Abstract

This paper reports on a series of questionnaire surveys in which 165 managers and professionals each described a single recent project. Project team size varied considerably, with a mean of 7.7 members. Team size usually was selected to get the right mix of expertise, to have someone from each affected unit, or both. Most teams met many times, with a mean of 16.5 meetings and a median of 10. The mean project duration was 6.1 months. During that time, respondents engaged in an average of more than one project communication per working day; only 18% of these communications were in formal team meetings.

More than half the projects had at least one member from another site, and 29% had half or more of their members from other sites. So project teams today are already characterized by a good deal of distributed work. Respondents were familiar with the large majority of their team members before the project started. Satisfaction was high on a number of dimensions. Most projects seemed to involve complex design processes rather than a single decision. We discuss the importance of supporting distributed project teams and some implications for the design of group support system research and products.

Introduction

Almost thirty years ago, Bennis and Slater [1968] foresaw the emergence of a new kind of organization—the adhocracy. These adaptive organizations would consist mostly or entirely of “task forces organized around problems to be solved by groups of relative strangers with diverse professional skills [p. 73].” In these new organizations, they forecast, “Organization charts will consist of project groups rather than stratified functional groups [p. 74].”

Today, many management experts are again calling for this type of revolution. Some continue to use the term adhocracy [Mintzberg, 1989; Waterman, 1990]. Others are using a newer term—the virtual corporation [Davidow & Malone, 1992]. All, however, are calling for a massive increase in team-based work.

In reality, team organization may already be widespread. Ghoshal and Bartlett [1995] argue that a number of leading edge organizations are already heavily team-based. Research on how people spend their working time also reinforces the impression that team-based project work may already be quite important. A contact diary of 14 managers [Panko & Kinney, 1995] revealed that 38% of their conference room meetings were project meetings. Monge, McSween, and Wyer [1989] found that only 21% of all meetings with three or more people were one-time meetings on the topic. Many of the remaining meetings, by virtue of their being one of a series of meetings on a topic, may have been project meetings.

If project work is already widespread, it may also be reasonable to ask if many of today’s teams are already characterized by some of the dynamics that analysts have forecast, such as the mixing of people from many work units [Bennis and Slater, 1968] and the mixing of people who are not collocated, that is, whose home offices are fairly distant [Farshad, 1995].

Surprisingly, however, little research is available on how current project teams function. While some researchers have looked at how organizations use such teams [e.g., Ghoshal and Bartlett, 1995], no one to our knowledge has taken the most obvious step of all—asking individuals who have worked on projects recently to describe their experiences.

The objective of this paper is to survey project team members, in order to draw inferences that may be useful in group support system (GSS) research and product design. We used a series of questionnaire surveys to accomplish this objective. Each survey asked the respondent to select a recent project on which they had worked. It then asked a series of open-ended and closed-ended questions about the project. Some of these questions were relatively objective, such as those about the size of the project team and the number of times its members met. Other questions were subjective, asking respondents how they felt about the experience.

Because of the newness of this research area, we did not attempt to conduct a single definitive study. Rather, we conducted a series of exploratory questionnaire surveys, each building on the results of previous surveys. In general, the surveys grew in both numbers of respondents...
and in the use of closed-ended rather than open-ended questions. Although we conducted five questionnaire surveys, which we have labeled P1 through P5, the first two were very small in scale and consisted mostly of exploratory questions. In this paper we will only examine data from studies P3, P4, and P5.

**Research Goals**

Our study had three main research goals.

- Our first goal was to profile project teams across important quantitative dimensions. How many members are there in teams, how many times do teams meet over the course of the project, how long do project team meetings last on the average, and so forth.

- The second goal was to profile organizational and interpersonal relationships among team members. First, how are they related in terms of location? In other words, how many team members work in the same office area, how many work at distant sites, and how many work at intermediate distances? Second, in terms of organizational relationships, how many team members are subordinates, superiors, or people in lateral organizational relationships? Third, in terms of interpersonal relationships, how many people in a typical group are prior acquaintances, and how many are strangers? Also, how many are close friends, friends, acquaintances, or people the respondent dislikes?

- Our third goal was to profile team member satisfaction with outcomes and with the group dynamics. Are people generally happy or unhappy with the group’s performance? Are team members generally happy or unhappy with their interpersonal interactions with other team members?

**The Study Series**

**Studies P1 and P2**

The first two studies, P1 and P2, focused on dyadic (two-person) projects. Use of time studies have shown that most meetings are dyadic [Panko, 1992; Panko & Kinney, 1992]. So we created a questionnaire on dyadic projects and administered it to 112 evening MBA students in two groups. The results clearly showed that relatively few projects are dyadic. In fact, only a small minority of the subjects had engaged in a dyadic project in the last six months. This caused us to move to general project teams in later questionnaire studies.

**Study P3**

Study P3 used 55 evening MBA students at Wake Forest University. Thirty-four returned surveys for a response rate of 62 percent. The first part of the survey asked respondents to select any work project in the last six months and to answer a series of questions about it. Many of the questions were open-ended, to give respondents the maximum flexibility in making responses. Of the 34 responses, 27 described projects. Two were very large projects, which we excluded from analysis. This gave us data on 25 multiadic projects.

We should comment on the exclusion of very large projects, which we did in studies P3, P4, and P5. We found that a small number of respondents described extremely large projects involving 20 to 50 people. Presumably, in very large projects there would be hierarchy and sub-projects. While these dynamics are inherently interesting, we had too few very large projects to analyze. Using a natural gap in the data, we excluded data from projects with more than 16 members.

**Study P4**

One potential problem with studies P1 through P3 was that all of the respondents were in school. Although they were all full-time working managers and professionals, school attendance presumably had considerable impact on their time patterns, perhaps including participation in projects. So we conducted P4 with 54 incoming executive MBA students. These students had attended a brief orientation, but they had not begun class work.

P4’s questionnaire varied from P3 in that we added a number of closed-ended questions, mostly based on responses to open-ended questions in P3.

Forty-five surveys were returned for an 84 percent response rate. Forty described multiadic projects. One was discarded because it was filled out poorly, and another four were excluded because they had more than 16 members. This gave us data on 35 multiadic projects.
Table 1: Preferred Team Size

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>3-5</th>
<th>6-10</th>
<th>11+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefer a decrease</td>
<td>19%</td>
<td>10%</td>
<td>19%</td>
<td>34%</td>
</tr>
<tr>
<td>Prefer the same size</td>
<td>69%</td>
<td>70%</td>
<td>74%</td>
<td>56%</td>
</tr>
<tr>
<td>Prefer an increase</td>
<td>12%</td>
<td>20%</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>Mean preferred increase</td>
<td>-.4</td>
<td>.3</td>
<td>-.7</td>
<td>-1.6</td>
</tr>
<tr>
<td>Mean preferred percentage increase</td>
<td>-2%</td>
<td>7%</td>
<td>-4%</td>
<td>-13%</td>
</tr>
<tr>
<td>N</td>
<td>156</td>
<td>50</td>
<td>74</td>
<td>32</td>
</tr>
</tbody>
</table>

Data from Studies P3, P4, and P5.

Study P5

For study P5, we modified the P4 questionnaire, again reflecting insights from earlier studies. Rather than using students, we mailed the survey to 593 EMBA alumni of the university. We also included other copies, to give to other members of the project team. We used one wave of mailings.

The overall return rate from alumni was 17%. Among the 100 questionnaires that were returned, 48 were not applicable, usually because the alumni had retired. Another four were filled out inadequately. In the end, we received 48 useful questionnaires from alumni. In addition, we received 74 project questionnaires from other team members on these projects. In total, we received 122 detailed project descriptions. We excluded 17 projects because they were very large, involving more than 16 members (the smallest large project had 20 members). In the end, we had 105 surveys to analyze in P5.

Project Selection

We wish to note that there may be selection bias in our results. Our subjects may not represent a random cross-section of the population, even in the United States. In addition, if subjects worked on more than one project recently, we do not know if there was bias in the way they selected a particular project to describe.

Results

Size

We asked about team size in all three studies (P3 through P5), allowing us to study size in 165 projects.

Average Team Size

We found that the projects were often fairly large. The mean size was 7.7 people, and the median was 7. However no strong central tendency was evident. Project sizes ranged from 3 to 16, with a thickening in the middle of the distribution but no distinct peak. The standard deviation in team size was 3.3.

Reactions to Team Size

Many writers say that participants often complain about meeting sizes. We asked our respondents in all three surveys what the best team size would have been. Interestingly, the preferred size (7.3) was less than a half person smaller than actual size, on the average. When we looked more closely at the data, we found that 69% of the respondents said that their actual team size was the best size (see Table 1). While 19% did say that they preferred a smaller size, another 12% preferred a larger size.

Table 1 shows that the picture varies somewhat by project size. For small projects with 3-5 people, there was actually a desire to increase the number on the average, while for meetings of eleven or more people, the preferred size was smaller in 34% of the cases.

However the details should not obscure the fact that even in the largest teams, a majority of the respondents said that the actual size was the best size. Even when they preferred another size, the desired changes were small in most cases. Even for the largest projects, the preferred size, on average, was only 13% smaller than the actual size.

In P4 and P5, we further asked people if their actual size was good, whether the group was too large, or whether the group was too small. This allowed them to tell us to go beyond preferred team size, to tell us about the intensity of their feelings toward the team's size. On 7-point Likert agree-disagree scales, the means for the three questions were 5.6 (size good), 2.2 (group too large), and 2.1 (group too small). Medians were 6, 2, and
Proceedings of the 29th Annual Hawaii International Conference on System Sciences — 1996

2, respectively. Again, we see generally strong satisfaction with group size, with a relatively small minority being dissatisfied.

Reasons for Selecting Team Sizes

We received some indication of why people were generally satisfied with group size from questions on how the team was selected. In P3 we asked respondents why their group size was selected through an open-ended question. Based on their answers, we added questions in P4 and P5 to have respondents rate several reasons for selecting the group size. We provided a 7-point agree/disagree Likert scale for each reason. Table 2 shows the results. It shows an apparently high degree of rationality in the selection of project team sizes.

Table 2: Reasons for the Selection of the Team Size

<table>
<thead>
<tr>
<th>Reason</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix of expertise</td>
<td>89%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Representative from each affected unit</td>
<td>74%</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>Keep the team small enough to manage</td>
<td>64%</td>
<td>11%</td>
<td>25%</td>
</tr>
<tr>
<td>Volume of work to be done</td>
<td>53%</td>
<td>12%</td>
<td>35%</td>
</tr>
<tr>
<td>Make the team large to increase prestige</td>
<td>9%</td>
<td>7%</td>
<td>84%</td>
</tr>
</tbody>
</table>

Data from Studies P4 and P5.

Most groups were selected to bring together a mix of expertise. Eighty-nine percent of the respondents agreed with this reason. Note that this is considerably more important than the volume of work. In other words, respondents believed that the people were there because of their knowledge and skills—exactly what normative writers say should be the case.

Next came selecting someone from each affected unit, with 74% agreement. Open-ended questions in P3 suggested that when a project team works on something that affects multiple units, it is normal to bring in someone from each unit. We call this the “balance consideration.” In several cases where the respondent wanted to add one or two people to the project team, it was to add someone from an unrepresented affected unit. The balance consideration is not mentioned in the literature frequently as a reason for selecting project teams. Some might even argue that it is a bad idea. But given its overwhelming importance in real projects, we obviously need to look at this in detail in the future. The frequency of agreement with this question also suggests the widespread existence of project purposes that affect multiple units.

Number of Meetings

We asked respondents in all three surveys how many meetings they had in their projects. The mean number of meetings was 16.5, and even the median was 10. Furthermore, only 20% of the respondents in P5 agreed with a statement that there were too many meetings. (Another 20% were neutral.)

In P5, we found that these large numbers of meetings translated into long project durations. The mean was 6.1 months, and the median was 4.6 months. Many projects ran a year or more.

In addition, in P4 we found that nearly all respondents communicated between formal team meetings. So in P5 we asked how many times per month the respondent communicated with other team members. The average number of project meetings was 4.8 per month, but this only represented 18% of all contacts. There were an average of 11.0 unscheduled meetings per month, 7.2 telephone calls, and 4.2 electronic mail messages. All told, there were 27.2 contacts per month on the average—more than one per work day. The electronic mail number is undoubtedly low, because not all respondents had electronic mail.

Overall, project teams are characterized by long-term and fairly intensive communication, using formal face-to-face communication, informal face-to-face communication, and media. This was certainly expected, but now we have the data to support the common understanding of project work.

Distance

Project teams that all share the same office may have very different support needs than geographically dispersed teams. The needs of mixed-location teams, with some members in next-door offices and some who are located off-site, may be even more complex. In mixed-location teams, some members will find it very easy to communicate, while others will be disadvantaged.

Table 3 shows the distribution of team members by distance from the respondent’s desk in P5. The table
shows that 43% all team members are located within 200 feet of the respondent’s desk. On the other hand, 31% of the team members work at a different site. In other words, distant team mates are quite common.

Table 3: Distances of Team Members from Respondent’s Desk

<table>
<thead>
<tr>
<th>Distance</th>
<th>Percent of Team mates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 200 feet</td>
<td>43%</td>
</tr>
<tr>
<td>Same building</td>
<td>19%</td>
</tr>
<tr>
<td>Same building complex</td>
<td>7%</td>
</tr>
<tr>
<td>Within 30 minutes drive</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>16%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Data from Study P5.

Table 4 shows that many teams in P5 had a mixture of local and remote members. Only 44% had exclusively local membership, with all team members at the same site. Another 9% had purely distributed membership, and 25% had half or more of their members from other sites.

Table 4: Percent of Team Members Outside of the Respondent’s Site

<table>
<thead>
<tr>
<th>Percent at other Site</th>
<th>Percent of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>44%</td>
</tr>
<tr>
<td>1%-25%</td>
<td>12%</td>
</tr>
<tr>
<td>26%-50%</td>
<td>18%</td>
</tr>
<tr>
<td>51%-75%</td>
<td>10%</td>
</tr>
<tr>
<td>76%-99%</td>
<td>6%</td>
</tr>
<tr>
<td>100%</td>
<td>9%</td>
</tr>
<tr>
<td>Total</td>
<td>99%</td>
</tr>
</tbody>
</table>

Data from Study P5; Does not total 100% because of rounding.

Table 5 shows that Likert groups in P5 were quite important; 40% of the respondents’ team members were members of their Likert group. Another 53% were people in other lateral relationships at about the same level as the respondent, at higher levels, and at lower levels. The rest were people outside the organization.

Table 5: Organizational Relationships of Team Members

(Percentage of team members falling into each category)

<table>
<thead>
<tr>
<th>Organizational Relationship</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate boss</td>
<td>5%</td>
</tr>
<tr>
<td>Immediate subordinate</td>
<td>14%</td>
</tr>
<tr>
<td>Likert peer</td>
<td>21%</td>
</tr>
<tr>
<td>Lateral, same level</td>
<td>22%</td>
</tr>
<tr>
<td>Lateral, higher level</td>
<td>12%</td>
</tr>
<tr>
<td>Lateral, lower level</td>
<td>23%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>101%</td>
</tr>
</tbody>
</table>

Data from Study P5; Does not total 100% because of rounding.

Eighty percent of the teams had at least one Likert group member, and the same percentage has at least one non-Likert group member. In addition, 20% were all-Likert, while another 20% were entirely non-Likert. The other 60% were mixed. Overall, organizational relationships among team members are complex. There is no “standard” type of project team in terms of organizational membership.

Team Partners

Organizational Relationship
Organizational relationships (relative positions in the hierarchy) could affect power and many other aspects of the project.

Do most teams consist of employees of a single department? Are most teams cross-departmental? Do they mostly involve people at the same organizational level? Organizational relationships could affect power and many other aspects of the project.

For managers, deciding who is in the respondent’s department is a little complex. As Likert [1961] noted, a manager is a member of two groups: 1) the group consisting of the manager and her or his immediate subordinates, and 2) the group consisting of the manager’s immediate boss and the other managers reporting to this same boss. We will call the group of people reporting to the same boss Likert peers. While communication with Likert peers is, in some sense, lateral communication, it is quite different from communication with people in more distant reporting lines. Distinguishing between lateral communication within the Likert peers and lateral communication outside them is important. We will use the term Likert group for the respondent’s immediate superior, immediate subordinates, and Likert peers.

Table 5 shows that Likert groups in P5 were quite important; 40% of the respondents’ team members were members of their Likert group. Another 53% were people in other lateral relationships at about the same level as the respondent, at higher levels, and at lower levels. The rest were people outside the organization.

Personal Relationship
Given the mixed nature of organizational relationships in these project teams, you would also expect mixed levels of interpersonal relationships. Table 6, based on responses from P5, shows the depth of personal relation-
ships at the start of the project and at its end. Consistent with the literature on social circles [Fischer, 1982], respondents acknowledged few close friends but many friends and acquaintances.

Table 6: Personal Relationship to the Respondent
(percentage of team members in each category)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Start of Project</th>
<th>End of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close friend</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td>Friends</td>
<td>38%</td>
<td>48%</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>36%</td>
<td>31%</td>
</tr>
<tr>
<td>People I barely know</td>
<td>15%</td>
<td>4%</td>
</tr>
<tr>
<td>Know but dislike</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Data from Study P5.

If anything is surprising, it is the very small fraction of people the respondent barely knew at the start of the project—only 15%. In P3, we specifically asked how many people in the team were strangers at the start of the project. Only 30% of the projects had any strangers at all. Only 19% had more than a quarter strangers, and only 9% had more than half strangers. There were no projects at all in which all team members were strangers.

P5 respondents disliked surprisingly few of the people in their projects (see Table 6). They said that they disliked only 2% of their team mates, although in another question, P5 respondents said that they would rather not have worked with 7% of their colleagues. We will see later that heated discussions do occur, but these do not seem to reflect long-term personal hard feelings. The idea of meetings being a battleground between people who dislike one another intensely appears to be television fiction. A great deal of friendliness and relatively little deep animosity exist in working teams.

Satisfaction

Many writers have discussed widespread dissatisfaction in team work. Yet few of these claims have been supported by data. To shed more light on the reactions of real team members to their experiences, we asked a number of reaction questions in P3, P4, and P5.

Initially, we suspected that the participants would be rather satisfied with the projects and their meetings. Monge, McSween and Wyer [1989] had earlier collected data on 903 meetings of three or more people. They found that about 75 percent of the respondents were satisfied with the meetings along several dimensions, while 10% to 15% were dissatisfied. Also, Panko and Kinney [1995] reported similar results for face-to-face meetings, including conference room meetings.

In general, our results continue the trend. We asked three questions about project success, using 7-point Likert scales. Among the respondents to P3, P4, and P5, 93% agreed that the team successfully completed the task, and 93% said that they did a good job. When asked if they disliked the outcome, 74% disagreed and only 20% agreed. Apparently, some respondents thought that the team was successful, although they personally did not like the outcome. However these respondents were few. The overwhelming perception was of successful completion of the team’s work.

Respondents also reported widespread satisfaction with meetings. On a 7-point Likert scale, 84% were satisfied with the meetings in general, 6% were neutral, and only 10% were dissatisfied. On another scale, 89% said that the team ended as friends, and only 2% disagreed. In P5 we asked other questions about satisfaction. Respondents overwhelmingly found meetings exciting and interesting and felt that they were treated well by their fellow team members. They did report politics, some heated controversy, and some people “not pulling their weight,” but this seemed to be more background noise that had little impact on their satisfaction. Even on the question of whether meetings took too long—the biggest single complaint in the study—only 32% agreed. This suggests that meeting length is something to be worked on but not a crisis. While a few rogue projects existed, they represented a small minority.

Overall satisfaction was only slightly negatively correlated with team size (r = .088), and this correlation was not statistically significant. As we will discuss below, this is at strong variance with the findings of small group research laboratory studies.

Project Purpose

In all three surveys, respondents were asked to describe their project’s purpose in an open-ended question. This makes interpretation difficult, and future surveys should have closed-ended categories. Given the historical difficulty that researchers have had building such categories [Panko, 1993], however, we can expect interpretation difficulties to remain.

Although we have not yet completed a full content analysis of the answers, one thing is clear. A substantial majority of the projects involve considerable long-term design activities, in which a general plan and specific sub-decisions emerge over a series of meetings. The products that emerge from these design activities tend to be rather complex.
Conclusion

Findings

This paper develops a profile of project team characteristics and member perceptions, based on a series of questionnaire surveys in which 165 managers and professionals each described a single recent project. Key findings include the following:

- Projects varied widely in size with a mean of 7.7 members.
- The size of the teams appeared to have been selected for rational reasons in most cases—to get the right mix of expertise, to have someone from each affected unit, or both.
- Projects tended to involve many meetings, with a mean of 16.5 and a median of 10.
- Projects were of long duration, with a mean duration of 6.1 months.
- During that time, respondents had more than one project communication per working day. Only 18% of these were in formal project meetings.
- Over half the projects had at least one member from another site, and many had several, so project teams are already characterized by a good deal of distributed work.
- Respondents were familiar with the large majority of their team members before the project started.
- Satisfaction was high on a number of dimensions.
- Most projects seemed to involve complex design processes rather than a single decision.

We again caution that our study is exploratory. We make no claims for randomness, either in the selection of respondents or in the selection of the project for each respondent. Additionally, P5 used a mail survey without follow-up on people who did not respond. Even so, a number of our findings seem potentially useful to people designing laboratory experiments and creating actual groupware tools.

Implications for Laboratory Studies

Project teams, particularly ones with remote team members, require specialized technology to support group processes. IS practitioners seek to meet these needs through group support systems. IS researchers have used laboratory research as one methodology for providing a controlled environment for developing and validating these technologies.

One general concern for these researchers is the external validity [Campbell & Stanley, 1963] of small group laboratory studies, that is, the extent to which their results will generalize to real groups. In general, external validity may be enhanced if the experiments have ecological validity—if they take place under conditions similar to those in the real world. Many laboratory studies of group support systems (GSS) have used small zero-history groups (strangers) of relatively uniform skills who meet only once, usually to make a single decision or create a simple plan [Panko & Kinney, 1995]. Real project teams are nothing like this.

Size

The size distribution has implications for laboratory experiments. As just noted, the mean size of project teams in this study was 7.7, whereas most GSS laboratory experiments use group sizes of three to five [Panko & Kinney, 1995]. Yet we know that performance, satisfaction, and meeting dynamics tend to vary strongly with group size [Panko & Kinney, 1995]. To study project support requirements, we may have to conduct experiments on much larger groups for our findings to be useful in the real world.

Number of Meetings

Our project teams had many meetings. As noted above, they had a median of 10 meetings. Many GSS lab studies are based on single-meeting activities. A number of writers have already argued for the importance of longitudinal GSS research [Chidambaram, Bostrom, & Wynne, 1990-1991; Mennecke, Hoffer & Wynne, 1992, Mennecke, Hoffer & Valacich, 1995, Walther, 1992; Walther & Burgoon, 1992]. Our results reinforce that need. They also suggest that longitudinal studies will have to involve many meetings to be representative.

Distance

Our finding that half of the project teams involved at least one off-site participant suggests that we need to extend our research aggressively to include non-collocated groups who interact at least some of the time via media. In addition, we need to do more research not merely on non-collocated teams but also on partially collocated teams.

Diversity

One important strength of project teams is the diversity of member expertise. As portrayed by Pinto and Kharbanda [1995, p. 43], "...most projects are constructed from special, cross-functional teams composed of representatives from each of the relevant functional departments, who bring their own attitudes, time frames, learning, past experiences, and biases to the team." Our
study confirmed that team selection is done to get a mix of expertise almost nine times out of ten.

Laboratory researchers using student populations need to be concerned that students may be too homogeneous to accurately serve as representatives for real project teams. At the very least, we should consider using "hidden profile" tasks [Stasser, 1992], in which different subjects have different information. This differential information may be able to act as a proxy for differential expertise and the different perspectives of different affected units. Several GSS studies have already used hidden profile tasks [Dennis, 1992, Mennecke, Hoffer & Valacich, 1995].

Relationships

Replicating organizational relationships and personal relationships is also quite difficult for laboratory researchers using student populations. Many lab experiments use zero-history groups of strangers to improve internal validity. But considerable evidence exists that people who know one another—as most project members in our study did—interact differently in groups than do people who are unacquainted [Foushee & Helmreich, 1988; Gabarro, 1990; Lin & Huff, 1990; Seeger, 1983; Torrance, 1955].

Satisfaction

One of the most consistent findings in small group laboratory research is that satisfaction falls as group size increases [Hackman & Vidmar, 1970; Hare, 1981; Patterson & Schaeffer, 1977; Shaw 1981; Slater, 1958; Smith & Haythorn, 1972; Wheelan & McKeage, 1993]. Team members find coordination harder, get fewer chances to participate, find it harder to come to consensus, and so forth. In laboratory GSS studies [Gallupe, et al., 1992], satisfaction with process has been found to be independent of group size, but this is different from overall satisfaction.

Yet the correlation between overall meeting satisfaction and group size was almost zero (-0.88) in our study. Nor did Monge, McSween, and Wyer [1989] find a correlation between size and various measures of satisfaction when they analyzed data from 903 people who were describing their last meeting with three or more people. This apparent discrepancy between real-world project teams and laboratory groups on the critical dimension of satisfaction may underscore the need to have experiments that mirror the quantitative realities of organizational teams.

Project Purpose

A project's purpose also has implications for experimental design. Many small group experiments involve groups making a single decision, rather than creating a complex design with various levels of decision-making. This also may harm the generalizability of these laboratory experiments.

Perspective on Research Implications

To some extent, our discussion has seemed negative—a criticism of much past research in management, social psychology, and group support systems. While we feel that introspective criticism of our field is useful in itself, we argue that our findings are useful primarily for helping research designers who are concerned with ecological validity to understand what they need to do to make their experimental conditions closer to real-world project conditions. Our findings should help researchers select appropriate group sizes, numbers of meetings, tasks, divisions of information, and so forth. Our findings should also help researchers decide whether to use zero history groups of strangers.

Implications for the Design of Group Support Tools

This study presents a number of findings that may be useful to developers of group support tools.

Organizational Memory Tools

Project teams tend to be fairly large and tend to meet numerous times through both face-to-face communication and various media. This suggests that being able to handle group memory in a number of forms will be crucial.

The tentative finding that projects tend to involve complex design purposes should also be helpful to group support system designers. Tracking many inter-related decisions, some of broader scope than others and some dependent on earlier decisions, will be critical as use of project teams increases and is already important for today's teams.

Support for Distributed and Partially Distributed Groups

The finding that half of our projects involved at least one member who was physically distant from the respondent suggests that collocation is no longer as critical as it once was. Distributed team membership should be assumed when forming or working with project teams. In addition, the prevalent pattern of partially distributed teams may call for more complex group support than would either pure collocation or pure distributed membership.

IS practitioners have two major responsibilities for helping organizations adapt to increasingly horizontal structures. First, they must understand the configuration that teams will take in this new environment: where members will be, how they will interact, what outcomes they are seeking, and what kind of support they will need. Second, they must provide technology support to meet
project team needs. By more accurately targeting this market, we may be able to do better in both of these jobs.

References

Farshad, R. "How Important is Physical Collocation to Product Development Success?" Business Horizons (38:1) January 1995, pp. 78-86.
Fischer, C. S. "What Do We Mean by 'Friend'? An Inductive Study," Social Networks, (3) 287-306.
Monge, P. R.; McSween, C.; & Wyer J. A Profile of Meetings in Corporate America: Results of the 3M Meeting Effectiveness Study, Annenberg School of Communications, University of Southern California, Los Angeles, CA, 90089-0285, 1989.


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