meaning of the situation (de Rivera, 1976). There is a continuum from free action to being completely controlled.

The aspect of Lewin's work that seems most pertinent to the external perspective is his notion of boundaries, their permeability, and whether there is resistance to influence or invasion from outside. One of Lewin's more vivid examples of boundary conditions is his comparison of U.S. and German culture (Lewin, 1936). He argued that differences among individuals are the cause of differences between groups. But, differences in individuals are a result of living in a different social situation built by different histories. Thus, a dynamic between person and situation is established over time.

Lewin (1936) argued that the social distance between individuals was smaller in the U.S. than in Germany. Perhaps as an expression of democratic attitudes and the notion of equal rights,

Americans were more open to others, more willing to share things, to talk to strangers, and to have an open door policy. But this openness was limited to peripheral areas of the personality. In intimate or core areas Americans were closed. Lewin observed that Americans quickly acquired friends but also easily said goodbye to one another after many years and picked up new friendships in other areas. Also, relationships often moved along speedily until they hit issues of commitment or marriage, when they suddenly slowed down as people became wary of the closeness.

For Germans only the most peripheral areas were accessible; they resisted invasion from outside; they were hard to know. Thus, in the U.S. you could learn all kinds of things about people easily, and very personal information was published in newspapers and magazines. This was not the case in Germany. Figure 1 illustrates the differences between the Americans and the Germans with "O" representing the more open Americans and "C" representing the more closed Germans.

There were a great many speculated consequences to the differences. If the environment were to change, Americans would show more change since more layers were readily accessible and therefore more open to external influence. Germans would be more apt to behave the same way in each situation, e.g., to be formal even in bathing suits. The Germans had more private regions and thus their behavior was less modifiable. Social life in the U.S. was more homogeneous (fewer distinct classes and more fluidity across social status), since it was easier for Americans to get to know one another and become similar to one another. Newcomers would have found it easier to join a group of Americans than of Germans, although the relationship would only go so far.

Lewin's concept of boundaries can be applied to the group level of analysis and used to understand the behavior of the new product and consulting teams. How is it that some of these groups were able to understand and adapt to their environmental challenges--whether consciously or not--and others were not? Clearly, some enacted strategies are better than others. One answer is that those following the open model--the comprehensives--were better able to understand and

change to match their environment. These teams maintained an open outlook and were receptive to new membership. Those following the closed model--the scouting and isolationist teams-- maintained their world view, could not incorporate new information, and were less open to new ideas and members. Thus, through Lewin we are left with a kind of contingency model whereby different levels of openness to the environment are related to a group's ability to adapt to its environment.

Blending the Classics and the Contemporary

We have already seen some of the benefits of blending the external perspective with the work of Homans and Lewin. The concepts of escalating cycles of behavior over time and the degree of boundary openness shed new light on the group studies presented earlier. Now we move on to more general theory and try to extend the arguments made up to this point.

First, we revisit Homans' notion of cycles of behavior between the group and its environment. According to Homans, the cycle can start anywhere because all parts of the system are interconnected. Thus, effective internal processes can lead to successful interaction with the environment, which, in turn can reinforce those internal processes, leading to more elaboration of norms and rituals. Or, the cycle can start with successful interaction with the environment.

However, our data suggest that organizations evaluate work teams in the first few months of their development. Decisions label the teams and a negative or positive escalating cycle begins. Teams that do not match this cycle may incur their own demise--even if they eventually carry out their task. Therefore, even though teams must fulfill both internal and external activities, the point in time at which they undertake those activities is not trivial. Obtaining support from the environment needs to come first for a team to enter a positive escalation cycle.

This matching appears to be similar to a process McGrath and Kelly (1986) call entrainment. This process occurs when the cycles or rhythms of one system become synchronized or coordinated with those of another. In our example, the environment has an

evaluation cycle that resembles an on/off switch (Ancona & Chong, 1991). That is, there is a period in which an impression can be made, and following that period nothing can be done. For a group to entrain to that rhythm, it must make an impression in the allotted time frame.

Entrainment suggests that research on groups must study critical segments of group-context interaction. We must not only come to understand the cycles of escalating negative and positive interaction, we must also understand the other cycles to which a team must entrain and in what time frames these cycles occur. For example, we might hypothesize that teams must entrain some of their activities to cycles outside the organization, as well as those already illustrated inside the organization. Customers, suppliers, and competitors all operate along their own time lines that have consequences for teams that must interact with those groups. A team may develop a wonderful product, in the shortest time known in the organization, but if the competition has beaten them to market then the product may not sell to estimated levels. Similarly a team may design a revolutionary product, but if it is introduced after a client has already been through a major change in technology, then that client may not wish to undergo another change required by the revolutionary product.

Thus, I hypothesize that groups and their environments each operate in cycles of activity that influence one another. I further hypothesize that groups will be higher performers to the extent that they entrain to critical aspects of their external environment, before developing their internal system. Groups must entrain to both the organizational environment and the external environment with which it is interdependent. Future research will have to identify those cycles that are the most critical to performance.

Second, like Homans and Lewin I hypothesize that although the environment has some objective component, it is also created by the perceptions and actions of the groups within them. More particularly, I borrow from Lewin in hypothesizing that a group's ability to entrain to its environment, and to adapt, is linked to its permeability. More specifically, groups that follow the open model are better able to entrain than those following the closed model. The difference is not solely openness to external input, but an ability to change world view, to incorporate new

information and change member schemas, and to incorporate new members. Groups, like scouting teams, who collect lots of information but cannot use it flexibly to discover new solutions that meet external demands, suffer in their performance. Groups, like comprehensive teams, that both mold, and mold to, external demands are better able to understand and predict external cycles and entrain to them. Thus, it is not solely amount of information that is let into the group, but the type of information and how it is used by the group.

Third, the question must be raised as to whether the patterns presented here generalize to other situations. Are comprehensives always better performers? Are scouting and isolationist teams always doomed to enter negative cycles of performance and group disintegration? The answer is probably no. Both the consulting and new product teams existed in a time of change within their organizations and their external environments. New product teams exist in an environment of rapidly changing technology and market conditions. There are quick cycles of change in the environment's openness to particular products and services. In Tushman and Romanelli's (1985) language there are frequent environmental discontinuities requiring major change for effective entrainment to changed conditions. In this case, teams are effective to the extent that they engage in the type of permeability that allows them to predict, adapt to, and shape environmental change. This same behavior would not be necessary under more stable conditions where the cycles of major change are less frequent and revolutionary.

I hypothesize that the external and internal behaviors needed for effective entrainment to an environment with frequent cycles of major change are costly but necessary. To engage in such behaviors when the environment is not rapidly changing is to expend energy uselessly (Ancona & Chong, 1991). Thus, I would hypothesize that in more stable environments, with few instances of revolutionary change and long periods of evolutionary change, isolationist teams will be better performers. These teams concentrate their energy on the internal group processes needed to effectively coordinate member effort toward the task. Once these teams have developed the appropriate view of their environment, this view can remain inertial. No change is necessary.

In conclusion, I call for a revision in our approach to group theory. The internal perspective should be joined by an external perspective with a research lens sitting on the group boundary and examining both internal processes and interaction with the environment. The reliance on one time, correlational research needs to be replaced by studies over time, examining the interrelated cycles of activity between teams and their environments. The patterns of change in organizational and external environments must be examined to understand how teams can effectively entrain to those environments. Such changes may, in fact, shift the very nature of group research, leading to some exciting new directions that take off from both the classics and the contemporary.

References

Alderfer, C.P. 1976. Boundary relations and organizational diagnosis. In M. Meltzer &
F. Wickert (Eds.), *Humanizing organizational behavior*: 142-175.
Springfield, IL: Charles C. Thomas.

Aldrich, H.E. & Herker, D. 1977. Boundary spanning roles and organization structure.
Academy of Management Review, 2: 217-230.

Allen, T.J. 1984. *Managing the flow of technology: Technology transfer
and the dissemination of technological information within the R & D
organization*. Cambridge, MA: The M.I.T. Press.

Ancona, D.G. 1987. Groups in organizations: Extending laboratory models. In C.
Hendrick (Ed.), *Annual review of personality and social psychology:
Group processes and intergroup processes*: 207-231. Beverly Hills, Calif.:
Sage Publications.

Ancona, D.G. 1990. Outward bound: Strategies for team survival in the organization.
Academy of Management Journal, 33(2): 334-365.

Ancona, D.G. & Caldwell, D.F. 1987. Management issues facing new-product teams in
high technology companies. In D. Lewin, D. Lipsky, & D. Sokel (Eds.),
Advances in industrial and labor relations: 4: 199-221. Greenwich, Ct:
JAI Press.

Ancona, D.G. & Caldwell, D.F. 1988. Beyond task and maintenance: Defining external
functions in groups. *Group & Organization Studies*, 13(4): 468-494. Sage
Publications Inc.

Ancona, D.G. & Caldwell, D.F. 1990. Beyond boundary spanning: Managing external
dependence in product development teams, *The Journal of High Technology
Management Research,* 1(2): 119-135.

Ancona, D.G. & Caldwell, D.F. 1991. *Bridging the boundary: External process and performance in organizational teams*, Working Paper 3305-91-BPS, MIT Sloan School of Management, Cambridge, Mass.

Ancona, D.G. & Caldwell, D.F. 1992. Demography and design: Predictors of New Product Team Performance, *Organization Science*, forthcoming.

Ancona, D.G. & Chong, C. 1991. Entrainment: Cycles and synergy in organizational behavior. MIT Sloan School Working paper.

Bales, R.F. 1958. Task roles and social roles in problem-solving groups. In E. Maccoby, T.M. Newcomb, & E.L. Hartley (Eds.), *Readings in social psychology* (3rd ed.): 437-447. New York: Holt, Rinehart & Winston.

Dean, J.W., Jr. 1987. *Deciding to innovate: Decision processes in the adoption of advanced technology*. Cambridge, Mass.: Ballinger Publishing Company.

de Rivera, J. 1976. *Field theory as human-science*. New York: Gardner Press, Inc.

Gladstein, D. 1984. Groups in context: A model of task group effectiveness. *Administrative Science Quarterly*, 29: 499-517.

Gladstein, D. & Quinn, J.B. 1985. Making decisions and producing action: The two faces of strategy. In H. Pennings (Ed.), *Organizational strategy and change:* 198-216. San Francisco: Jossey-Bass.

Gersick, C.J.C. 1988. Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, 31(1): 9-41.

Gersick, C.J.C. 1989. Marking time: Predictable transitions in task groups. *Academy of Management Journal*, 32(2): 274-309.

Gibbs, J.P. 1977. Homans and the methodology of theory construction. In R. L. Hamblin & J. H. Kunkel (Eds), *Behavioral theory in sociology*: 27-48. New Brunswick, NJ: Transaction Books.

Gresov, C. 1989. Exploring fit and misfit with multiple contingencies. *Administrative Science Quarterly*, 34: 431-453.

Hackman, J.R., Brousseau, K.R. & Weiss, J.A. 1976. The interaction of task design and group performance strategies in determining group effectiveness. *Organizational Behavior and Human Performance*, 16: 350-365.

Hoffman, L.R. 1979. Applying experimental research on group problem solving to organizations. *Journal of Applied Behavioral Science*, 15: 375-391.

Homans, G. 1950. *The human group*. New York: Harcourt Brace Jovanovich.

Janis, I.L. 1982. *Groupthink*. Boston, MA: Houghton Mifflin.

Janis, I.L. 1985. Sources of error in strategic decision making. In J. M. Pennings & Associates (Eds.), *Organizational strategy and change*: 157-197. San Francisco, CA: Jossey-Bass, .

Johnson, W.T. 1977. Exchange in perspective: The promises of George C. Homans. In R. L. Hamblin & J. H. Kunkel (Eds), *Behavioral theory in sociology*: 39-90. New Brunswick, NJ: Transaction Books.

Katz, R. & Tushman, M. 1979. Communication patterns, project performance, and task characteristics: An empirical evaluation and integration in an R&D setting. *Organizational Behavior and Human Performance*, 23: 139-162.

Kerlinger, F.N. 1973. *Foundations of behavioral research (2nd ed.)*. New York: Holt Rinehart & Winston Inc.

Kidder, T. 1981. *Soul of a new machine*. New York: Avon.

Lewin, K. 1936. Social psychological differences between the U.S. and Germany. Republished in K. Lewin, (1948) *Resolving Social Conflicts*, 3-33, New York: Harper & Brothers Publishers.

Lewin, K. 1951. *Field theory in social science: Selected theoretical papers*. D. Cartwright (Ed.). New York: Harper & Brothers Publishers.

Likert, R. 1961. *New patterns of management*. New York: McGraw-Hill.

Malone, T.W. 1987. Modeling coordination in organizations and markets. *Management Science*, 23: 1317-1332.

McGrath, J.E. & Kelly, J.R. 1986. *Time and human interaction: Toward a social psychology of time*. New York: Guilford.

Nadler, D.A. & Tushman, M.L. 1988. *Strategic organization design: Concepts, tools, and processes*. Glenview, Illinois: Scott, Foresman & Company.

Pfeffer, J. 1981. *Power in organizations*. Marshfield, Mass.: Pitman.

Philip, H., & Dunphy, D. 1959. Developmental trends in small groups. *Sociometry*, 22: 162-174.

Schein, E.H. 1985. *Organizational culture and leadership*. San Francisco, CA: Jossey-Bass.

Schein, E.H. 1988. *Process consultation: Its role in organization development (Vol 1)*. Reading, Mass.: Addison-Wesley.

Schmidt, S.M. & Kochan, T. 1972. The concept of conflict: Toward conceptual clarity, *Administrative Science Quarterly*, 17: 359-370.

Shaw, M. 1971. *Group dynamics: The psychology of small group behavior*. New York: McGraw-Hill.

Sherif, M. 1966. *In common predicament: Social psychology of intergroup conflict and cooperation*, Boston, MA: Addison-Wesley.

Smith, K.K. 1983. An intergroup perspective on individual behavior. In J.R. Hackman, E.E. Lawler, & L.W. Porter (Eds.), *Perspectives on behavior in organization*, 397-407. New York: McGraw-Hill.

Smith, K.K. 1989 The movement of conflict in organizations: The Joint dynamics of splitting and triangulation", *Administrative Science Quarterly*, 31: 1-20.

Tushman, M. & Romanelli, E. 1985. Organizational evolution: A metamorphosis model of convergence and reorientation. In L.L. Cummings & B. M. Staw (Eds.),

Research in organizational behavior, 7: 171-222, Greenwich, CT: JAI Press.

Tushman, M. L. & Virany, B., 1986. Changing characteristics of executive teams in an emerging industry. *Journal of Business Venturing,* 3: 261-274.

Tushman, M. L. & Virany, B. & Romanelli, E. 1985. Executive succession, strategic reorientation, and organizational evolution: The minicomputer industry as a case in point. *Technology and Society,* 7: 297-331.
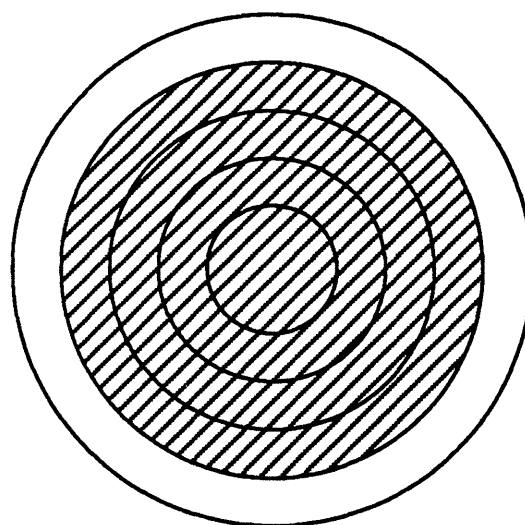
FIGURE 1

Comparison of Two Models
of Boundary Openness

BOUNDARIES

INDIVIDUALS AND/OR GROUPS DIFFER IN THEIR BOUNDARY PERMEABILITY OR RESISTANCE TO INVASION FROM OUTSIDE
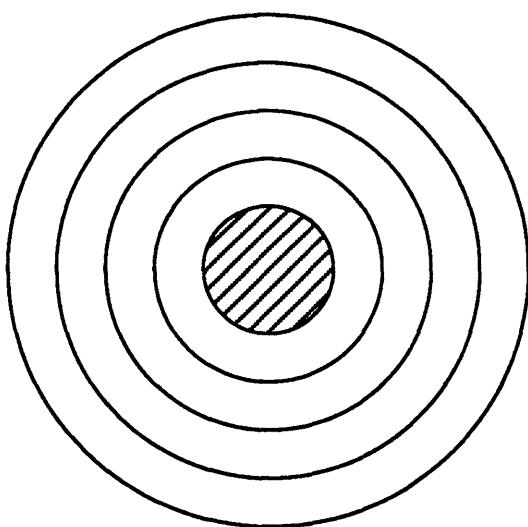
O   C

O = OPEN = MUCH MORE OPEN AND ACCESSIBLE ON A RANGE OF PERIPHERAL ISSUES, BUT CLOSED AT CORE OR CENTRAL ISSUES

C = CLOSED = ONLY THE MOST PERIPHERAL AREA ACCESSIBLE, BECOMES HARD TO ACCESS QUICKLY