Beyond Task and Maintenance:
Defining External Functions in Groups

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Group Process and Performance

Although researchers and practitioners have long claimed a relationship between group process and performance, results of studies actually testing that relationship have been equivocal (Goodman, 1986). There seems to be little concrete evidence that intervening to improve a group's process actually enhances performance (Kaplan, 1979). Nor does it seem that general models of group behavior allow us to understand why some groups are more effective than others (Goodman, 1986; Hackman & Morris, 1975).

Three factors appear to contribute to these equivocal results. First, models of group process often have failed to address the complete range of group behaviors, particularly those that describe how members of the group interact with others external to the group (Ancona, 1988). Second, researchers have often failed to take into account differences in the tasks that groups must complete (Goodman, 1986). Different tasks clearly require different processes for high performance (Herold, 1979). Third, researchers have often used global frameworks that are very general to predict performance rather than producing fine-grained models with clear variables and operational measures (Goodman, Ravlin, & Schminke, 1987). Together, these three factors may explain why group process often fails to covary with the performance of groups operating within organizations. Since the tasks of many groups within organizations require interdependent action, failure to consider the external interactions required and the lack of inclusive, fine-grained models of group process make it unlikely that the appropriate process variables related to performance will be measured.

The purpose of this paper is to describe and classify a set of
activities that link a group to its external environment. This external perspective assumes that the group must manage relations with outsiders since it is often dependent upon those outsiders for resources or information (Pfeffer, 1985). Rather than describing a complete model of group behavior, we concentrate on how groups, doing a particular task, carry on these required relations with those outside, either in other parts of the organization or external to the organization. These external behaviors can then be tested for generalizability and incorporated into new models of group process.

Functions In Groups

One aspect of group process that has received wide attention is the area of critical functions. These are behaviors or activities which must occur to some degree in order for the group to progress effectively (Schein, 1969). Most functions have been identified as falling into one of two sets; those related to accomplishing the task and those which contribute to the maintenance of the group (Bales, 1958).

Task functions are those that enable the group to "solve the objective problem to which the group is committed" (Philip & Dunphy, 1959: 162). Examples of specific task behaviors include: initiating, opinion seeking, opinion giving, information seeking, information giving, clarifying, elaborating, summarizing, evaluating, energizing, recording, and commenting on procedures (for a more complete description of these functions and those relating to maintenance functions see Benne & Sheats, 1948 or Schein, 1969).

Maintenance functions are those which "build, strengthen and regulate group life" (Philip & Dunphy, 1959: 162). Examples of maintenance
behaviors include: encouraging, harmonizing, compromising, expediting, standard setting, group-observing, diagnosing, and following.

The classification of group functions into task and maintenance behaviors has a long history and does an excellent job of describing critical functions within the group. However, it ignores the task activities which relate to transactions with those outside the group. The development of such a classification scheme, which excluded external activities, is not surprising given that most of the research relating to group functions was conducted with short-term laboratory or T-groups. Research following this internal perspective often aimed to control or eliminate the external context in which the group operated in order to achieve fine-grained analysis within the group.

External, Boundary Spanning Functions

Recent research on groups in organizations has taken on more of an external approach (see Ancona, 1988) and has begun to focus on how group members interact with others outside the group. A number of studies have investigated the communication across group boundaries in R & D laboratories and have identified a number of communication roles including stars, gatekeepers, and liaisons (Allen, 1984; Katz & Allen, 1981; Tushman, 1977, 1979). These studies have pointed out the importance of bringing technical information into R & D groups and have established clear links between cross-boundary communication and performance (Allen, 1984). Another study of sales teams (Gladstein, 1984) demonstrated that group members distinguished between internal and boundary activities rather than between task and maintenance activities.

Studies such as these are useful in demonstrating the relationship
between external interactions and group performance, however, they have focused only on very specific types of interactions, most particularly the transfer of technical information. Our goal is to describe a more complete set of boundary roles than these other studies have identified.

METHODS

The research strategy we have chosen could loosely be described as a comparative case analysis. The reason we selected such an approach is that we believe that research on external processes in groups is at a relatively early stage of development. As such, we believe that exploration and description, classification of phenomena, and attempting to identify observable patterns of activity must all precede the proposition and testing of specific hypotheses (Gladstein & Quinn).

Since our goal was to describe a wide set of boundary roles in groups within organizations, the groups we chose for this inquiry were new product teams (npt) in high technology companies. These teams were selected because they must carry out diverse forms of interaction with many external groups. New product teams are dependent upon other parts of the organization for information, resources, and support. In addition, these new product teams must deliver products and services to others. These complex transactions are carried out with a diverse set of functional groups including marketing, manufacturing, and top management. These other functions often represent other "thought worlds" (Dougherty, 1987), i.e. different languages, values, and time frames, as well as different hierarchical levels.

New product teams face a highly uncertain and complex task (Ancona &
Caldwell, 1987). There are periods of creativity and times when efficiency is the primary outcome of interest. Therefore most of the interaction with other groups is not clearly programmed in standard operating procedures and routines, but evolves to meet task demands. We believe that the combination of high interdependence, high uncertainty, multiple forms of dependence with multiple groups, maximizes our ability to identify a full range of cross-boundary activities.

Data Collection

As part of a larger study of product development, data were collected through thirty-four interviews with npt managers at seven corporations in the computer, integrated circuit, and analytic instrumentation industries. Interviews ranged between one and eight hours, with an average duration of three hours. Teams were at various stages of product development; some were just starting out while others had completed projects within the last month. Using a semi-structured interview, we asked each manager to describe the activities that he and his team members carried out with people outside the group boundaries.

Once interview data were collected, the two authors reviewed transcripts, notes, and tapes to identify all references to interactions with outsiders. Examples of these interactions included meetings, one-on-one discussions, telephone calls, and computer messages. We also reviewed the data for what might be called non-interactions; for example, a manager might speak of not wanting to meet with a member of another group until a specific part of the product had been completed. We included such non-interactions in our analysis and considered both interactions that were initiated by the group and those initiated by
outsiders. Finally, we considered internal group activity aimed at dealing with an external constituency. For example, group discussion regarding how to acquire external resources was considered a boundary activity.

After all of the boundary activities had been identified, we performed a kind of informal factor analysis in that we tried to find larger categories that encapsulated particular sets of activities. We tried many alternative categorization schemes until settling on one that appeared to us to take into account major differences among activities, yet included all the activities that had been identified. We include here both the category schemes and the activities so that the reader can judge our work.

RESULTS

An inspection of the reported interactions suggest that groups use, in combination, three strategies in managing their external relations. The first strategy involves initiating transactions to either import or export information, resources or support. The second strategy consists of responses to the initiatives of those outside the group. The third strategy is slightly different in that it does not directly entail initiating or responding activity, but involves the actual definition of who is part of the group. Each of these strategies is associated with a set of activities. We label the activity set associated with the strategy of initiating transactions as Scout and Ambassador activity. The activity set associated with responding to others we call Sentry and Guard activity. Changing the actual definition of the group involves the presence or absence of Immigrants, Captives, and Emigrants.
Scout, ambassador, sentry, guard, immigrant, captive and emigrant activity sets are not uni-dimensional. In fact, each represents multiple activities that were observed in our teams. A fuller description of the specific behaviors we discovered follows.

Scout Activities

The activities that bring information and/or resources needed by the group in across the boundary we have labelled as scout activities. Scouting involves the collection of various types of information including task-relevant information necessary for problem solution, political data about support or opposition to the group's activities, and the extent of demand for the group's output. Most previous research on external group process has focused on the import of task-relevant information. In addition to collecting information, scout activity involves procuring resources, such as equipment and personnel, necessary for group functioning. The scout activity set consists of four observed activities: modeling, information and resource gathering, detecting, and feedback seeking.

Modeling. One of the boundary activities that often characterized interactions early in a team's development was modeling, or mapping the external environment. Modeling entails constructing a picture of the external environment including predictions of future trouble spots or potential allies. Modeling represents the team's attempt to answer questions such as; "Who supports us and who doesn't?" "What do people want us to do?" "Who has information or resources that we need?" "How can we acquire what we need?" Modeling was sometimes done in the group using information that members had from previous experience. Other times
leaders spoke of a need to update models through external observation and discussion, due to changes in the organization, or a new task. An illustration of modeling follows:

The first thing I did was to go to talk to lots of people to find out what they thought the product was and how to get there....I started out with the guy who brought me here, he sent me to someone else, and so it went that I came to talk to a lot of high- and middle-level people....So I gained knowledge about details of what the product ought to be, who the players were, what they did and what they wanted".

Gathering Information and Resources. Throughout the life of the team the leaders and members brought in information and resources needed for current decision making, coordinating, and task progress. These activities required a fairly focused search since they flowed directly from current task demands. For example, members needed to know about the progress of other interdependent groups in order to set up schedules for themselves, they needed particular computers for certain sub-tasks, they needed to know the results of funding decisions in order to plan their own expenditures. More generally, this activity might be thought of as filling a shopping list of information and resources that the group must acquire to complete its task. Examples of members being sent out to obtain what is needed follow:

"I came back to the group (organizational product committee) once per week for a staff meeting...I got the news and went back to my team with letters from home".

"At this point we have to use the test line, which is a shared resource so there's a lot of competition to use it. I have one guy who checks the schedule every morning so we know of any holes that we can fill".

Detecting or Scanning. In contrast to the focused search described above, detecting and scanning involve the collection of information that is not immediately relevant to the task. This activity is similar to what Adams (1980) describes as seeking information about events that might occur, or that
might have relevance to the group if they did occur. Here we see behaviors aimed at detecting early signs of trouble, changes in the external environment, and data that don't seem to fit into the models formed earlier in the group's history. When external entities deviate from the group's expectations and needs, it is the person doing the detecting or scanning that brings this information into the group. An example follows:

"We have a kind of detector. She's very sensitive and works with the people interfaces, not the technical part. She spends time with all the groups in manufacturing to detect problems so they can be dealt with quickly."

Feedback Seeking. A final example of scout activity is feedback seeking; collecting other groups' perceptions of the team's progress, product, members, or functioning. Although some of this activity was clearly geared toward acquiring additional resources to help the team complete the task, it also provided reassurance that work was adequately done, and therefore team members could move ahead. An example of feedback seeking follows:

"After a few weeks we had a design review with all of R & D. We just wanted to make sure that we weren't going off in crazy directions."

Ambassador Activities

Ambassadorial activities export information and/or resources to outsiders. This activity set involves developing and maintaining channels of communication in order to keep others informed and to persuade these outsiders that the group's activities are valuable and should be supported. Ambassador activities include opening up communication channels, informing others of group progress, coordinating and negotiating, and activities aimed at influencing or changing the external world. The latter include attempts to mold or shape the beliefs of others.

Opening Up Communication Channels. Early in the group's history, sometimes
even before the group receives a formal charter, leaders and members are busy opening up communication channels with other groups. Although it seems rather odd, these interactions often do not have clear purposes or agendas other than to introduce someone from the team and begin to establish a relationship. These communications are rationalized as precursors to other forms of transactions or as a means to maintain a relationship during periods when interdependence is low. Two examples follow:

"I asked my secretary to schedule one-on-one meetings with each of the senior engineering managers. I just wanted to formally tell them what they already knew, that the project had been given the green light. This got a dialogue started".

"I stop in even when there's nothing urgent, to develop a relationship with those people".

**Informing.** One external activity observed in every group in the study was informing other groups about the team's progress. Since organizations are made up of many groups whose work is interconnected, it is not surprising that substantial effort is devoted to this activity. This generally involves using both formal and informal channels developed by the group. In many groups this activity is widely distributed. An example follows:

"Then we started having meetings with all those people outside the group. There were representatives from purchasing, manufacturing, production planning, the diagnostics group, marketing, everyone....Everyone was informed about progress and changes. The minutes were typed on line so that the team and those who weren't at the meeting knew what was going on. The top management group also got copies."

**Coordinating and Negotiating.** Although coordinating and negotiating appear to be separate activities, our interviewees typically discussed them together. For new product teams, coordinating typically involves resolving the issues of interdependent schedules. For example, the team needs to receive the work
product of one group by a particular date in order to meet its own schedule to
deliver its work to yet another group which has its own schedule to meet.
Although the focus of this activity is integrating work activity there is also
negotiating going on. That is, there is give and take over what exchange
agreements are going to exist between two units. This negotiating is
particularly common because of shifting power and dependency relationships
between the npt and other groups. An example follows:

"We had to explain (to manufacturing) how certain things
worked. I had lots and lots of meetings about the status of
the project. We wanted some last minute changes on the
machine, but manufacturing was not able or not willing to
put it in all the machines. There were great arguments and
the Product Committee was involved. By April we had worked
out a compromise agreement".

Molding. The activities that represent a group's attempts to influence the
external environment to suit its agenda are labelled molding. The aim here is
to shape the beliefs and behaviors of outsiders. Those group members trying to
mold the environment often do so by presenting a view of the group they want
others to share. In essence this is profile management; representing the group
in extremely positive terms when resources are needed and in a less positive
light if that is required. Molding involves persuading and cheerleading;
influencing how much outsiders support the group and how they feel about the
group. An example follows:

"I'm like a cheerleader, trying to get those guys excited
about our products....I went to a meeting and explained that
the company was riding on this project and we were going to
do it fast and do it right."

Sentry Activities

This activity set focuses on policing the boundary by controlling the
information and resources that external agents want to send into the group.
This means deciding from whom the group will accept input, how much of that
input will be admitted, the form the input will take, and when the flow of input must stop. Sentry activity protects the group by allowing it to work with minimal distraction. Often external groups try to communicate their priorities, interests, and demands. When this input is desired, the major sentry activity is deciding when and how this will be done. When this information and other inputs are not desired, the major sentry activity is buffering the group. Buffering includes absorbing external pressures, such as political tensions on behalf of the group. The key sentry activities are: allowing entry, translating, and filtering.

Allowing Entry. When outsiders have information or resources that they wish to provide to the group, allowing entry simply involves providing access so that the information or resources can be delivered. Allowing entry might mean a two-step process whereby the outsider tells a group member something and this is then relayed to the group, or it might be a direct message from the outsider herself. An example follows:

We needed to get input from engineering at the beginning. We didn't want to come up with some kind of Dr. Seuss machine that had to be redesigned later so we let the engineering people in."

Translating. Many messages from outsiders require interpretation in order to be useful to the group. Due to differentiation within the organization, different subunits develop different values, jargon, and meanings for the same words. Therefore a member of the group would help outsiders to translate their messages into words that other group members would understand. This was done either by having the group member actually relay the message or standing by when the outsider delivered it. Translating was also done after external representatives had gone and members were unclear about what had actually transpired. Translating did not always go on, even when it was needed; in some cases members were not aware that a message required translation, in other
cases, no one in the group was capable of translation. An example follows:

"This guy from marketing came in and went on and on about how their research had shown that the computer was just too heavy. He kept wanting us to picture the travelling salesman going in and out of hotels every night and taking the computer with him. Marketing wanted us to know that the current machine just didn't make this an easy task. I waited until he left and explained that lighter translated into seven pounds less than our current machine and that meant we had to find a new material for the casing."

Filtering. Filtering consists of taking information from outsiders and delivering a smaller amount to the group. In other words, during filtering decisions are made as to what is appropriate for members to hear. A part of filtering is buffering, or absorbing pressure by keeping troubling information or political pressure from the team. Buffering also takes place when the volume of information or other inputs is considered too large and therefore needs to be restricted or stopped. An extreme form of buffering is to actually separate the group physically from the rest of the organization. An example follows:

"Near the end I talked to the top management group a lot. I tried to protect the group from that kind of pressure though. It's like Tom West said, we won't pass on the garbage and the politics."

Guard Activities

This activity set involves monitoring the information and resources that others request from the group and determining how the group will respond to those demands. Outsiders may simply be curious about team activities and want information, or they may be attempting to take resources at the group's expense. Guard activities include classifying, delivering, and protecting.

Classifying. When requests for information or resources were made, group members often delayed responding until they could determine the legitimacy of the request and the impact that satisfying the request would have on the team.
Of course, certain requests were filled automatically since organizational or group rules determined their legitimacy. Other requests would be discussed with various group members or the group leader to determine if they would be granted. An example follows:

"This guy from the University came by and told us he was developing a software program to Pert chart the part of the process we were working on. He wanted to know exactly what the hardware team was doing. I didn't know if we could provide that kind of access so I put him on hold."

Delivering. Once a request has been identified as legitimate and acceptable, the information or resource is simply delivered. Since many external groups make requests throughout the lifecycle of the group delivering is close to a constant process. An example follows:

Our product manager asked us if we would present our current plans to the product committee the following month. He's the one that's gotten us this far, so I readily agreed."

Protecting. When a request is not viewed as legitimate by the group, a decision may be made not to grant it. Preventing the removal of information or resources is a protecting activity. Protecting could be as simple as having all group members keep certain information secret, or as difficult as explaining to top management that their constant inquiries are hampering group work. An example follows:

Near the end people started panicking. The top guys would come down and want to know if we were making progress. I told them they had to stop, that they were having a distracting and deleterious effect on the group."
needing another job, to wanting to work with a particular set of people or on a particular technology. In contrast, the captive is assigned to the group, often despite a desire to be elsewhere. The assignment of the captive is often initiated by the group itself. Finally, the emigrant leaves the focal team in order to represent the group to outsiders.

These individuals carry out several functions such as the transfer of information and resources, linking different organizational groups, and co-opting others. Immigrants and captives facilitate the transfer of information and resources into the group either through their own information or resources or through their connections and contacts. Emigrants facilitate the transfer of the team's information to other groups.

These roles link various groups across hierarchy and function. The exchange of personnel can also serve a co-optation function. A difficulty can arise, however, if these personnel are away too long. They potentially lose their ability to represent the focal group. In some cases emigrants who joined other groups to represent the team came to be viewed as outsiders and immigrants and captives, who originally represented other groups, were seen as members of the team. Examples of immigrants, captives and emigrants follow:

"There was no problem staffing this project. As soon as word got around that we were going to do a high end project I started hearing from volunteers. Many of them had worked with me before, but not all of them."

"They brought in this high-level guy. He has lots of connections with top management and now its easier to get what we need. My boss asked him to come on, I think, to get more buy-in for the project from the top guys."

"There was a lot to watch over so we decided to bring in three people from manufacturing. Later we would bring more manufacturing people in to help with the debugging, but these guys became part of the team... Then we had this fight (with manufacturing)...Manufacturing yanked these people out.

"At this point the team has a whole different form. Those
who are helping manufacturing are spending most of their time in New Hampshire at the factory."

The Complexity of the External Boundary Spanning Functions

In describing boundary management in their new product teams, our interviewees indicated that the various boundary activities can be taken on by one individual or by many different people. For example, the group leader may assume all boundary activities with top management, exhibiting scout, ambassador, sentry and guard activities. Similarly, one individual may engage in an activity or it can be broadly dispersed, when for example, the leader asks each group member to take on the guard activity of keeping certain information secret. In addition, a sequence of boundary transactions may contain elements of several activities, i.e. sentry and ambassador activities.

The activity sets described here are all inter-related. For example, the scout, sentry, captive, and immigrant functions all deal with information that comes into the group. As such, these activities influence group member perceptions of the outside world, and can shape the extent to which those perceptions are biased or distorted. The ambassador, guard, and emigrant functions influence how external groups perceive the group. These activities define what is said and the manner in which it is said to outsiders. Sometimes, the activity sets described here can substitute for one another; an increase in the number of immigrants or captives often means less scout and ambassador activity since the information or resource has been brought inside the group. Similarly, sending an emigrant to another group may mean less requests from the group and therefore less guard activity. Collectively scout, ambassador, sentry, guard, immigrant, captive and emigrant activity serve to define how the group manages relations with the external environment.
Conclusion

Although almost every model of group behavior refers to the functions needed for group effectiveness, most of these functions refer to behaviors inside the group. Here we have taken an external perspective (Ancona, 1988), and identified those activities that link a group to other, interdependent, parts of the organization.

Support for the external perspective has been found at the organizational level of analysis. Organizations manage their external dependence through mergers, acquisitions, interlocking directorates, and boundary spanning activity (Adams, 1980; Pennings, 1980; Pfeffer, 1972; Van de Ven & Walker, 1984). Thus, organizations also manage dependence with outsiders by altering external transactions, permeability and membership. The parallel findings are not surprising. Groups, like organizations, are open systems that must import information and resources, transform them into a viable product, and then export them elsewhere. There is an obvious need to interact with outsiders to manage this process at either the group or organization level.

This research is only the first step in understanding external boundary-spanning functions in groups. We have described a broad range of boundary activities in new product teams. Future research will have to compare our descriptions with other types of groups, in different settings, performing different tasks. Next steps also include performing more quantitative data collection to test whether the grouping of variables that we have performed is born out in larger samples using more sophisticated clustering techniques. Future research will have to move beyond exploration and description, to classification, proposition and testing of specific hypotheses (Gladstein & Quinn, 1985).
We have identified scout, ambassador, sentry, guard, immigrant, captive, and emigrant activity sets. Now these newly discovered external activities need to be integrated into models of group process and performance. While it is not in the domain of this paper to tackle this integration, we offer some preliminary thoughts on how these new activities may lead to new research directions.

First and foremost we posit that group performance will be enhanced if the amount of external boundary activity increases as resource dependence increases. In organizations, the performance of a group is often dependent on its interaction with other groups. Most groups must acquire resources and information from others and transfer its output to others. The ability of the group to successfully accomplish these transactions will influence the group's performance. Thus, while performance of a laboratory or T-group may be predicted solely by internal behaviors, this is not true for groups that are dependent on outsiders.

Second we posit that group performance will be enhanced if there is a high level of scout and ambassador activity for groups that are performing tasks that are new to the organization, or when environmental conditions are changing. New tasks and changing conditions signal that groups need to update their models of external conditions to determine how to adapt to those conditions. Relying on old models or continuing to function in characteristic patterns may result in inertia and an inability to adapt. Modeling and scanning provide the ability to update, while informing, molding, and negotiating allow for the establishment of new coordination agreements with outside groups.

Third, we posit that over time, groups may need to shift their emphasis on internal and external activities in order to be effective. Early on groups may
want a high degree of external scout and ambassador activity in order to determine what external constituencies want and need from them. Once this has been decided the group needs to shift to an internal focus, with sentry and guard activity for protection, in order to determine goals to meet external demand and to work efficiently on meeting those goals. Later, groups need to move outside again to obtain feedback, and gain external support for their product. Support for this pattern of shifting internal and external emphasis has been found in task groups (Gersick, 1983) and new product teams (Ancona & Caldwell, 1987). Future research will have to test some of these propositions, and further explore and test how these external boundary-spanning functions relate to internal functions and group performance.


*Sociometry, 22*, 162-174.


*Administrative Science Quarterly, 22*, 587-605.


