Organizational meetings represent one of the largest investments of human resources in public- and private-sector organizations. In spite of the many hours people devote weekly to meetings, few studies have examined the written and oral communications used in planning and managing scheduled meetings. This paper reports on a study of thirty-five organizational meetings, each from a different organization. The development and use of five primary tools for planning and managing meetings were examined, and the relationships of these tools to meeting processes were analyzed. The results were consistent with prior findings regarding the use of agendas, while offering additional information regarding the use of support documents, announcements, meeting minutes, and evaluations. Control of these tools varied by group leaders/facilitators, secretaries, and other participants; and the strongest relationships were found between the use of agendas, minutes, and support documents and the timing of meetings (duration, delays). Finally, traditional media (for example, flip charts, chalk boards, transparencies) and higher-level technologies (for example, computers, VCRs) were largely absent from meetings, consistent with the findings of prior research.

Planning and Managing Organizational Meetings: An Empirical Analysis of Written and Oral Communications

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A seminal investigation of managerial work by Mintzberg (1973) and subsequent studies by Ives and Olson (1981), Mosvick and Nelson (1987), and Tobia and Becker (1990) indicate that managers spend as much as sixty to eighty percent of their time in scheduled and unscheduled meetings. Along with ceremonial and social functions, these meetings are held to inform and train participants (Burleson, 1990; Monge, McSween, & Wyer, 1989), solve problems (Doyle & Straus, 1976; The 3M Meeting Management Team, 1987), monitor and coordinate activities (Napier & Gershenfeld, 1989), and delegate tasks (Kieffer, 1988). Consequently, organizational meetings represent a primary vehicle for information exchange within and between work units (McLeod & Jones, 1987; Panko, 1992).

Despite their central role in the coordination and management of organizational activities, meetings remain largely understudied (Rice & Shook, 1990; Schwartzman, 1994; Smeltzer, 1993). This is due, in part, to the difficulty of gaining access to meetings and the documents which support their operation. Announcements/invitations, handouts, agendas, minutes, and evaluations represent primary tools of written and oral communications for planning and managing organizational meetings. In addition, a variety of traditional (flip charts, chalk

The Journal of Business Communication, Volume 33, Number 3, July 1996, pages 275-296

boards) and electronic technologies (VCRs, computers) are available for displaying, transmitting, and processing meeting information (Bostrom, Watson, & Kinney, 1992; Jessup & Valacich, 1993). Little is known about the use of these meeting planning/management tools and technologies, their distribution and control, or their relationship to the operations or processes of meetings (duration, timing, member attendance, and member participation, for example).

Researchers of group-decision processes are concerned with the influence of tools and technologies on meeting processes and outcomes. Several researchers have proposed frameworks based on an input-process-output model to structure their investigations (Connolly, Jessup, & Valacich, 1990; Gray, 1987; Poole, Holmes, Watson, & DeSanctis, 1993). These models commonly propose that inputs or contextual factors, including characteristics of individual participants, structure of the group, nature of the task, and availability and use of tools/technologies, influence group processes or group dynamics, which, in turn, influence group outcomes (see Figure 1). Laboratory studies have focused extensively on the impact of participant characteristics, structure, and task (McGrath, 1984; Napier & Gershenfeld, 1989; Shaw, 1981), but only recently has the influence of tools and technologies on organizational meetings been examined. Since tools and technologies are more clearly under the control of meeting facilitators and group leaders, understanding how these affect group processes and outcomes would most quickly provide leverage in positively influencing meetings.

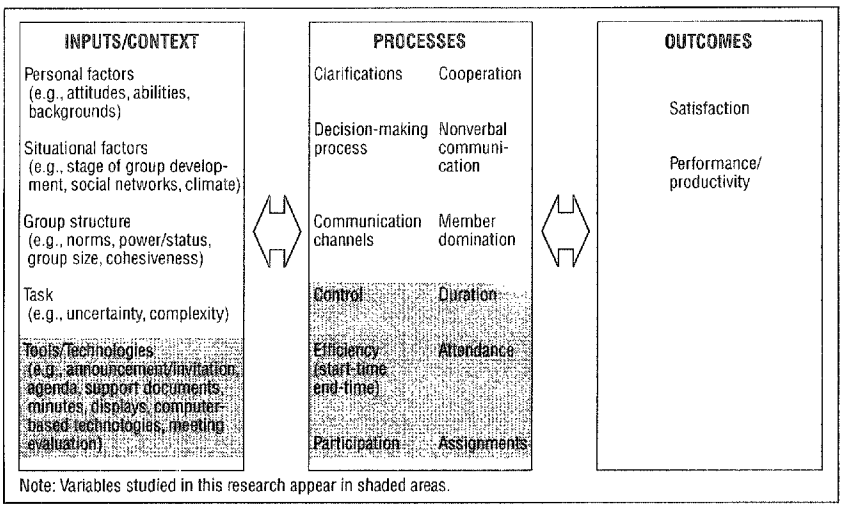

Figure 1. Meeting Planning/Management Inputs, Processes, and Outcomes

Recently researchers have been concerned with the impact of computer-based tools and technologies. In the laboratory setting, these technologies are supplied to treatment groups and withheld from control groups so that differences in performance can be compared. This treatment shows the effects of the tools and technologies when group and environmental attributes are held relatively constant, but it does not show the tendencies of groups in the field to gravitate toward or away from opportunities to use them. In the field setting, computer-based tools and technologies have been supplied for special-purpose meetings, such as total quality management at the IRS (DeSanctis, Poole, Desharnais, & Lewis, 1991) and strategic planning at Burr-Brown (Dennis, Heminger, Nunamaker, & Vogel, 1990). In these circumstances group-process techniques, such as stakeholder analysis or nominal group process, can be automated for a particular task. Studies of computer-based tools and technologies in neither laboratory nor field settings, however, address how they can be employed in an organization's less formal, general-purpose meetings.

Since Bales' (1950) classic studies of group meetings, much productive communications-oriented research of group meetings has emphasized oral communications and categorization of speech acts. The current study takes an alternate approach by focusing on written group communication. Clearly, examining the written products of a group alone will not tell the whole story of meeting effectiveness. By focusing on the written and oral communications that occur throughout the planning and management of organizational meetings, however, a more complete understanding of the use of these tools, their development and control, and their relationship to meeting processes (attendance, participation, timing) can be gained.

According to Bostrom (1989), the inputs to a meeting occur in three stages: pre-meeting activities, set-up functions, and meeting execution. A number of tools can be employed in each of these stages, including announcements/invitations, agendas, support documents, minutes, and evaluations. Pre-meeting communications, for example, include invitations, announcements, and reminders of meetings (Mosvick & Nelson, 1987; The 3M Meeting Management Team, 1987) as well as advance copies of support documents and briefings (Jeffrey, 1992; Napier & Gershenfeld, 1989). Set-up can involve placement of informational displays for presentations and discussions (The 3M Meeting Management Team, 1987), and the distribution of minutes from a prior meeting for review and/or approval at the beginning of the meeting (Scholtes, 1988; Volkema & Avery, 1988). Meeting execution is often guided by an agenda and additional support documents (Jeffrey, 1992; Schwarz, 1994). Mid-meeting and end-of-meeting evaluations are a means of correcting process problems in the current meeting or for subsequent meetings (Scholtes, 1988).

The use of an agenda to structure a business meeting is perhaps the most commonly cited heuristic for improving meeting effectiveness (Doyle & Straus, 1976; Kieffer, 1988; Mosvick & Nelson, 1987; Scholtes, 1988; The 3M Meeting Management Team, 1987). Agendas establish a purpose and framework for gathering (Schwartzman, 1989). Depending on their level of detail and when they are made available, agendas allow participants to prepare for presentations, discussions, and debate. Detailed agendas can incorporate information for each agenda item, including the presenter's name, the expected action, and a time estimate (Doyle & Straus, 1976; Scholtes, 1988). Control of an agenda represents a powerful tool for influencing meeting process and outcome (Kieffer, 1988).

Along with an agenda, various types of "group memory" frequently are advised (Burleson, 1990; Levasseur, 1992). These can take the form of visual displays such as transparencies, flip charts, and chalk/magic marker boards for short-term memory (The 3M Meeting Management Team, 1987); support documents for short or long-term retention (Jeffrey, 1992; Napier & Gershenfeld, 1989); and meeting minutes, which constitute a long-term memory of discussions, decisions, and assignments (Scholtes, 1988; The 3M Meeting Management Team, 1987; Volkema & Avery, 1988). While we traditionally think of reading and writing as solitary activities, visual displays and documents are a potential means of group or collaborative learning (Bruffee, 1983; Paradis, Dobrin & Miller, 1985; Rogers & Horton, 1992). The minutes of a meeting serve as an information link-pin between meetings while advising absent members and other organizational units of what took place (Burleson, 1990). In some cases, minutes serve as legal documents.

Despite these normative models, we know little about the actual operations of organizational meetings. Monge, McSween, and Wyer (1989) report one of the few empirical studies of organizational meetings, a study based on questionnaires returned by over nine hundred people from thirty-six organizations in the public and private sectors in Los Angeles and Minneapolis. Thirty-two percent of the respondents said that their meetings had no agenda, while twenty-nine percent had written agendas distributed in advance. Handouts were distributed in forty-seven percent of the meetings. Display technologies were used infrequently, with chalk boards and overheads the most common (13 percent each); no computers were employed. The use of meeting announcements, minutes, and evaluations was not reported.

These findings show a wide gulf between normative models advocating use of information tools for positively influencing meetings and observations of actual use. The size of this gap has potential implications for either explaining why dissatisfaction with meetings is high (failure to use known support tools) or generating a search to explain

how ad hoc methods (not using tools) are legitimately preferred by meeting managers. As a first step, there is value in testing the extent to which Monge, et al.'s findings establish a reliable base-line of meeting planning/management tool and technology use, and in adding more detail to these findings. Thus, we propose to address the following:

1. To what extent are the primary meeting planning/management tools – announcements, agendas, support documents, minutes, and evaluations – as well as information technologies (traditional and computer-based) currently used in regularly scheduled meetings?

In addition, the Monge, et al. study might be extended to examine the distribution, control, and format of these tools. Control of the agenda, for example, is generally thought to be critical to managing the process and outcome of a meeting (Kieffer, 1988). Agendas that are presented orally and just before or during the time of the meeting further centralize the power of the keeper of the agenda. Similar arguments can be made for other meeting tools, such as announcements, support documents, and minutes.

The Monge, et al. study focused primarily on written communication. Paradis, Dobrin, and Miller (1985) report technical professionals spending far more time in written than oral communication, although their study did not include office meetings or telephone conversations. Daft, Lengel, and Trevino (1987) found an increasing executive preference for face-to-face (oral) communication as topics became more nonroutine, but their study appears to have focused more on dyads than group encounters. We might expect organizational meetings, which generally involve complex, nonroutine communications, to necessitate inclusion of written along with oral media. Therefore, we propose the following question:

2. Who controls these planning and management tools, when are they distributed, and in what forms (written, oral)?

Finally, the roles that announcements/invitations, agendas, support documents, minutes, and evaluations play in managing the efficiency and effectiveness of a meeting have gone unexamined. Meetings are notorious for consuming valuable human resources, particularly when meetings start late, run long, or are missing key participants (Panko, 1992; Tobia & Becker, 1990). Meeting process problems not only can affect participant satisfaction (Monge, et al., 1989), but the product or outcome of a meeting as well (Hirokawa & Rost, 1992).

Arguably, a meeting announcement would be expected to influence attendance and timeliness. The use of documents prior to a meeting might shorten actual meeting time, while the use of documents during a meeting would be expected to lengthen the meeting. An agenda should lead to more efficient use of meeting time, as should meeting

evaluations (Scholtes, 1988). Consequently, we propose to address the following research question:

3. How does the use of these tools relate to management of the meeting process, including duration of meetings, efficiency in starting and ending meetings, attendance, arrival times, participation, and assignments?

The Study

Participants

Thirty-five groups, each from a different organization, participated in the study. A wide variety of organizations, in terms of size and industry, was selected. All organizations, however, were located within the metropolitan Washington DC area. Varying size and industry were intended to diminish the effect of their non-random selection from among the population of all organizations. No systematic bias, other than willingness to participate in the study, was observed by the researchers. Sites were obtained through graduates and other contacts from the investigators' universities.

Organizations ranged in size from five employees to four thousand employees, the mean size being just under five hundred employees. The size of the participating groups varied from four to fifty-six members, with a mean of thirteen members. Included among the participating organizations were three of the ten largest public corporations in the Washington area. Industries represented included health care, education, construction, defense, real estate, communication, and financial institutions.

Researchers focused on regularly scheduled meetings (scheduled in advance and recurrent), since these are thought to make up the vast majority of organizational meetings (Ives & Olson, 1981; Mintzberg, 1973). Most groups (51.4%) met on a weekly basis. The observed groups generally represented well-defined organizational units (for example, departments). Meetings lasted from 14 to 188 minutes, with a mean duration of just under 80 minutes (SD=41.9).

Procedures

Each group was asked to allow a single researcher to attend the group's next regularly scheduled meeting. The use of a single researcher-observer was employed to capture the dynamics of these meetings, which can easily be lost through retrospective approaches (Hirokawa & Gouran, 1989), while minimizing the perceived risks and costs to the participating organizations. The observer (the principal investigator) was introduced as a visitor and sat off to the side of the process. Prior to the meeting, any documents previously distributed were collected by the researcher from a group representative.

The checklist developed to assist with the data collection process was designed to record specific, *objective* data (size of the group, meeting duration, distribution of materials, and order of agenda, for example), and was tested through comparisons of same-site applications by independent observers (see Appendix A for a copy of the checklist). A post-meeting review with each group's representative offered opportunities to verify observations.

Participating groups were told that individual and organizational names would remain confidential. Furthermore, they were offered a copy of the checklist that was completed during their meeting and a summary of the overall study findings. No audio or video recordings were undertaken due to organizational concerns for confidentiality (some meetings dealt with highly sensitive information), the desire for meetings to occur in their natural settings, and the need for participants to feel that their meetings were occurring as they normally would. Although this approach limited the range of data available for analysis, it did maintain a direct link to actual groups performing real tasks. This is very much in line with Frey's (1994) call for "researchers to move away from the friendly confines of the laboratory and study real-life groups and enlarge the scope of their research to include a wider range of groups" (p. xi).

Measures

The primary measures in this study concerned the tools/technologies of meeting inputs (that is, the formal tools used in planning and managing scheduled meetings) and meeting processes. Formal tools included announcements, agendas, documents, minutes, and evaluations, as well as traditional technologies used to display information (transparencies and projectors, chalk/magic marker boards, flip charts) and higher-level technologies (computer-based systems). Documents included materials distributed in advance of meetings and materials handed out during these meetings. The use of each tool, time of availability/use, form (written, oral), and controlling party were recorded. Because of the central role an agenda is thought to play in the management of a meeting, agendas were further detailed according to number of items, content (for example, names of parties leading discussions, expected actions, time estimates), and execution (that is, agenda items added, completed, tabled).

Measures of meeting process included the number of members missing from the meeting, the number of members arriving late, delay in start-time, delay in end-time, meeting duration, participation, and the number of assignments – variables which are generally thought to relate to member satisfaction and meeting outcome (Hirokawa & Rost, 1992; McGrath, 1984; Shaw, 1981). Participation

was a binary measure (did or did not participate) based on verbal contribution during the meeting (asked question, shared information/opinion, clarified exchange) for each individual in attendance. As with meeting input variables, all process variables were readily observable and, arguably, objectively measurable, one of the intents of the study. No attempt was made to measure variables such as cooperation, nonverbal communication, and member domination (see Figure 1) because the measurement of these variables normally requires audio/video taping, which was not available within the context of this study. In addition, direct measures of participant satisfaction and productivity were not undertaken in this study, since the expectation of a post-meeting questionnaire would have risked compromising the meeting process and since "objective" measures of productivity are difficult to isolate in a field study.

Analysis

Descriptive statistical methods were applied to determine the preparation, distribution, format (written, oral), and use of announcements, agendas, support documents, minutes, and evaluations, as well as the use of traditional (flip charts, chalk boards, transparencies) and higher-level technologies (VCRs, computers). In addition, we examined the combinations or patterns of use among these tools.

Analyses of variance were conducted to determine relationships between the use of announcements, agendas, support documents, minutes, the duration of meetings, and delays in starting and ending meetings. Gamma statistics were calculated to determine relationships between each meeting planning/management tool and attendance, participation, number of late arrivals, and number of assignments (ordinally-scaled variables which were not normally distributed, an assumption of analysis of variance) (Siegel & Castellan, 1988).

Results

Planning/Management Tools

Announcements

Monge, et al. (1989) did not address the issue of meeting announcements; therefore, there is no base-line for comparison with this study's findings. Sixteen (16/35, 46%) of the groups sent formal meeting announcements/invitations (see Figure 2). In fourteen cases (40%) these were written announcements, and in two cases the meetings were announced via intercom or voice mail. Announcements were sent up to eighteen days prior to the meeting, with a mean of four days in advance (SD = 5.4) and a mode of one day.

In seven instances a group member (neither chair/facilitator nor secretary) prepared the announcement, in five cases the chair or

facilitator of the meeting handled this task, in three cases a secretary prepared the announcement, and in one instance the role was indeterminable. In all but two cases the same person always prepared announcements.

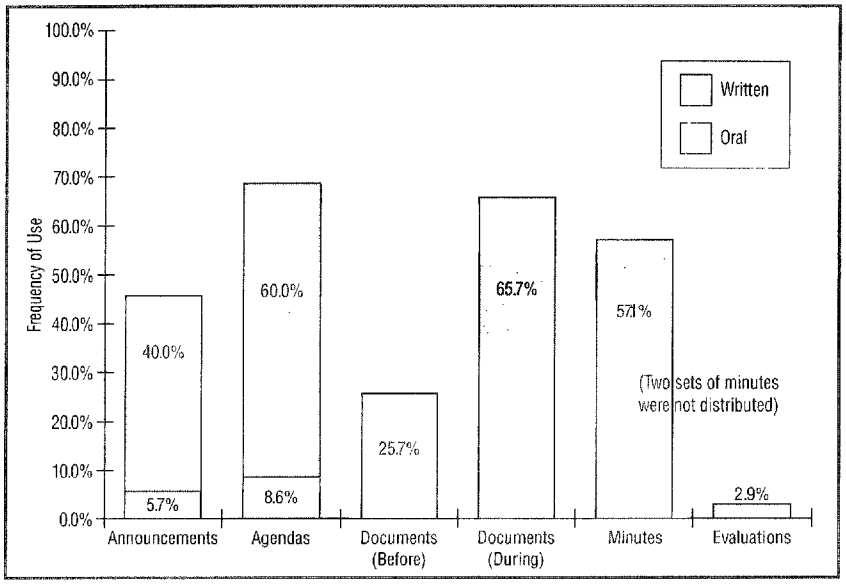

Figure 2. Frequencies of Use Among Meeting Planning/Management Tools

Agendas

In Monge, et al.'s (1989) study, 68% of meetings used an agenda. In this study, twenty-four (69%) of the groups used an agenda which shows clear support for Monge, et al.'s findings. Of these groups, twenty-one (60% of all groups) had written agendas and another three groups (9%) employed oral agendas. Twelve groups (34%) sent agendas in advance of meetings, which is also very close to Monge, et al.'s findings of 29%. This study found that agendas were delivered up to ten days in advance of meetings, with a mean of 1.6 days (SD = 2.3) and a mode indicating same-day availability.

When agendas were used, in sixteen cases (16/24, 67%) the chair or facilitator prepared the agenda, while in five cases one or more group members prepared the agenda, and in three other cases a secretary did the preparation. Twenty groups used the same person each time in preparing their agendas. Two of the twenty-one written agendas were not shared with the group but were kept by the chair or facilitator. In one case, the chair/facilitator worked from an agenda on his computer.

The number of items on these agendas ranged from four to forty-two items, with a mean of 12.7 items (SD = 9.0). This includes items

added to the agenda during the meeting. Twelve groups added from one to nineteen items to their agendas. Most frequently these items were added and covered at the end of the meeting (five cases). In addition to descriptions of each item, seven agendas contained the names of the parties responsible for leading the discussion of each item, three agendas had time estimates for each agenda item, and one agenda differentiated types of agenda items (announcement, report, decision).

Twelve groups (34% of all groups, 50% of groups with agendas) completed their agendas. In six cases items were tabled, with items sent to committees in three groups and items deferred to the next meeting in the other three cases. Of the groups with an agenda, flexibility during meeting execution was demonstrated by eight groups that reordered agenda items. Only one group repeated an item on its agenda.

Documents

Supporting documents were more often distributed during meetings than prior to meetings. Twenty-three groups (66%) distributed documents during their meetings for discussion, and nine groups (26%) distributed documents prior to their meetings. Five of these groups distributed documents both before and during meetings. The distribution of documents during meetings differs markedly from Monge, et al.'s (1989) finding of handouts distributed in 47% of meetings. For those groups that used documents, the mean number of documents distributed prior to a meeting was 2.1 (17.1 pages per meeting), and 2.1 documents were distributed on average during meetings (5.4 pages per meeting).

A total of five groups (5/35, 14%) used some kind of display technology during their meetings. This compares very closely to Monge, et al. (1989) finding of 13% using overheads and chalk boards. Of these five groups, only one group used a set of transparencies to project information. Four groups (11%) created "documents" during their meetings: two groups employed chalk/magic marker boards, one group used a flip chart, and one group used both a chalk/magic marker board and a flip chart during the meeting. In each of these four cases, supporting documents also were distributed before or during the meeting. No groups employed a television/VCR.

Minutes

Monge, et al. (1989) did not focus on minutes. In this study, twenty groups (57%) formally recorded the minutes of their meetings, although in two groups the minutes were not distributed. The minutes were recorded by a secretary in seven cases, other group members in seven

cases, and the chair or facilitator in six cases. In all but two of the twenty cases the same person took the minutes at each meeting.

In four instances the minutes were available the same day, and the mean time before availability was 3.8 days ($SD = 5.1$). Four of the twenty groups reviewed the minutes at the beginnings of their meetings.

Evaluations

Only one group conducted a meeting evaluation, and this occurred at the end of the meeting. In this group, a form was employed to aid in the assessment, and the responsibility for evaluating the group's process rotated to another group member each meeting.

Patterns of Use Among Communication Tools

Seven groups (20%) employed four of the primary tools for planning and managing their meetings – announcements, agendas, support documents, and minutes. The three tools used in combination most commonly were agendas, support documents, and minutes (14 meetings, 40%). Agendas and support documents were used in twenty-one meetings (60% of all meetings), more than any other pair of tools.

Three communication tools (announcements, agendas distributed prior to the meeting day, and support documents sent in advance) constitute advanced written information about a meeting that potentially allows for member preparation. Four groups sent all three in advance; twelve groups (34%) sent none of the three in advance of their meetings.

Relationships to Meeting Process

Relationships between the use of four meeting planning/management tools (agendas, documents before, documents during, minutes) and five of the seven meeting process variables (arrival time, start delay, end delay, meeting duration, participation) were found using analyses of variance and Gamma statistics. Announcements were not found to be related to any process variables, and no analysis was conducted for the use of meeting evaluations since only one group conducted an evaluation. Meeting planning/management tools were not significantly associated with member attendance or number of assignments.

The use of minutes was the only main effect significantly related to delay in meeting start-time ($F(1,19) = 6.03$, $p < .05$); where minutes were not taken, meetings started later than scheduled. In addition, the interaction of use of agenda and use of minutes were significantly related to start delays ($F(1,19) = 9.17$, $p < .01$); by far the greatest delays occurred when neither an agenda nor minute-taking was employed.

The use of agendas ($F(1,13) = 6.73$, $p < .05$) and the distribution of documents prior to meetings ($F(1,13) = 9.35$, $p < .01$) were main effects

significantly related to meetings running beyond scheduled end times. When these were used, meetings on average ended early; when they were not used, meetings went longer than scheduled.

For meeting duration, only one main effect was reportable. Meetings were likely to last almost twice as long when documents were distributed during the meetings ($F(1,19) = 3.28$, $p < .10$).

Gamma statistics for attendance, participation, late arrivals, and number of assignments revealed two moderate correlations. The number of members arriving late was correlated with minute-taking (.48): When minutes were taken, participants were more likely to arrive late than when no minutes were taken. Also, the distribution of documents prior to meetings was positively correlated with people speaking during meetings (.42).

Discussion

This study supports some and differs from other elements of Monge, et al.'s (1989) findings regarding the prevalence of written and oral communications in meetings. It adds consideration of announcements, minutes, and evaluations which were not covered in prior study. It provides some indication of which group members implement specific planning/management tools, but actually raises more questions regarding power and control of written communication in group meetings. Finally, it observes relationships between the use of four tools/techniques and measures of group process, while noting the absence of some expected relationships. The results have implications for practitioners and systems designers, as well as for future research.

The first question posed by this study focused on the use of meeting planning/management tools and technologies. Study results show that the vast majority of groups employed at least a single meeting-management tool. Thirty-one (89%) of the observed meetings used an announcement, agenda, supporting document, minutes, or meeting evaluation. A significant number of these groups used two or more of these instruments – twenty-one (60%) used agendas and support documents; fourteen (40%) used agendas, documents, and minutes; and seven (20%) used announcements, agendas, documents, and minutes.

Analysis also showed significant differences in popularity among tools. Communication tools were employed as follows, based on incidence of use: agenda (69%), documents distributed during the meeting (66%), minutes (57%), announcement (46%), documents distributed prior to the meeting (26%), display technology (14%), and meeting evaluation (3%). Within the context of Bostrom's (1989) three stages of meetings – pre-meeting activities, set-up functions, and meeting execution – it appears that meeting execution in the form of agendas and documents distributed during meetings received the most consideration.

The least frequently used tool was the meeting evaluation. This suggests that groups are not familiar with this technique, find it difficult to interpret and benefit from evaluation results, and/or find the cost of implementing this to be greater than its rewards. Following the philosophy of continuous improvement, however, this technique would seem to be a potentially useful one for identifying ways to improve the meeting process.

The use of alternative media and higher-level technologies was largely absent from these meetings. Two groups used voice mail to announce meetings and one chair/facilitator worked from an agenda on his computer. The use of overhead projectors, flip charts, or chalk/magic marker boards was minimal, always employed in conjunction with distributed support documents. These findings are similar to those reported by Monge, et al. (1989), suggesting at best a slow diffusion of these technologies.

The second research question pertained to the distribution/control of these tools. The majority of groups (23/35, 66%) sent participants an announcement, agenda, or document in advance of their meetings. Four groups sent all three of these in advance. Agendas, however, which likely provide the most information about the purpose of an upcoming meeting, were made available prior to the meeting in only twelve cases (34% of all meetings). Thus, it would appear that agendas were employed more to assure timeliness and attendance than to detail roles or expectations for meetings. Indeed, while twenty-four groups employed an agenda – twenty-one (60%) choosing written agendas – only seven agendas specified the names of parties responsible for each agenda item, only three agendas had time estimates for each item, and only one agenda differentiated types of agenda items.

In addition, the preparation of these tools was highly differentiated. Group members were most likely to prepare announcements, chairs or facilitators were most likely to prepare agendas, and secretaries and group members were most likely to take the minutes. In the vast majority of cases these roles did not rotate. By preparing the agenda, the chair or facilitator retains control of the content and process of the meeting. In contrast, the role of recorder is often seen as a low-status position (Volkema & Avery, 1988). As Paradis, et al. (1985) point out, however, writing and documentation can serve a potential social function as well as being a primary means of information exchange.

The final research question concerned relationships between meeting planning/management tools and meeting processes. Each of the tools analyzed was associated with one or more meeting process variables, with the exception of announcements and evaluations. The lack of association of announcements with any process variables, particularly starting delays, attendance, and late arrivals, suggests that

little is gained in efficiency by employing formal announcements for regularly scheduled meetings (which group members may have become accustomed to attend).

Meetings were more likely to start and end on time when documents were distributed in advance, an agenda was employed, or minutes taken. The mean number of pages of documents distributed prior to meetings compared to the number of pages of documents distributed during meetings (17.1 versus 5.4 pages) may indicate an awareness that the time necessary to read and absorb larger documents requires pre-meeting distribution. In fact, meetings were longer when documents were distributed during the meeting.

With the exception of a moderate relationship between the distribution of documents prior to meetings and group participation, there were no significant relationships between meeting planning/management tools and attendance, participation, or assignments. Thus, it would appear that these tools have more to do with the timing of meetings (duration, delays) than with assuring member involvement. This may well be a natural trade-off, as increased structure can enhance the time-management of a meeting at the expense of a climate conducive to participation.

The positive relationship between document distribution prior to a meeting and participation, however, suggests a means of drawing more group members into discussions. The opportunity to review documents, especially lengthy documents as was the case in these meetings, allows participants to prepare questions and gather additional information in a way not possible when documents are distributed only during meetings or not at all. Since participant involvement generally improves the quality of and commitment to a decision (Vroom & Jago, 1988), pre-meeting documents represent a potentially powerful tool for group and organizational leaders.

Future Research

Despite the significant time devoted to organizational meetings and the important role that meetings are thought to play in the exchange of information within and between work units, there has been relatively little research on the planning and managing of regularly scheduled meetings (Panko, 1992; Schwartzman, 1994; Smeltzer, 1993). A better understanding of the use of existing tools/technologies will benefit leaders and facilitators of organizational meetings. It should also aid developers of computer-based systems in designing new tools for planning and managing group interactions. This may be particularly important as technology allows text-oriented meeting technology to extend across times and locations, further emphasizing written meeting documentation (Bostrom, Watson, & Kinney, 1992; Jessup & Valacich, 1993).

This field study represents a step towards building an empirically-based theory of organizational meetings which should be extended through future field and laboratory research. In accepting Frey's (1994) challenge to examine a wide range of real-life groups, we focused our study on specific input tools/technologies and meeting process variables that could be objectively measured by a single researcher-observer. Additional process variables, shown in Figure 1, might be studied where the use of audio and video recording is allowed. Future researchers utilizing these devices, and all of the coding opportunities they confer, will be able to show a broader array of linkages between the use of meeting tools/technologies and group process. Using post-meeting questionnaires (again not available at these particular research sites) can add linkage to perceived meeting outcomes. While outcome measures such as performance/productivity are highly problematic in field research (Hackman, 1990), such measures should be considered in laboratory studies of organizational meetings.

The results of this study generally support the findings of Monge, et al. (1989) regarding the frequency with which various written media as well as traditional and computer-based technologies is used in regularly scheduled meetings. This is of particular significance considering that the Monge, et al. data came from different locations (Los Angeles and Minneapolis versus Washington DC) and resulted from a different data gathering technique (survey versus direct observation). In the current study, agendas, support documents, and minutes were most prominent in managing the timing (efficiency) of organizational meetings. While an oral (face-to-face) medium may be preferred in dyadic, non-routine communications (Daft, et al., 1987; Lengel & Daft, 1988), the complex *and* non-routine environments of meetings call for a combination of media (for example, face-to-face and written communications). In this study, the preparation and distribution of meeting planning/management tools varied, suggesting differential roles in controlling the content and process of meetings.

Agendas, in particular, warrant further investigation as their control fell largely in the domain of chairs/facilitators. They contained a wide variety of informational items, they were frequently modified during meetings (items added, reordered, or tabled), and they appeared to influence the timing of meetings. The wide variety of informational detail in agendas suggests the need to look at agendas as a continuous variable, developing an index of information content, rather than as a binary variable (that is, use or non-use of an agenda).

Minutes during meetings are another area that deserve much more study. Issues involve who has the power to determine whether minutes are taken and by whom; how they are formalized (only four groups reviewed prior-meeting minutes at the beginning of their

meeting; presumably the other sixteen groups taking minutes either trusted the minute taker's accuracy, had between-meeting activity regarding minutes, or did not anticipate using the minutes as an information link-pin between meetings); and how they are used subsequent to the meeting.

As part of the larger body of research regarding communication in group meetings, these findings should be of interest to group facilitators, who can use written media to positively influence meeting outcomes, and to designers of computer-based meeting support systems which often highlight addition of text-based communications to oral communications in support of group activities.

NOTE

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