

Explicit and Implicit Structuring  
of Genres: Electronic Communication  
in a Japanese R&D Organization

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# **Explicit and Implicit Structuring of Genres: Electronic Communication in a Japanese R&D Organization**

## **Abstract**

A study of a Japanese R&D group using a new electronic medium identified two contrasting patterns of media use: one involving explicit structuring of community genre norms, and one involving implicit structuring of local genre norms. These patterns provide initial explanations for how people begin to use new electronic media and how their use changes over time. We believe that the two patterns can serve as initial and suggestive archetypes for helping researchers and practitioners in their design, introduction, and ongoing management of new communication media.

In the last decade, recently introduced communication technologies such as voice mail, electronic mail, and facsimile have proliferated in the workplace, significantly altering ways in which people in organizations communicate. These changes have made more pressing the attempt to understand the role of these media in communication within organizations. A growing body of empirical research has begun to examine the influence of electronic media on communication (e.g., Eveland and Bikson, 1988; Finholt and Sproull, 1990; Markus, 1994; Rice and Associates, 1984; Fulk, 1993; Sproull and Kiesler, 1991; Trevino, Lengel and Daft, 1987), and we contribute to this research by exploring how a new electronic medium was adopted and used by a group of R&D workers over a 17-month project. This field study provides insights into how the use of the new medium influenced communication on the project as well as how the project members shaped their use of the medium. The notion of an ongoing, reciprocal interaction between social structure and human action is central to structuration theory (Giddens, 1984), which has recently been used by some researchers to examine the interaction of media and communication over time (Contractor and Eisenberg, 1990; DeSanctis and Poole, 1994). Within this same structural framework, Yates and Orlikowski (1992) have proposed the notion of genres of organizational communication as a way of conceptualizing the patterns of communication that emerge over time when individuals' communicative actions interact with their social context and the media at their disposal.

We used this concept of genres of communication as an analytic device with which to study how organizational actors used a new electronic medium (computer conferencing) within a specific social context (a Japanese R&D project). By identifying the genres that members enacted, tracing the origins of those genres and their change in use over time, we obtained a number of insights into how the new electronic medium was used within the project. Specifically, our findings identified two contrasting patterns of media use: a deliberate pattern that involved the explicit structuring of genres for the entire project group, and an emergent pattern that involved the implicit structuring of genres within subcultures of the project group. These results shed light on two different ways in which shared norms around using new media arise and change over time, and the implications that

these different patterns of using new media may have for the ongoing effectiveness of organizational communication.

## GENRES OF ORGANIZATIONAL COMMUNICATION

As defined by Yates and Orlikowski (1992; Orlikowski and Yates, 1994), a genre of organizational communication -- such as the memo, the committee meeting, or the resume -- is a typified communicative action, identifiable by both a socially recognized communicative purpose and common characteristics of form. The *communicative purpose* of a genre is not the individual's private motive for communicating, but a purpose constructed and recognized by the relevant organizational community and invoked in typical situations. For example, the commonly recognized purpose of a resume is to provide information about an individual's educational qualifications, work history, and accomplishments for use in, for example, job hunting. The socially recognized purpose of a committee meeting is to discuss, make decisions about, and delegate implementation of matters related to the committee's charge, in response to a regular schedule (e.g., a weekly meeting) or to specific events.

A genre also typically has some common characteristics of form. *Form* refers to observable aspects of the communication, such as communication medium (e.g., pen and paper, telephone, or face to face), structural features (e.g., text formatting devices such as lists and structured fields, and devices for structuring interactions at meetings such as agendas and chairpersons), and linguistic features (including level of formality, specialized corporate or professional vocabulary, or graphic devices). For example, committee meetings are typically face-to-face gatherings with a specified time, an agenda, and chairperson, while resumes in the U.S. are usually text documents with the individual's name and address at the top, followed by specific information about the person divided into subheaded sections (e.g., educational background and job history) and listed without using complete sentences. An interesting example of the importance of the relevant community in the constitution and use of a genre may be observed by examining the resume/job application form used by Japanese college graduates looking for a job. The genre appropriate in

that context emphasizes education and interest in the firm; it does not include job experience because Japanese firms have traditionally valued employees directly out of school without work habits to unlearn.

Genres are recognizable within a community by either one or both of the characteristics of purpose and form. Some genres have such a distinctive form that they are clearly recognizable by reference to such formal features and may be fairly general in purpose (e.g., meeting, memo, and resume). Other genres may take a variety of forms but still be recognizable by their purpose (e.g., proposals may have a very specific form, as in the NSF proposal, or take the form of a simple statement such as “I propose that we do the following ...”). Genres may also appear on multiple levels of abstraction. For example, the meeting genre is conceptually at a more general level than a Senate Judiciary Committee meeting, which has a much more specific purpose and form. In this case, we would recognize the latter as a subgenre of the former.

Occasionally, genres may be linked together or overlap in a way that constitutes a more complex communicative event; for example, committee meetings often include oral presentations, dialogue, and voting, while genres such as proposals are often realized within other genres such as the memo. One such type of genre linkage arises in what has been termed a *genre system* (Bazerman, 1995; Orlikowski and Yates, 1994). Genre systems are composed of interdependent genres that are enacted in some typical sequence in relation to each other, and whose purpose and form typically interlock. For example, the examination and cross examination of witnesses in court together compose a genre system. Similarly, the series of ballot form, ballot response, and ballot results identified by Orlikowski and Yates (1994) in an electronic group constitutes a genre system.

Yates and Orlikowski (1992) have argued that individuals may reinforce or change genres through a process of structuring (Giddens, 1984). When community members draw on an existing genre to take some communicative action, they reinforce that genre. Members can also change genres, either deliberately or inadvertently. When such changes to established genres become widely shared among members of a community, genre variants or even new genres may emerge.

Broadening our focus from individual genres, we may examine a community's *genre repertoire* -- the set of genres routinely enacted by members of a particular community -- to reveal the shared knowledge, understandings, expectations, and norms that members have about how to communicate within their community (Orlikowski and Yates, 1994). Moreover, the notion of repertoire may be a useful device for understanding how a community begins to use a new communication medium. From this perspective, we can examine what kind of repertoire emerges in a new medium when a community begins using it, and how that repertoire changes over time.

Orlikowski and Yates (1994) defined two aspects of a community's genre repertoire: its composition, the specific set of genres making up the repertoire; and its use, the frequency with which specific genres are enacted by members of the community. The repertoire's *composition* reveals the kind of communicative practices that community members engage in (e.g., letters, depositions, and briefs in a legal community). The absence of certain genres from a community's genre repertoire may be similarly revealing. The *use* of a repertoire, or the frequency and timing with which various genres are enacted, indicates the nature and interactive rhythms of a community. For example, two communities may both have repertoires that include meetings, memos, and reports. However, the community with daily meetings, quarterly reports, and infrequent memos is clearly more interactive and informal than the community with frequent memos, monthly reports, and annual meetings, which involves more individual work communicated via more formal and less interactive genres.

A genre repertoire is often established implicitly when members of a new community simply start enacting genres they have used previously as members of other communities -- invoking the familiar to cope with the new (Orlikowski and Yates, 1994). Over time, however, changes in task constraints, institutional procedures, media capabilities, and contextual factors may trigger changes in the genres that members choose to enact, producing variations in existing genres or even introducing new genres into the repertoire.

In the study reported in this paper, we use the notions of genre and genre repertoire as an analytic lens through which to examine how members of a newly-formed project group would use

the new electronic medium made available to them for their project. We examined what kinds of genres the project members enacted in the new medium, and what influenced their enactment of these genres over time. Based on this study, we identified two major patterns which characterized how project members used the new electronic medium: a deliberate pattern where genre norms were explicitly structured, and an emergent pattern where the structuring of norms was more implicit. We discuss our findings below, after describing our research setting and methods. We conclude with some implications for future research and practice.

## RESEARCH STUDY

### Research Setting

We studied the introduction and use of a computer conferencing system in the R&D division of a large Japanese high-tech manufacturing firm. The conferencing system was introduced to facilitate internal communication among the members of a project group developing a computer product, Acorn (a pseudonym), which was expected to be innovative and important to the company's competitive position. In late September 1989, a new product development group was created, with about 150 members from three different labs within the R&D Division (designated here as A, B, and C), supplemented by a few new employees and external contract programmers as needed. The newly formed project group consisted of six teams: four teams for software development (SG1 through SG4), and one each for hardware development (SYS) and administration (DPS). All project members were experienced computer users having powerful networked workstations that supported electronic communication.

About two years before the Acorn project began, electronic mail (e-mail) had been introduced into one of the R&D division's labs (Lab A) by four young software engineers recently out of college. Use of e-mail spread gradually within the lab, until over half of the Acorn members were e-mail users at the start of the project. In college, these software engineers had also used the JU-NET news-system, a Japanese language version of the Usenet news-system (a computer conferencing system publicly available and widely used on a number of electronic networks)



linking several Japanese universities. Seeing the conferencing medium's potential for organizational use, these engineers created an internal news-system within their R&D lab a year after they had introduced electronic mail, but usage of this news-system remained confined to the four engineers and a few of their friends. When the four software engineers were selected to participate in the Acorn project, they set up a similar news-system specifically for the Acorn project. This Acorn news-system was available to all project members for the full 17 months of the project (September 1989 to February 1991).

While the R&D division as a whole had a network support infrastructure, the four engineers believed the project group should have its own network administration to support data exchange and communication. They volunteered to perform the necessary network administration activities, and, with project management approval that part of their regular job duties could be devoted to these activities, they formed the nucleus of what became known as the Network Administration Group for Acorn (NAGA). Five additional members were recruited to ensure that NAGA represented each of the six Acorn teams. As we describe below, the activities of the NAGA group in promoting and maintaining the news-system as a central communication medium within the Acorn project were an important influence on the particular genres enacted by the Acorn members within it.

### **Data Collection and Analysis**

The primary data for our study consisted of a subset of the 9302 messages posted on the news-system during 15 months of the Acorn project for which news-system archives exist. These messages were analyzed both qualitatively and quantitatively by a research team including one Japanese researcher, two American researchers, and two research assistants fluent in Japanese. Our qualitative textual analysis involved the reading of hundreds of messages by the Japanese-speaking members of the team and the description and translation of many of these messages for the rest of the team. This process provided the grounding for a coding scheme (see Table 1) which

was used to analyze the content of a sample of the messages. The coding scheme was based on the two dimensions constituting the definition of genre: *purpose* and *form*:

**Purpose categories** refer to the socially recognizable purposes of a message. We coded for three aspects of social purpose: newsgroup where posted, topic area (e.g., technical, administrative), and specific communicative purpose (e.g., announcement, response).

**Form categories** refer to a message's formatting features (e.g., list, embedded message) and linguistic characteristics (e.g., use of dialect, informal language).

The categories of this coding scheme were defined by referring to observed features of purpose and form in the messages examined and to standard text-books on American and Japanese written communication in organizations. As language and cultural barriers complicated the development of this coding scheme, it emerged from a long and iterative process of discussion, definition, coding, and adjustment of definitions. Once this coding scheme was developed, the two Japanese-speaking research assistants used the scheme to code a subset (2028) of the news-system message transcripts. This sample included three large sets of messages -- messages from several one-week cross sections of all newsgroups that had been created over the course of the project, and all messages from two of the six *local* newsgroups used for posting messages relevant to each team's work. Intercoder reliabilities for the categories used averaged 94%.<sup>1</sup> As described below, we later coded additional messages from a few selected newsgroups.

This primary data was supplemented by retrospective interviews of Acorn participants and an examination of the electronic mail messages exchanged among the NAGA members. Two kinds of interviews were conducted: a series of unstructured and structured discussions with a key informant, conducted in Japanese and in English, and brief, more structured interviews with six other project members, all conducted in Japanese. The interview data helped us interpret the primary textual data, and revealed important contextual information about the R&D division and the Acorn project, as well as details about NAGA activities and use of the news-system.

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<sup>1</sup> We also calculated Cohen's  $\kappa$  as a measure of intercoder reliability, and relied on Landis and Koch's (1977) benchmarks for assessing the relative strength of agreement: Poor (< 0), Slight (.0 - .20), Fair (.21-.40), Moderate (.41 - .60), Substantial (.61 - 80), and Almost Perfect (.81 - 1.0). As we were involved in an exploratory analysis, we retained those coding categories that reached at least a Moderate level of agreement, eliminating others (see Table 1).

We also examined the 223 e-mail messages exchanged by NAGA members in their activities of promoting and maintaining the news-system.<sup>2</sup> Our analysis of these messages was conducted as part of an earlier study (xyz, 1994), and involved qualitative analysis (Eisenhardt, 1989; Miles and Huberman, 1984) to classify the e-mail messages first by specific topic, then further into four general themes that characterized NAGA's activities during the project.

## Genre Analysis

We examined the presence of different genres in the project-wide newsgroups (including the entire cross-sectional data set and the specific newsgroups coded later) and in the two local newsgroups coded.

We undertook a preliminary genre analysis of the project-wide newsgroups using the cross sectional data set, identifying such general-purpose genres as dialogue and memo. Our early qualitative analysis of newsgroup messages, NAGA electronic discussions concerning the usage rules defined for each newsgroup, and interviews with a key NAGA informant, however, revealed that some newsgroups were created and used primarily for specific genres (e.g., the *reports* newsgroup<sup>3</sup> for trip reports). Thus we examined each newsgroup to determine whether its messages shared a socially-recognizable purpose and common features of form. For the newsgroups that seemed to be most clearly linked to specific genres, one coder analyzed a sample of messages from each.<sup>4</sup>

Examining the frequencies of various coding categories in these newsgroups, we constructed genre definitions (in one case, two genres together constituting a genre system), which included presence in a particular newsgroup, as well as other categories of purpose and form. Subsequent analysis using these genre definitions identified messages in the newsgroups which did not reflect the designated genre (e.g., messages responding to posted items that belonged to the

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<sup>2</sup> A total of 438 e-mail messages were exchanged, but the other 215 e-mail messages dealt with the physical computer network rather than the news-system itself.

<sup>3</sup> Names of newsgroups are shown in italics. *Newsgroup*/\* indicates a hierarchical nesting of related newsgroups.

<sup>4</sup> For this coding, we restored to the coding scheme a few critical categories after removing previous ambiguities in meaning.

genre) and, in the case of one newsgroup, enabled us to identify messages belonging to each of the genres composing a genre system.

We followed a different process in analyzing genres in the *local* newsgroups. We had originally coded all the messages in two of the six *local* newsgroups established for the six project teams (the *local* newsgroup for the SG4 team with 403 messages, and that for the SYS team with 788 messages). Using those coding categories that met the standards of reliability discussed earlier, we searched for the presence of genres in the messages of each of these two newsgroups. To get the best picture of norms within these local teams, we excluded from most analyses messages posted by members of other teams (on average one-third of all messages in the six local newsgroups were posted by members of other teams), leaving 371 messages in SG4 *local* and 530 messages in SYS *local*. Because the news-system medium transmits written communication, we assumed that certain traditional genres of written organizational communication (such as the memo) might be enacted in these newsgroups, at least initially as the members began to familiarize themselves with the new medium. To search for these genres, we defined the typical form of each genre in terms of our coding categories by examining existing paper-based written genres in use within the R&D lab, by drawing on existing paper-based Japanese genres, and by utilizing definitions used in prior genre analyses (Orlikowski and Yates, 1994). As we expected that some of the genres might be modified over time in response to task constraints or experience with the medium, we also attempted to identify variant or new genres in the *local* newsgroups, by seeking unanticipated patterns among the messages through an iterative analysis of message texts, associations among the coding categories, and interview data. To allow us to look at these messages more comprehensively, we used the notion of genre repertoire to identify the set of genres used by team members to communicate locally within their new medium. We eliminated genres comprising less than 5% of each *local* newsgroup's messages in determining the genre repertoires represented by the *local* newsgroups.

When we had completed our initial genre analysis of the SYS and SG4 *local* newsgroups, we performed some additional analyses of the resulting genre repertoires. The SYS and SG4 teams

included members from the three different laboratories (A, B, and C) as well as miscellaneous members from other locations or hired later. To see the influence of member origin on genre use, we analyzed genre use by members' labs of origin for both newsgroups. We also divided the messages into four time periods of three months each to examine any changes in the composition or use of the genre repertoire within each of these *local* newsgroups over time.

## RESULTS

Our analysis of the Acorn project group's use of the news-system over the project revealed two contrasting patterns in how the project-wide and team-based genres were structured. The *deliberate* pattern reflects the *explicit* structuring by NAGA members of particular genre norms for the entire project group. This explicit structuring was sometimes planned and sometimes opportunistic<sup>5</sup> in nature. The *emergent* pattern reflects the *implicit* structuring of genres by members of the six project teams within the larger project group. We discuss each of these patterns in turn. Table 2 provides an overview of the patterns, their characteristics, and the various genres associated with each.

### **Deliberate Pattern of Media Use: Explicit Structuring of Genres**

Our qualitative analysis of NAGA's e-mail messages and postings to the news-system for an earlier study (xyz, 1994, 1995) had revealed the extremely important role played by NAGA in proactively shaping use of the news-system medium. That study had identified the activities of NAGA as the deliberate, organizationally sanctioned and ongoing mediation of Acorn project members' use of the news-system over time. Further analysis of NAGA messages here, as well as the qualitative and quantitative analysis of news-system messages, also revealed the importance of NAGA's influence in shaping the genres enacted by members of the Acorn project group. We examine this influence in two segments, the first covering NAGA's activities in introducing the news-system, which reveal deliberate, planned shaping of genre norms; and the second covering

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<sup>5</sup> We use the term "opportunistic" not in the specialized sense used in economic analysis, but in the common language sense of taking advantage of an opportunity as it arises.

NAGA's activities in shaping the ongoing use of the news-system and of genres over the course of the project, revealing deliberate shaping, both planned and opportunistic.

### *Introduction of New Medium and Initiation of Genres*

While NAGA had initially justified its activities in terms of the technical support of the network, its ambition was broader from the start, as evident in this announcement NAGA posted on the news-system in the early weeks of the project: "Our goal is not only to achieve trouble-free use of the network, but also to increase the productivity of the project by improving communication among members."<sup>6</sup> Indeed, after handling initial network infrastructure issues, NAGA turned its attention to the potential of the news-system to facilitate more effective communication and coordination within the project group.

In particular, NAGA considered how the news-system should be positioned with regard to other existing media, and whether it should be used for official, as well as unofficial, communication on the project. Both of these issues had important implications for the genres likely to be used by project members within the news-system. In addressing these issues, NAGA members solicited the opinions of others for example, initiating a discussion on the news-system and in face-to-face settings about whether the news-system should be official or not. In addition, NAGA discussed the status of the news-system with the project managers whose consent was critical to making the news-system an official medium for the project.

NAGA built broad support among the project members that the news-system should be an official project communication medium. As its meeting minutes make clear, NAGA members believed that declaring the news-system an official medium would legitimate it and reinforce its use within the project. In addition, they persuaded the six team leaders and the project group manager that project members should be required to access the news-system daily. NAGA members also focused on how best to position the news-system medium in relation to the other communication mechanisms already in common use: daily lunch-time meetings required by company policy, and

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<sup>6</sup> All messages and some interview quotes cited in this paper have been translated from Japanese. All identifying and confidential information has been disguised or removed (indicated by [...]).

used for official announcements and ceremonial matters such as the singing of the company song; routing slips, used to circulate information to all members of a group; bulletin boards, used for posting announcements; and e-mail, used for one-to-one communication and team distribution lists. This activity reveals NAGA's understanding that communication within the new medium would, of necessity, be related to and would affect communication in more familiar media. The explicit objective of NAGA members, as revealed by their minutes, was to promote use of the news-system by allocating most Acorn project communication, including all official announcements, to the news-system medium. They created *local* newsgroups, one for each of the six teams within the project, to replace the teams' existing e-mail distribution lists and encourage news-system use by seeming to create a smaller and more familiar audience for posting messages.

In the daily meeting on January 30, 1990, the project manager announced the new policy requiring all project members to access two specific newsgroups -- *general* and *announce* -- each day to view all the project's official announcements. This policy change and NAGA's other activities in encouraging use of the news-system resulted in a dramatic increase in the number of messages posted to the news-system. Before the January 30 announcement, about 20 messages a week were posted on the news-system; after that, the number rose to around 200 messages per week (excluding holiday periods) and remained around that level until the end of the project was announced in February 1991. Thus NAGA's deliberate, planned activities were successful in achieving its first goal: building up news-system usage.

While NAGA did not use the term "genre," it clearly had at least an intuitive understanding of this concept, which informed its discussions and decisions about the new medium. For example, on the day that the manager's announcement made the news-system official, NAGA posted guidelines for using e-mail and the news-system:

-----  
Newsgroups: *announce*  
Subject: Guideline for the usage of mail & news  
Date: 30 Jan 90 11:03:28 GMT

[...]  
(1) Use e-mail and the news-system effectively!

If you want to send information to some specific person, e-mail may be useful. However, when you send it to a set of people or to all members in the project group, please use the news-system as much as possible.

If you use e-mail all the time, we will receive a huge number of messages and have to read all of them. Remember the difference between a traditional bulletin board posting and a letter. Think again when you send an e-mail message to any mailing-list (like all@xxx) You may be able to provide useful information to other project members by using the news-system.

[...]

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In describing how to use the two media differently, NAGA invoked examples of two genres (the traditional bulletin board posting and the letter) that illustrated appropriate genres for use within the news-system and e-mail media, respectively. In doing so, it made clear that genre issues were very relevant to the effective use of the news-system medium.

The genre implications of this initial introduction of the news-system to the Acorn project were significant. Most obvious were the implications for the official announcement genre. The transfer of official announcements, previously made orally in daily meetings and/or in written form posted on physical bulletin boards, into the news-system was an important departure from traditional genre norms in the firm and the R&D division. NAGA's efforts here created a new set of institutional guidelines around what constituted official announcements in the organization: electronic messages in one of two specific newsgroups. In fact, NAGA attempted to define the two newsgroups themselves in a way that embodied the purpose of the official announcement genre, and this purpose was the genre's primary distinguishing feature. The *general* newsgroup was initially defined as containing "important announcements to all members," and the *announce* newsgroup as containing "information for all project members, such as meeting and event schedules." Thus the two newsgroups were seemingly intended to create two variants of the official announcement, the former more important than the latter.

NAGA further shaped the official announcement genre by its own use of the news-system. Its messages in this newsgroup, such as the one reproduced above, were relatively formal, clearly organized, and well-formatted announcements of its decisions. However, not everyone understood the official announcement genre in the same way. While the message above is obviously the sort of official announcement NAGA had in mind, the one below, a veiled complaint about smoking in a non-smoking area, is not:

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Date: 21 Feb 90 07:22:25 GMT  
Newsgroup: *general*



Subject: The C Council room is a non-smoking area?

Hello.

Wasn't smoking prohibited in the C Council room? By C Council room, I am referring to the space next to the locker room.

For your information, the seats around there are for non smokers.

----T.T.  
-----

NAGA members recognized that this lack of consensus on news-system norms for the official announcement genre was a problem, and, as will become evident in the next section, they continued to try to resolve it.

Although most newsgroups were distinguished primarily by subject matter (e.g., *computers*), another newsgroup initially established by NAGA -- the *reports* newsgroup -- clearly embodied a specific genre. This newsgroup was used for trip reports written by Acorn members returning from meetings and seminars to report on these events to the rest of the project group. Of the messages coded in the *reports* newsgroup, 83% matched the genre definition derived from our analysis, while the others responded to or posed questions about the posted reports. The reports tended to be long, and the following (condensed) message is representative of their form:

-----  
Date: 5 Feb. 91 02:30:34 GMT

Newsgroup: *reports*

Subject: Font Development Promotion Center Business Trip Notification

I attended the "Font Development/Promotion Center Skill Information Meeting" and the following is a report.  
[brief introductory summary]

Theme 1: The developments of the true type font (Apple Computer Japan)

True Type is being planned to be handled in the Macintosh System 7.0 (Planned to be shipped by this summer).

· The placement of True Type on the Mac

[...]

· PS vs.. True Type

[...]

Theme 2: About Font design

[...]

The end

Y.K. @SG4 Document Management Team

65-2660 (Ex. 135)

yk@xxx.yy.zzz.jp  
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This example illustrates the form as well as the purpose of the typical posting in this newsgroup. The brief introductory summary describing the event attended by the author was generally followed by a list of topics covered in the seminar or meeting with some discussion of each. Such

messages often ended with a formal concluding phrase (in this case, “The end”) and the author’s name, affiliation, and other address information. According to our interviews, this trip report was usually copied directly from its paper form (sent to the traveler’s boss) into the newsgroup (available to all), with two types of changes: the addition of the introductory summary to help project members understand the main points of a longer report without going through many screens of information (a change not captured in the coding but intended to accommodate characteristics of the medium); and the elimination of any potentially sensitive information (a general recommendation NAGA made for all postings to the news-system). Thus, the trip report genre seems to have been imported from paper form into the electronic medium with relatively limited changes that were attempts to accommodate differences in the new medium, particularly the broad dissemination it allowed.

Thus, in its introduction of the news-system to the Acorn project group, NAGA attempted to establish not just the use of a new medium, but some specific norms for its use. In a few cases, it created newsgroups to embody genres with definite purposes and at least some common elements of form. NAGA’s initial configuration of newsgroups and its explicit creation of guidelines for using the news-system deliberately constituted some of the project group’s initial genre norms within the news-system medium.

### *Ongoing Shaping of Genres in the New Medium*

NAGA’s deliberate shaping of norms for using a new electronic medium continued after the initial establishment of the news-system within the Acorn project. It reinforced what it thought to be appropriate use of the medium, deliberately educating users in an ongoing manner. It also changed genre norms and the structure of the news-system itself to respond to perceived problems, user requests, and changing project conditions. Such changes were undertaken both opportunistically (e.g., in response to suggestions from users), as well as proactively, in periodic planned change episodes. On the latter occasions, NAGA stepped back from day-to-day demands, examined the effectiveness of news-system usage, and deliberately planned and implemented

changes perceived to be useful. Two such occasions took place during the project, at which time new newsgroups (which sometimes represented new genres) were added, and the definitions, norms, and relationships of other newsgroups redefined. In such activities, NAGA continued its explicit structuring of the genres used by members of the Acorn project.

The ongoing education that NAGA used to reinforce effective use of the news-system included training for new members as well as reminders (both private and public) of appropriate genre norms for current users. For example, once relatively high usage levels were established and maintained, NAGA addressed the possibility that people might waste too much time reading and posting messages. It consequently issued some general guidelines to try to reduce this time:

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Newsgroup: *general*  
Subject: About messages  
Date: 5 Oct 90 10:42:26 GMT

Cautions about news-system usage

(1) Long embedded messages

There are still many messages that include long embedded parts.

As readers can refer to the original message through the automatically embedded 'message-ID,' please shorten the embedded part as much as possible.

[...]

NAGA

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This caution clearly had implications for the genre identified in a previous study by Orlikowski and Yates (1994) as “dialogue”; messages of this genre respond to a previous message by embedding part of that message and commenting on it. The dialogue genre also appeared in a number of newsgroups within the Acorn news-system, including the *local* ones discussed below. NAGA did not, as far as we can tell, explicitly introduce this genre to Acorn project members, though NAGA members, through their familiarity with Usenet norms, were aware of this embedded message feature and used it in their messages, implicitly modeling the genre to new users of the medium. Nevertheless, the above caution explicitly shaped the form of this genre (probably, again, influenced by broader Usenet norms), by urging users to limit the length of embedded elements rather than including entire messages. Such general admonitions shaped the commonly used dialogue genre wherever it appeared; in the cross sectional message set, for example, 93% of

embedded messages had been edited down rather than reproduced in their entirety, and similar figures held for the *local* newsgroups (see later).

NAGA also adjusted the definitions and usage rules of newsgroups on an ongoing basis in response to requests, complaints, and their own perceptions of usage problems. For example, members of NAGA debated and adjusted the definitions of the *announce* and *general* newsgroups several times in an attempt to keep these required newsgroups to a reasonable size and to clarify the norms for the official announcement genre. As further discussion among NAGA members makes clear, they attempted to clarify these norms by limiting use of follow-up questions and discussion in the *announce* newsgroup. The problem of determining which announcements were official, however, was not really resolved until the final cluster of changes discussed below.

In response to user suggestions, NAGA also created new newsgroups, sometimes ones that represented new genres. While NAGA preferred to cluster its changes to the news-system, it also wanted to be responsive to user requests and problems that arose in use. Thus several new newsgroups were created opportunistically between the two planned change episodes. While some were topical newsgroups (e.g., *union*, for matters related to the company union) containing messages of multiple genres (e.g., announcements and dialogue), others (e.g., *headlines* and *release*) represented distinct genres.

The purpose of the *headlines* newsgroup was initially described as follows:

-----  
[...]

- We received a request for a new newsgroup. The newsgroup, *headlines* is being planned, which will be used periodically to send information from journals etc. Newly arrived newspapers, publications, and new product introductions should also be announced here.

[...]  
-----

Messages in this newsgroup took the form of lists and descriptions of relevant articles, technical reports, and books that had been acquired, as well as their locations. This information was particularly important because one of the six teams, SYS, was located in a different building and its members would typically not be aware of such materials unless they came to the other building looking for them. With the exception of one reply to a message posted in headlines, messages

coded in that newsgroup shared several characteristics. While one person (the person who was responsible for such publications and who requested the newsgroup) posted the majority of these messages, thereby shaping the form of messages in the newsgroup NAGA created, NAGA helped create the genre by responding to that individual's request. Unlike the genre appearing in the *reports* newsgroup, this genre was not based on an existing paper-based genre; previously, the articles themselves had generally been posted on a bulletin board, and books or reports circulated with a routing slip. Thus the person requesting the newsgroup saw an opportunity to handle a function quite differently based on the new medium, and NAGA reinforced and made official the new genre by creating a newsgroup specifically for it.

NAGA similarly introduced the *release* newsgroup for announcements of new software releases for the Acorn product being developed. In this case, a paper genre existed for announcing such releases, but it was rarely used. That genre was adapted to the newsgroup established for this purpose, with most items posted to this newsgroup sharing a common set of characteristics, most notably, a common set of fields defining the release. Interestingly, the coding for messages in this newsgroup resembles that of messages in *headlines*, highlighting the importance of the specific newsgroup in defining the genre.

---

Date: 26 Oct 90 05:36:20 GMT  
Newsgroup: *release*

\ 10/26 This is the data for registration.

< File > System  
< Registration Number > 90-0004  
< File Name > 80387 (FPP) Result of coping with the step alteration  
< File Number > CPD-CD4-SG1-REPORT-MATSUMOTO-900830A  
< Remarks > Summation of the **trial results** connected to the alteration of A80387DX.

< File > OS  
< Registration Number > 90-0051  
< File Name > Performance evaluation report regarding connectivity with Acorn machine-type  
< File Number > CPD-ED2-SG1-KOUSAKA-901026A

The end.

---

NAGA used periodic change episodes as a mechanism for reflecting, reassessing, planning, and reconfiguring the news-system in a way that would respond to changing needs, solve inherent problems, and continue to promote effective electronic communication within the

Acorn project. The two episodes of change modified the structure of the news-system and altered some newsgroup definitions. It also had implications for the use of specific genres within the news-system. For example, as the news-system entered its fourth month of use, it became clear that some material had a longer life span than the three months allowed by the news-system software before it automatically purged postings. Thus in the first cluster of changes, NAGA modified the software to add a set of newsgroups that would archive long-term reference documents. These *guide/\** newsgroups were managed by a specified moderator, and an Acorn administrator was appointed to serve as a gatekeeper for material posted to these newsgroups and was held responsible for keeping the material updated. Messages in all of the *guide/\** newsgroups had a standard format (including title, identifying number, preparer, and date), and a common general purpose of documenting some information for longer-term access (see example below).

-----  
Newsgroup: *guide/secretary*  
Date: 4 Feb. 91 08:40:06 GMT  
Subject: 10:00: Within-Corporation Ticket Purchasing  
  
Title: Within-Corporation Ticket Purchasing (Headquarters Technology Section)  
Data Number: CPD-ED2-DPS-GUIDE-T-900204 Dv1  
Prepared by: K.T.  
Date Prepared: 1990 February 4

Please submit the "Within-Corporation Product Purchasing Request," the "Within-Corporation Product Purchasing Memo" (yellow part), and the Purchasing Card to T. by 10:00.

You will receive the ticket in the afternoon.

- \* Period for ticket issues
- \* Every month: 1 - 27

The end.

-----

NAGA's creation of these *guide/\** newsgroups introduced a new general purpose genre, which we term reference. General purpose genres (e.g., the memo and reference) are identified by specific features of form (e.g., the memo or reference heading) and a very general rather than a more specific purpose. A somewhat more clearly defined purpose and subgenre was designated by the name of the specific *guide* newsgroup (e.g., *guide/secretary*, which contained reference material on standard administrative procedures and which was related to the procedures manual).

In the second planned change episode, NAGA finally solved the problem of the *general* and *announce* newsgroups--and thus removed the ambiguity surrounding the official announcement

genre. It did so by creating a new pair of moderated *official/\** newsgroups: *official/general* for non-administrative and *official/secretary* for administrative announcements. Both of these newsgroups had a moderator assigned to screen submissions and to post only those judged as appropriately official or, as the NAGA guidelines put it, “important for the whole group.” The following message example from *official/secretary* shows the formal style and form of such official announcements, now a more clearly defined genre:

---

Newsgroup: *official/secretary*  
Date: 6 Feb. 91 06:00:19 GMT  
Subject: About the capital purchase closing date for the period-end settlement of accounts

As we face the following period end (90-91/March) settlement of accounts, we hope that people will cooperate with the following closing date for the purchasing of fixed assets

Record Closing date: 3/20 (W)

Please make sure receipts get to the accounting section by 3/20 (W).

The end.

---

While similar announcements (both administrative and technical in nature) appeared in many of the newsgroups, including the *local* newsgroups, as shown below, official announcements were now, by definition, only those accepted by the moderators as having official status.

In the second change episode, NAGA created a number of new newsgroups. One new newsgroup -- *lookfor* -- represented an interesting genre system designed for “lost and found” messages. Messages looking for something (e.g., books, manuals, computers) included a brief description of the lost item, for example:

---

Date: 8 Feb. 91 08:35:30 GMT  
From: YK@xxx.yy.zzz.jp  
Subject: The box for the Acorn display  
Newsgroup: *look-for*

Y.K.@ Information Section 8.

Near the Karaoke machine for lunch meetings in the C building 3F, there was a demonstration purpose Acorn 20 inch display box since this morning and now it is missing.

If anybody has seen it, please return it immediately. By Tuesday, it is necessary to send it out for a demonstration.

Y. K. @Information Development Room 8 (Document management)  
7-631-2623 (Ex. 135)

---

This newsgroup had no real predecessor genre within the firm; if someone lost something, he or she would look around likely areas and perhaps ask people at neighboring cubicles about it

(everyone, including managers, had half-open cubicles rather than closed offices). According to our informant, notices of lost or found items were not broadcast or posted on bulletin boards. NAGA created the *look for* newsgroup because its members had noticed a new use of the system emerging in other newsgroups: messages to broadcast the loss of an item and replies with the location of such a lost item.

The items in this newsgroup formed a genre system composed of two related genres: descriptions of lost items and responses with the whereabouts of such items. The lost-item genre comprised about two-thirds of the messages coded from this newsgroup. The found-item genre, comprising the other third of the items coded from this newsgroup, were identical in newsgroup and subject, but their purpose was response, and they contained a high incidence of embedded messages. This genre system emerged gradually and implicitly from use of the news-system, as users saw the medium's potential value to deal with this workplace problem. Without NAGA, however, it might not have become recognized explicitly; NAGA played an important role in recognizing and reinforcing this genre system by creating a newsgroup to embody it.

In its activities, NAGA thus played a major and deliberate role in shaping genres being invoked in the new medium (e.g., the editing of embedded messages in the dialogue genre, and the definition and redefinition of official announcements), reinforcing new genres emerging in Acorn's news-system communication (e.g., creating the *headlines* newsgroup for announcements of articles and the *look for* newsgroup for lost and found messages), and stepping back periodically to reassess the news-system use of the Acorn project group as a whole. In its explicit structuring of genres for the community of Acorn users, NAGA engaged in the ongoing articulation, deliberation, documentation, and adjustment of shared genre norms, which reflected its own planning and objectives as well as opportunistic responses to users' preferences and experiences.

### **Emergent Pattern of Media Use: Implicit Structuring of Genres**

In an interesting contrast to the explicit structuring of genres by NAGA, the use of the news-system by the project's separate teams, evident in the use of the *local* newsgroups, reveals



an emergent pattern based on the implicit structuring of genres. Emergence refers to the realization of a new pattern of organizing in the absence of explicit, *a priori* intentions or plans (Mintzberg and Waters, 1985). In examining the local teams' use of the news-system, we applied the concept of genre repertoire to the restricted set of communications exchanged by team members within *local* newsgroups. Our analysis of the genre repertoire composition and use patterns over time revealed a subtle, implicit process of genre structuring that appeared to be influenced by local norms, the tasks at hand, members' originating lab, and NAGA's actions.

The *local* newsgroups were created to provide a forum for the intra-team communication of each of the six teams. While intended for specific teams, the *local* newsgroups were not restricted to team members; that is, individuals outside of a given team could, if they wished, read and post to that team's newsgroup. Our interviews and analysis of NAGA e-mail messages suggest that NAGA had both short-term and long-term motives when it created the *local* newsgroups: initially to encourage news-system usage by creating newsgroups which would feel like team e-mail lists and provide a smaller and less intimidating audience than the entire 150-person project team; and, over time, to encourage better communication and coordination across teams by allowing non-team members to "listen in" and even contribute to these *local* newsgroups. In the message posted to announce and define these *local* newsgroups, NAGA explained "...it is fine if members of other teams also access the *local* newsgroups. In fact, these newsgroups can even be used as places for public debate." The *local* newsgroups seem to have fulfilled both goals. Almost half of all messages posted to the news-system in the early weeks of its official use were posted on the *local* newsgroups, suggesting that project members did, indeed, feel most comfortable posting to them; later, as other newsgroups received more usage, the number of messages posted to the *local* newsgroups dropped to just below one third of the total. The goal of cross-team fertilization also seems to have been achieved, with 33% of the messages in the *local* newsgroups contributed by non-team members.

NAGA's influence in shaping the genres enacted in these *local* newsgroups was much less important than its influence in the news-system as a whole. Both the participation of at least one

NAGA member in each team and NAGA's general admonitions undoubtedly influenced the messages posted to the *local* newsgroups. For example, NAGA's reminder, quoted earlier, about restricting the length of embedded messages clearly shaped embedded messages in the *local* newsgroups: in the two newsgroups that we studied, as in the cross sectional sample, most embedded messages from the news-system were edited (91% of embedded messages in SG4, and 87% in SYS, were edited).

In the SYS and SG4 newsgroups studied, we found local genre repertoires which varied in both composition and use, reflecting emergent norms within teams.

### *Composition of the SG4 and SYS Genre Repertoires*

Limiting our analysis to messages posted on the SG4 and SYS *local* newsgroups by members of the designated team and eliminating genres representing less than 5% of the resulting messages, we found that the SG4 team's genre repertoire was composed of four genres (announcement, memo, dialogue, and solicitation) and the SYS team's genre repertoire of five (announcement, memo, dialogue, solicitation, and report).

The announcement (which was not the same as the official announcement for the entire project) was a one-way genre with the purpose of announcing new technical or administrative procedures or an upcoming meeting or event. An example is shown below:

-----  
Date: 2 Oct 90 09:10:22 GMT  
From: tio@xxx.yyy.zzz.co.jp  
Subject: Hygiene Patrol

There will be a Hygiene Patrol (Safe Hygiene Committee) on October 5 (Friday). Accordingly, everybody please clean carefully at cleaning time on August 3 (Wednesday). In particular,

- Organize work tables, desks, and your area
- Clean monitor screens well
- Move boxes on top of bureaus
- Clear paths, etc.

Thank you ahead of time.

A. Tio (tio@xxx.yyy.zzz.co.jp)  
-----

General purpose in nature (and thus lacking any restrictions in purpose category), the memo could overlap with genres of more specific purpose (e.g., solicitation and announcement). For example, the following memo is also an announcement:

-----  
Date: 6 Nov 90 23:58:56 GMT  
From: miro@xxx.yyy.zzz.co.jp  
Subject: Notice of Toutoku Show

There will be a Toutoku Show in Osaka.

Date	November 14 (Wed), 15 (Thu)
Place	TWIN 21 MID Theater
Contents	Electronic equipment (mainly CRTs), light products, electronic parts, various cables

There are two remaining invitations, so if you want one speak to Miro.  
The end.  
-----

The memo genre appeared in two variant forms, which we might label paper and electronic memos. Paper memos were based on the traditional paper-based memo, while electronic memos varied from paper memos in some characteristics of form (removing restrictions on the nature of the subject line and signature, and removing the prohibition of greetings). Paper memos use the traditional Kanji signature, while electronic memos, which became the more significant norm in both newsgroups studied, allowed variations to this signature, including a feature of form which we have labeled “signature @.” This latter feature takes the “@” symbol -- which is typically used in e-mail addresses to mean “at” (as in jdoe@xxx.com) but which was seen by the Japanese participants simply as a delimiter because the “@” symbol has no meaning in Japanese -- and uses it to append something other than an e-mail address to the signature. In its simplest form, it was used to associate a person’s name with his or her project team, as in “[name]@SG4” in the following electronic memo:

-----  
Date: 14 Jun 90 06:28:33 GMT  
From: Hori@xxx.yyy.zzz.co.jp  
Subject: Farewell party for Mr. Tu

I’d like the SG4 members to hold a farewell party for Mr. Tu on June 29 (Fri).  
SG4 members, please use mail, etc., to contact me as to whether you can attend.

Reply during this week. I will contact you as soon as the location is decided.

Also, if there is anyone from another team who would like to attend, please send me mail.

Hori@SG4.  
-----

The signature @ feature was also often used to separate some informal side comment from the main body of the message, as in the following examples:

[name]@I am the pinch hitter for Mr. Miro who has gone to support WP

[name]@maybe he took it on his honeymoon, and is working.

[name]@I am really angry

Since our definition of the memo genre required the message to have a traditional formal body, we can see this “signature @” feature as the way members added an informal tag to their otherwise formal messages. Since written documents in this organization were typically quite formal, this variation is significant both for introducing some informality and for restricting it to certain areas of the message (the closing).

Our definition of dialogue was based on that used in a study of a U.S. group’s electronic mail genre repertoire (Orlikowski and Yates, 1994). The dialogue genre makes use of the capability present in many electronic messaging systems to embed all or part of a previous message within a reply message. The embedded message feature provides the sense of an oral dialogue linking messages in an ongoing exchange. Consistent with this conversational sense, dialogue messages were often informal in body, not just after the signature (44% of dialogue messages in SG4 and 70% in SYS were informal).

---

Date: 4 Feb. 91 06:06:22 GMT  
From: K.O.@xxx.yy.zzz.co.jp  
Subject: Re: A request to organize the CD Conference space

On 91 02/04 12:03:39, Mr. Tanaka said in  
tanaka> This is Tanaka from the Information Development Office 3.  
tanaka>  
tanaka> Because I just happened to be sitting by the XX546/ZY, I noticed that currently it  
tanaka> is not usable because the power is off.  
tanaka> Please be aware of this.

We are sorry we have caused so much inconvenience.  
We have started up the XX546/ZY, so please go ahead and use it.

To those we inconvenienced we apologize greatly.  
KO@ Is the rest of the space satisfactory?

---

The solicitation genre used the broadcast capabilities of the news-system to request volunteers to represent the firm at some event, to solicit participation or information, or to seek answers to some question, as in the following example:

---

Date: 21 Jan 91 04:12:12 GMT  
From: KK@xxx.yyy.zzz.co.jp  
Subject: Is there anyone who would like to trade their Acorn board for an assembly-line version?

There is currently an inventory of assembly-line versions of all types of cards (except memory) for the AB-C1234 and 2234 in the Computer Operations’ factory.

Presently, we are considering buying a portion of that from the factory. Accordingly, please contact me if your Acorn card is a test model or if it is from the assembly-line but you would like it to be used for reliability tests and be given a new card.

Tanaka will serve as the liaison with the factory.

.....  
KK Computer Operations  
No. 2 Technology Division System Equipment Section  
KK@xxx.yyy.zzz.co.jp  
KITS: 1-234-5 TEL: 90-123-4567  
.....

---

The report genres found in the two local newsgroups were essentially identical to those in the *reports* newsgroup except for newsgroup designation.

In composition, the *local* genre repertoires for SG4 and SYS shared four genres: announcement, dialogue, memo, and solicitation. Thus both newsgroups included a general purpose genre -- the memo -- which could overlap with more specific purpose genres (e.g., the announcement or the solicitation) and the interactive and potentially quite informal dialogue genre for replies. Both teams also had the announcement genre, which announced to the team technical or administrative matters that formerly could have been handled orally in meetings or in written form posted in the team's office area. Finally, both teams invoked the solicitation genre, which used the news-systems broadcast capabilities for soliciting individuals, information, or ideas, a communication which might formerly have happened orally in team meetings. The *local* newsgroups probably encouraged more solicitations by providing an easy and non-intrusive vehicle for doing so.

The two teams' repertoires also varied somewhat from each other in composition, with the SYS *local* newsgroup showing the presence of one additional genre (the paper-based report) that was not present in the SG4 *local* newsgroup. In addition, SYS used both paper-based and electronic variants of the memo, while SG4, a software group whose members had more experience using electronic mail before the project, used the electronic variant almost exclusively.

The similarity of the two genre repertoires in terms of composition suggests that they were both influenced by paper-based norms in the R&D division, by the norms NAGA established for the Acorn project as a whole, by the nature of technical work on the common project, and by the capabilities of electronic media. The differences seem to point to the SYS team's greater reliance on paper-based norms, understandable in light of their lesser prior experience with electronic mail.

### *Use of the SG4 and SYS Genre Repertoires*

The genre repertoires of the two teams reflected similarities and differences in the frequency with which genres were drawn on by members of the team. As Figure 2 shows, both groups drew most frequently on the announcement genre (32% of the time for SG4 and 29% of the time for SYS), making use of the news-system's broadcast capabilities. Administrative announcements dominated over technical announcements in both groups, by a two to one margin in SG4 and a four to one margin in SYS. The memo was used at almost exactly the same frequency, one quarter of all messages, in both groups, although the informal memo variant was used almost exclusively by the SG4 members, while SYS members also used paper memos. A striking difference appears, however, in use of the conversational (and distinctly electronic) dialogue genre, with SG4 members drawing twice as often on the dialogue genre than SYS members (28% vs. 13% of all messages). The SG4 group's greater experience with electronic communication media seems a possible explanation, although a further analysis (see below) will suggest an additional explanation. Differences appear in use of solicitation, as well, with that genre accounting for 15% of SYS members' messages, but only 6% of those of SG4 members. Finally, report accounts for 11% of the SYS messages, while it does not appear in the SG4 team's *local* repertoire.

Thus genre norms for the individual teams differed. Differential familiarity with electronic communication is probably one factor in the differences in genre repertoire composition and use, and differential task is another. As the group in charge of hardware development, SYS was working with firmer deadlines than were software groups such as SG4. That fact may help explain part of its greater relative use of one-way genres such as the announcement and report. Further analysis of the data by participants' labs of origin helped us understand another reason for the differences we had observed.

As the following table shows, teams were composed of members from different prior labs and a few individuals who had joined from outside the firm:

	Lab A	Lab B	Lab C	Outside	Total
SG4	14	10	-	4	28
SYS	8	-	13	2	23

When we analyzed the messages in these two *local* newsgroups by lab of origin, we found that the SG4 members from Lab B had a strikingly different genre repertoire than that of SG4 and SYS members from the other two labs (see Figures 3 and 4). In particular, more than half (54%) of the messages posted by the SG4's from Lab B were of the dialogue genre, while only 18% of the messages posted by SG4's from Lab A drew on that genre, and only 14% of the messages from the members of SYS, whether from Lab A or Lab C, were of that genre.

Initially this striking difference suggested that the Acorn project members from Lab B were much more interactive and informal than those from other labs. Our interviews, however, indicated that Lab B was actually more formal than Labs A and C, and so we examined this difference further. By looking at the numbers of individuals from each of the four populations who posted at least 1% of the messages, we discovered that only three out of ten (33%) of the Lab B members in SG4 were active on the *local* newsgroup at all, a much lower participation rate than that of Lab A members in SG4 (71%), Lab A members in SYS (100%), and Lab C members in SYS (77%). Moreover, these three Lab B members in SG4, who composed roughly 10% of SG4 members, were responsible for 22% of the messages in the SG4 newsgroup, skewing the results for the group as a whole. Obviously, the contributing Lab B members in SG4 were an unusual population, not just atypical of the members of SG4, but outliers even of the Lab B members in SG4 as a whole. Most such members did not use this local newsgroup at all, but seem to have continued to use the more traditional face-to-face and paper channels, with their strong norms and traditions reinforcing hierarchical communication in groups. The three outliers used the news-system generally not for initiating announcements or solicitations of their own but for replying to those posted primarily by SG4's Lab A members.

Members of SG4 from Lab A communicated more similarly to members of SYS from Lab A than to their fellow team members from Lab B. The members of SYS coming from Lab A,

however, drew on the solicitation genre more frequently than the Lab A members in SG4, as did the Lab C members of SYS. In addition, the Lab A members of SYS, like SYS members as a whole, drew on the report genre while their lab counterparts in SG4 did not draw on this genre at all. This further analysis suggests that lab of origin had some influence on genre profiles within the local newsgroups, as did those norms emerging in *local* teams themselves, in the case of SYS, team norms dominating over Lab A norms.

As a final analysis of these *local* newsgroups, we examined how use of the *local* repertoires of the two teams differed over time (see Figures 5 and 6). In SG4, solicitation started at the relatively low level of 8% for the first two periods, then fell off to 5% and eventually 2% by the end of the period. That use was clearly not reinforced in the team over time. Announcements oscillated between 30% and 33% through the four periods, not changing significantly. This genre was clearly seen as an appropriate one for the medium from the start, and its use in that capacity was reinforced without much change in level. More change over time is evident in dialogue and memo. The latter started out at 18%, jumped up to a high of 32% in the second period, seeming to gain reinforcement. In the last two periods, however, use dropped to 29%, then 22%, ending higher than it started, but on a downward trend. In contrast, dialogue started at 27%, where it remained for the second period; then, after a dip to 22% in the third period, rose to 39% in the final period. This final increase cannot be explained by increased participation of the atypical members from Lab B, since that participation was roughly identical in the first and fourth periods. Instead, use of dialogue was being reinforced in the group as a whole, while memo was shrinking somewhat, a change over time resembling that found by Orlikowski and Yates (1994).

In SYS, use of the memo started at 20%, increased to 34% by the third period, then decreased somewhat to 27% by the end of the project, thus registering a net increase over time. If we examine the movement of the two memo variants (not shown), we find that use of the electronic memo started out higher than that of the paper memo but experienced a slight net decrease while the paper memo increased over time, leaving use of the two memo variants at a more similar level at the end than in the beginning. Report, a paper-based genre present in SYS



but not in SG4, consistently increased over time, suggesting ongoing reinforcement in the SYS group. Dialogue, a genre that did not exist in paper form in the Lab, started out at an initial level of 16%, then fell over time, apparently not reinforced in SYS as it had been in SG4. Finally, announcement stayed in the 30% - 35% range throughout the project, dipping only in the third period, but then returning to its highest rate, 34%, by the last period. In SYS, then, more traditional, paper-based genres seem to have received more reinforcement over time than newer, characteristically electronic genres.

The main point to be drawn from this longitudinal analysis is the variation in the dynamics within the two groups. Each had its independent pattern of *local* repertoire use over time, with trends towards increased or decreased use emerging in some cases, and oscillations, possibly linked to project events (as suggested by Orlikowski and Yates (1994), but about which we had no information here). These independent movements suggest that norms were gradually emerging within the local teams, even though all project members were affected by some norms deliberately shaped by NAGA in the news-system as a whole. Our interviews indicated that no explicit or deliberate discussion of news-system usage occurred among members of the teams, and their usage of the new medium consequently reflected an implicit structuring of genres.

## CONCLUSIONS AND IMPLICATIONS

Our research study has used the notions of genre and genre repertoire to understand how a newly-formed project group began using a new electronic conferencing medium and how genre norms developed around use of this new medium within a new project. In our study, we identified two contrasting patterns of media use -- a deliberate and an emergent pattern. NAGA, the self-constituted committee overseeing use of the conferencing medium, deliberately established some initial norms for use of the news-system and continued to monitor and shape use throughout the project. Further, we noted that NAGA's explicit structuring of genres included both planned and opportunistic structuring. Before introducing the new medium in its official capacity, for example, it carefully analyzed existing media and genres and planned what types of communication should

be enacted within the news-system rather than through other media. At two other points in the project, it deliberately reconsidered use of the news-system, reconfiguring it and, in the process, certain genre norms. In between, it also took advantage of opportunities created by particular needs or user requests in an opportunistic but deliberate manner.

Achieving socially agreed-upon genre norms in a new medium or new situation is often a lengthy and uncertain process (Orlikowski and Yates, 1994). NAGA's deliberate and explicit structuring of genres seems to have facilitated this process in the Acorn project group's use of the news-system medium. By proactively constructing usage guidelines, training users, providing examples through its own use, and reinforcing suggestions by users (e.g., establishing newsgroups such as *headlines* on request and recognizing and making explicit emerging genres such as the two genres comprising the *look for* newsgroup), NAGA engaged in a deliberate pattern of shaping use of the news-system. In Acorn, such explicit structuring of genres appears to have supported high news-system usage and, at least by our informants' accounts, improved the effectiveness of communication within a large project group (xyz, 1995).

At the same time that NAGA was shaping project-wide communication norms in the news-system, genre norms emerged more implicitly within each team's *local* newsgroup, resulting in *local* genre repertoires that varied in composition and use. By definition, such an emergent pattern of media use does not involve any reflection or articulation of what usage norms are appropriate for or intended within the new medium. This is clearly what happened in the SG4 and SYS teams' *local* newsgroups. Their genre repertoires, composed of four and five different genres, respectively, reflected prior genres that they had used in other media (e.g., report) or had been introduced to them by NAGA in the project-wide newsgroups and/or e-mail (e.g. dialogue) which they imported into the news-system and began using without explicit consideration. The two teams' *local* genre repertoires took on somewhat different composition and use, apparently based on such factors as members' prior experience with e-mail, the specific task of each team, and members' labs of origins.

## **Implications for Research**

While we believe that our research findings have implications beyond the immediate setting of the R&D lab, it is important to bear in mind that this was an exploratory study. Further, the Japanese context as well as the technically literate R&D community clearly influenced the particular results we found, and the application of these results in other national cultures, corporate settings, and communities of practice must proceed cautiously. Further, we examined a particular type of conferencing technology -- that represented by the Japanese version of the Usenet news-system. Other systems may have other features which could facilitate different patterns of adoption and use. Studies of the use of new media must be sensitive to the specific context, technology in use, and interaction with users over time.

Nevertheless, the results of the study reported in Orlikowski and Yates (1994) in a different organizational and cultural setting with a different electronic medium provide further support for the two broad patterns of explicit and implicit genre structuring. In that study, the artificial intelligence language designers from multiple universities and firms within the U.S. developed the Common LISP language during a period of over two years using an electronic mail list as the primary medium for discussion and decision making. Members of this group, unlike most members of the Japanese R&D project group, were already heavy users of their electronic medium when the project began, and although they, like the Japanese R&D group, came from different organizations before the project, they were not brought together in a single research site. They did, however, share communication norms based on their membership in the artificial intelligence professional community. Most of the structuring of their genre use over time occurred implicitly, with no explicit discussion of appropriate norms. Such structuring reflected their professional norms, project demands, and an increased use of the dialogue genre, a genre made possible by characteristics of electronic mail that are also shared by the news-system in this study.

The sole change in the composition of the genre repertoire in that study (Orlikowski and Yates 1994), however, occurred more deliberately. Because closure was needed on various decisions by the individual responsible for coordinating writing of the Common LISP Manual, and

because the existing electronic repertoire had no mechanism for achieving such closure, he deliberately modified a paper-based genre, the ballot, introducing a genre system based on it into the group's electronic repertoire. The coordinator thus responded opportunistically to a perceived need for a new genre. He announced his first ballot in advance, then issued it along with a clear statement of its purpose and precise directions for responding to it. After receiving ballot responses (a second genre in the genre system), he then issued the third component of the genre system, the ballot results genre, to sum up the outcome. This genre system, with its general purpose of determining whether project members are in agreement and the specific purpose and form for each of the three constituent genres, survived, was drawn on another five times, and was recognized by the other project members.

Thus in that other study, a new genre was deliberately introduced to the group and became part of its electronic genre repertoire, while other aspects of genre repertoire use were structured implicitly, emerging from the group's electronic interactions. Although that study revealed no example of explicit, planned shaping of genre norms such as that done by NAGA during the Japanese R&D project, looked at in terms of the framework that has emerged here, it supports the two major patterns of deliberate and emergent use of electronic media. This support suggests that these two patterns may be a more generally useful lens for interpreting the development and use of genres within new electronic media.

### **Implications for Practice**

While more empirical research is clearly needed to explore the deliberate and emergent patterns in other settings, we believe that these patterns can serve as initial and suggestive archetypes for helping practitioners -- both developers and users -- understand how norms for using new media arise and change over time, and how they might act to facilitate this process.

From the developers' perspective, our findings of explicit and implicit structuring suggest opportunities for supporting both the explicit use of genres within a new medium and the implicit emergence of genres through use. Many communication technologies seem to support either one or

the other pattern of structuring. We are familiar with one new communication technology -- Team Room from Lotus Development Corporation -- which supports both patterns by allowing the team to explicitly structure its own genres, as well as including tools to facilitate experimentation with new genres. For explicit structuring, this new technology embeds an interesting social mechanism: it requires the appointment of a team facilitator to support the team's use of the technology. This mechanism reflects some of the deliberate shaping of technology use that we found NAGA doing so effectively. Whether and how this mechanism will translate into effective practice in national and corporate cultures different from the Japanese R&D project group we studied are important empirical questions for future research. Our research, however, points to the potential usefulness of tools that support both such patterns.

From the users' perspective, the distinction between implicit and explicit structuring of usage norms, as well as the further distinction between planned and opportunistic varieties of explicit structuring, may be useful in helping groups and organizations define practices for use of new electronic media. The implicit structuring of genres by a community of users occurs in the absence of explicit guidance on how to communicate within the community. Where the community of users do not share well-established norms for using a new medium, and no deliberation about such usage occurs, genre ambiguity and unaligned communication expectations may easily result. For example, the emergence of flaming in some settings (Sproull and Kiesler, 1986), may reflect, in part, the lack of an explicit discussion and shared understanding by the user community of what norms are appropriate in the new medium. Where the community of users share well-established genre norms, users will simply transfer existing norms and established habits from familiar media to a new medium. This pattern of usage has the advantage of allowing users to begin to use a new medium quickly and without much intimidation. It may, however, lead users to simply apply ineffective habits of use from old technologies to new ones. For example, without explicit consideration of what genres might be appropriate for a new medium, organizations might without reflection take for granted the dominance of certain genres (such as the memo or report) in communicating and documenting organizational matters and simply translate these into the new

media whether appropriate or not. Without active reflection and deliberation these tacit norms may become established and reinforced over time, making subsequent changes to communication habits and genres difficult (Tyre and Orlikowski, 1994).

Most organizations acquire, adopt, and begin to use new electronic media without much active deliberation of what kind of genre or usage norms they hope to enact within them. In such situations, some deliberate consideration of genres and genre repertoires may help implementors and users of new media in organizations determine what genres might be enacted within the medium given particular local conditions and context-specific task demands. Explicit structuring may be conducted by insiders within the community of users, as occurred in our study, or by those outside of it. An inside perspective provides needed contextual information to define appropriate norms, ensures local credibility to obtain genuine user feedback, and allows the proximity which facilitates ongoing monitoring and adjustment of usage in response to opportunities. Explicit, planned structuring of media usage norms may also be done by outsiders, as often happens when an external group (e.g., the MIS department, vendor, or paid consultants) designs some templates and usage procedures and implements these within the user community. This approach may introduce useful new perspectives into the community. Such external imposition of norms and procedures may be valuable in providing initial guidelines for use; however, it often lacks an understanding of the local conditions and contextual details central to making technology use effective initially and over time (Brown and Duguid, 1991; Suchman, 1987). Whether internal or external, explicit structuring must, we believe, be used appropriately to be effective. Where a deliberate pattern is coercive or does not reflect the users' communication requirements or cultural norms, it will likely lead to ineffective rather than effective use of the new medium. The effectiveness of the explicit structuring will depend on a number of contextual factors including the credibility, sensitivity, and skill of the individuals doing the deliberation, and the ongoing involvement of users in the deliberation process.

\* \* \*

Clearly, both implicit and explicit patterns of structuring have advantages and limitations, and we suspect that a combination of both patterns may provide the best response in many cases. While further research should help to reveal the conditions under which each pattern of structuring is more useful, we believe that the characterization of patterns we have proposed here offers both researchers and practitioners new concepts for thinking about the use of electronic media.

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**Table 1: Definition, Reliability, and Distribution of Coding Categories (N = 2028)**

<b>Coding Category</b>	<b>Definitions of Coding Categories</b>	<b>Cohen <math>\kappa</math></b>	<b>N</b>	<b>%</b>
<b>SOCIAL PURPOSE</b>				
<b>Topic:</b>	General content of message [more than one coded]			
Non-work-related	Content does not concern work, project or company	0.69	325	16%
Work-related	Content concerns work, project, or company	0.78	1634	81%
Technical	Content concerns issues of technology or the project	0.60	790	39%
Administrative	Content deals with running of project or company	0.50	1110	55%
<b>Purpose:</b>	Purpose of message [more than one coded]			
Response	Reply to previous message or messages	0.79	720	36%
Solicitation	Request for ideas, information, or participation	0.53	286	14%
Lost & Found	Announcement of some item that is lost or found	0.91	46	2%
Meta-Medium	Comment or question on use of the medium	0.56	16	0.8%
Apology	Offer of an apology for some action, message, etc.	0.43	36	2%
Report	Documentation of an event, trip, meeting, etc.	0.53	118	6%
Announcement	Statement indicating an event or change in affairs	0.54	810	40%
Recreational	Expression of some hobby, interest, etc.	0.63	215	11%
<b>FORM</b>				
<b>Formatting Features:</b>				
Greeting	Presence of a salutation, introduction, or greeting phrase	0.90	566	28%
Self-Introductory Greeting	Presence of personal introduction or identification	0.87	510	25%
Embedded Message	Inclusion of all or part of a previous message(s)	0.90	726	36%
From Newsgroup	Previous message(s) is from news-system not e-mail	0.90	697	35%
Edited	Previous message(s) has been edited before inclusion	0.88	661	33%
Graphic Devices	Presence of graphical elements (e.g., smiley faces)	0.86	310	15%
Hatch Marks	Presence of “##” symbols in body of message	0.89	88	4%
Word/Phrase Emphasis	Presence of emphasizing symbols (e.g., __ or * *)	0.56	210	10%
List	Presence of lists to indicate parallel items in text	0.70	448	22%
Specifications	Presence of formatted list of items specifying event etc.	0.64	371	18%
Set-apart	Separation of some information from rest of text	0.48	877	43%
Ellipsis	Presence of ... at the end of sentences to trail off	0.80	353	17%
Unusual @	Presence of @ as a delimiter anywhere in body of text	0.80	858	42%
Signature	Presence of closing remark, signoff, or signature block	1.0	1768	87%
Meishi	Presence of set apart signature block (like business card)	0.94	444	22%
Kanji-pure	Ending includes only name in Kanji characters	1.0	96	5%
Kanji-modified	Ending includes Kanji name with some additions (e.g. --)	0.96	153	8%
Signature @	Presence of @ as a delimiter before additional comment	1.0	582	29%
Other-signature	Presence of any other features in signature area	1.0	289	14%
P.S.	Presence of additional comment at end of message	0.75	77	4%
<b>Linguistic Features:</b>				
Japanese Subject Line	Presence of any Kanji or Kana characters in subject line	0.93	1604	79%
Romanized Subject Line	Presence of any Romanized characters in subject line	1.0	70	3%
English Subject Line	Presence of any English characters in subject line	0.83	287	14%
Technical Subject Line	Presence of any technical terms/acronyms in subject line	0.81	629	31%
Informal Body	Presence of some informal elements anywhere in text	0.55	677	33%
Dialect	Presence of a dialect other than standard, formal Japanese	0.53	155	8%
Kansai	Any presence of Kansai dialect	0.45	83	4%
Cutsey	Any presence of Cutsey dialect	0.65	59	3%
Emphatic Language	Presence of any strong, assertive language	0.72	264	13%
Apologetic Language	Presence of self-effacing language or modest tone	0.56	78	4%

PATTERN	PATTERN CHARACTERISTICS		GENRES	GENRE DEFINITIONS
<p><b>Deliberate Pattern: Explicit Structuring of Genres</b></p>	<p><b>Planned</b></p>	<p>Initial introduction of the new medium and the definition of some community genres</p> <p>Change Episodes: definition of new genres and modification of established genres</p>	<p>Official Announcement</p> <p>Report</p> <p>Reference</p> <p>Lost-item</p> <p>Found-item</p> <p>Official Announcement</p>	<p>newsgroup=<i>general</i> or <i>announce</i>; purpose=<i>announce</i>; topic=<i>work-related</i>, administrative or technical; form=<i>no embedded message</i>, and one of list, specs, or set-apart</p> <p>newsgroup=<i>reports</i>; subject=<i>work</i> and technical, purpose=<i>report</i> and not response; form=<i>list</i> or specifications</p> <p>newsgroup=<i>guide</i>; purpose=<i>reference</i>, form=<i>list</i>, specs or set apart</p> <p>newsgroup=<i>lookfor</i>; subject=<i>work-related</i> and administrative, not technical, purpose=<i>lost</i> and not response or any other purpose category; form=<i>no embedded messages</i></p> <p>newsgroup=<i>lookfor</i>; subject=<i>work-related</i> and administrative, not technical, purpose=<i>response</i></p> <p>newsgroup=<i>official</i> (<i>Moderated</i>)</p>
<p><b>Opportunistic</b></p>	<p>Ongoing, responsive changes that define new genres and modify the definition of established genres</p>	<p>Headlines</p> <p>Release</p> <p>Dialogue</p> <p>Official Announcement</p>	<p>newsgroup=<i>headlines</i>; subject=<i>work</i>, technical, administrative; purpose=<i>reference</i>, and not response or any other category; form=<i>list</i>, specs, or set-apart</p> <p>newsgroup=<i>release</i>, subject=<i>work</i>, technical, not administrative; purpose=<i>reference</i> and not response or any other category, form=<i>list</i>, specs, or set-apart</p> <p>purpose=<i>response</i>; form=<i>embedded message</i> and subject line; reduction in length of embedded messages</p> <p>clarifications in definition of "official"</p>	
<p><b>Emergent Pattern: Implicit Structuring of Genres</b></p>	<p>Initial establishment of the genre repertoire through the importation of genres from existing media</p> <p>Ongoing change in the genre repertoire through use</p>	<p>Paper Memo</p> <p>Electronic Memo</p> <p>Dialogue</p> <p>Report</p> <p>Solicitation</p> <p>Local Announcement</p> <p>No change in composition of genre repertoire</p>	<p>form=<i>subject line</i> [<i>Japanese only</i>], signature [<i>Kanji only</i>], no embedded message, no graphic devices, no greeting, no ellipsis, no unusual @, no informal body, and no dialect</p> <p>form=<i>subject line</i>, signature, no embedded message, no graphic devices, no greeting, no ellipsis, no unusual @, no informal body, and no dialect</p> <p>purpose=<i>response</i>, form=<i>embedded message</i> and subject line</p> <p>subject=<i>work-related</i> and technical, purpose=<i>report</i> and not response, and form=<i>list</i> or specifications</p> <p>purpose=<i>solicitation</i> and not response or lost&amp;found, form=<i>no embeddedmessage</i></p> <p>purpose=<i>announce</i>; topic=<i>work-related</i>, administrative or technical; form=<i>no embedded message</i>, list, specs, or set-apart</p> <p>change in use over time, e.g., decline in use of dialogue genre in SYS and solicitation genre in SG4; increase in use of dialogue genre in SG4 and solicitation genre in SYS.</p>	

Table 2: Two Patterns of Structuring Genres in a New Medium

Figure 2: Genre Profiles of SG4 and SYS Teams

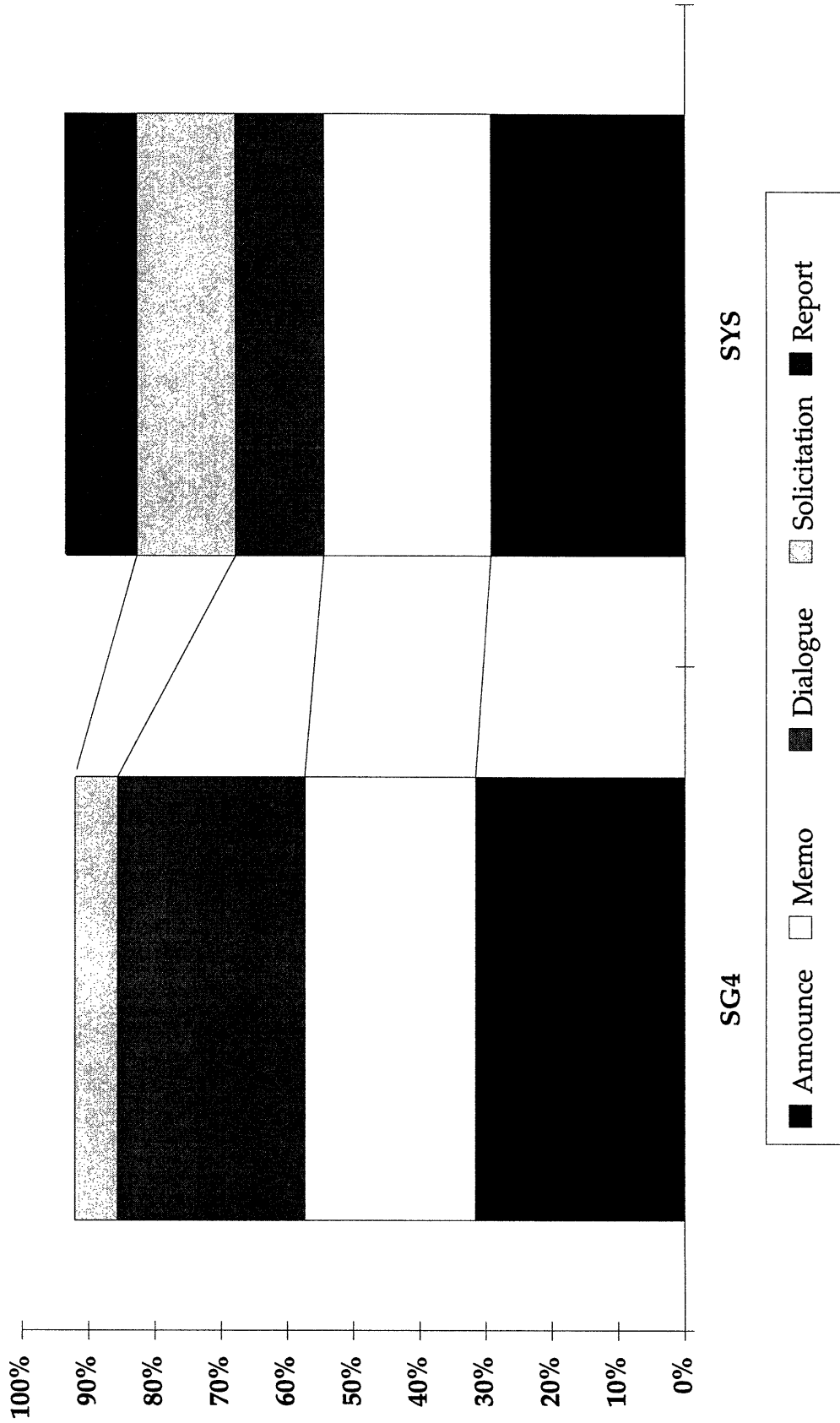


Figure 3: Genre Profiles by Team and Lab of Origin

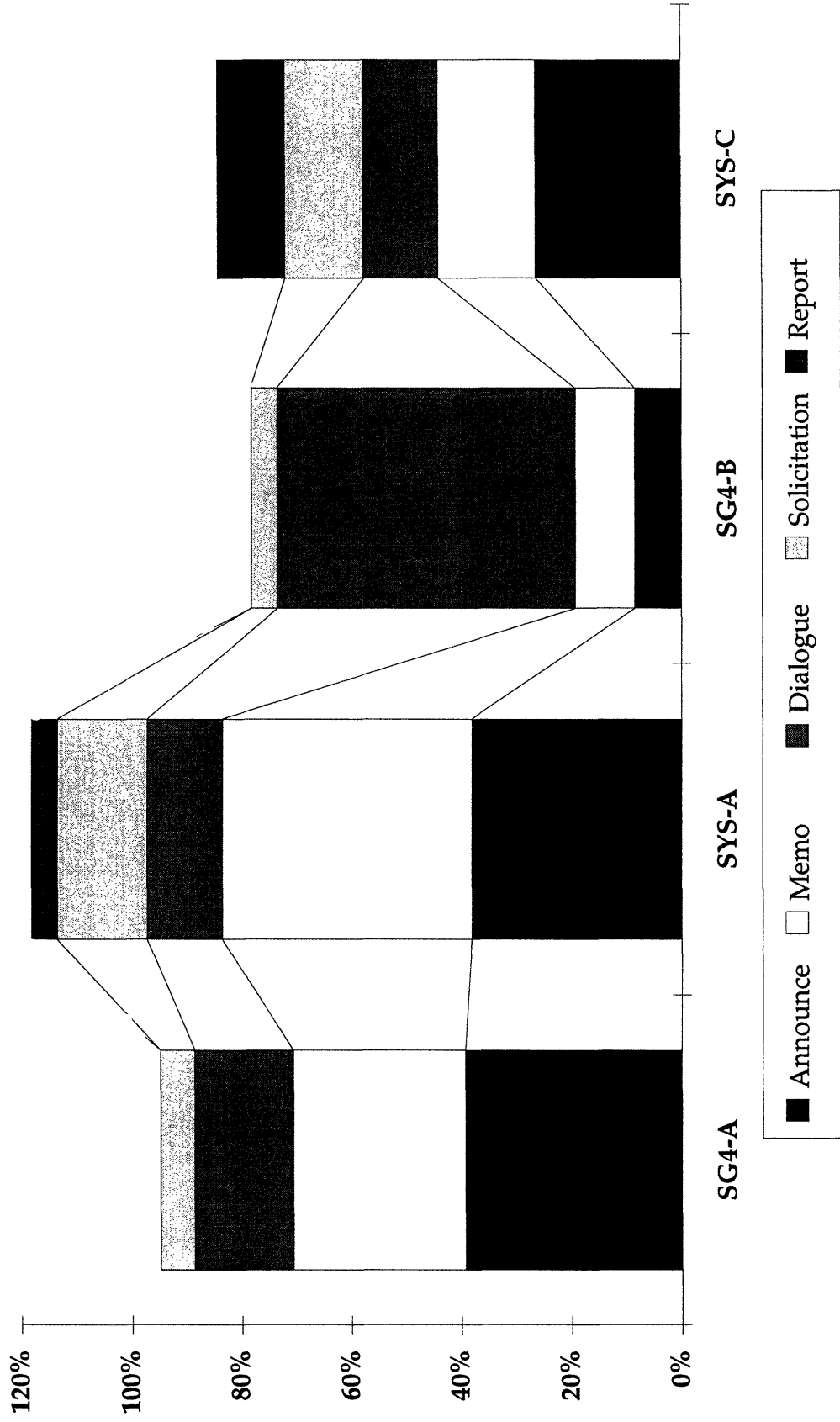


Figure 4: Genre Profiles by Lab of Origin

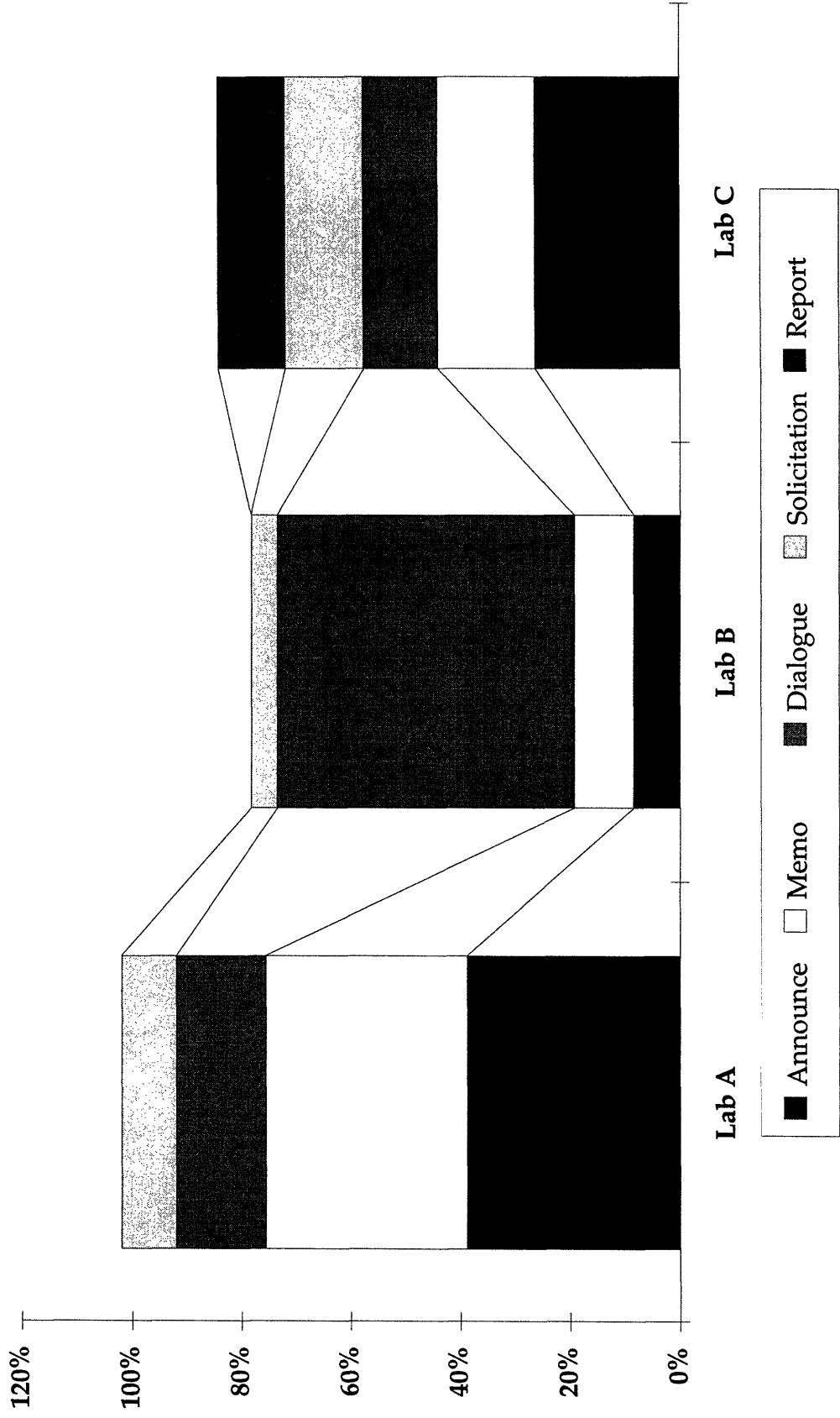


Figure 5: Use of Genres in SG4 over time

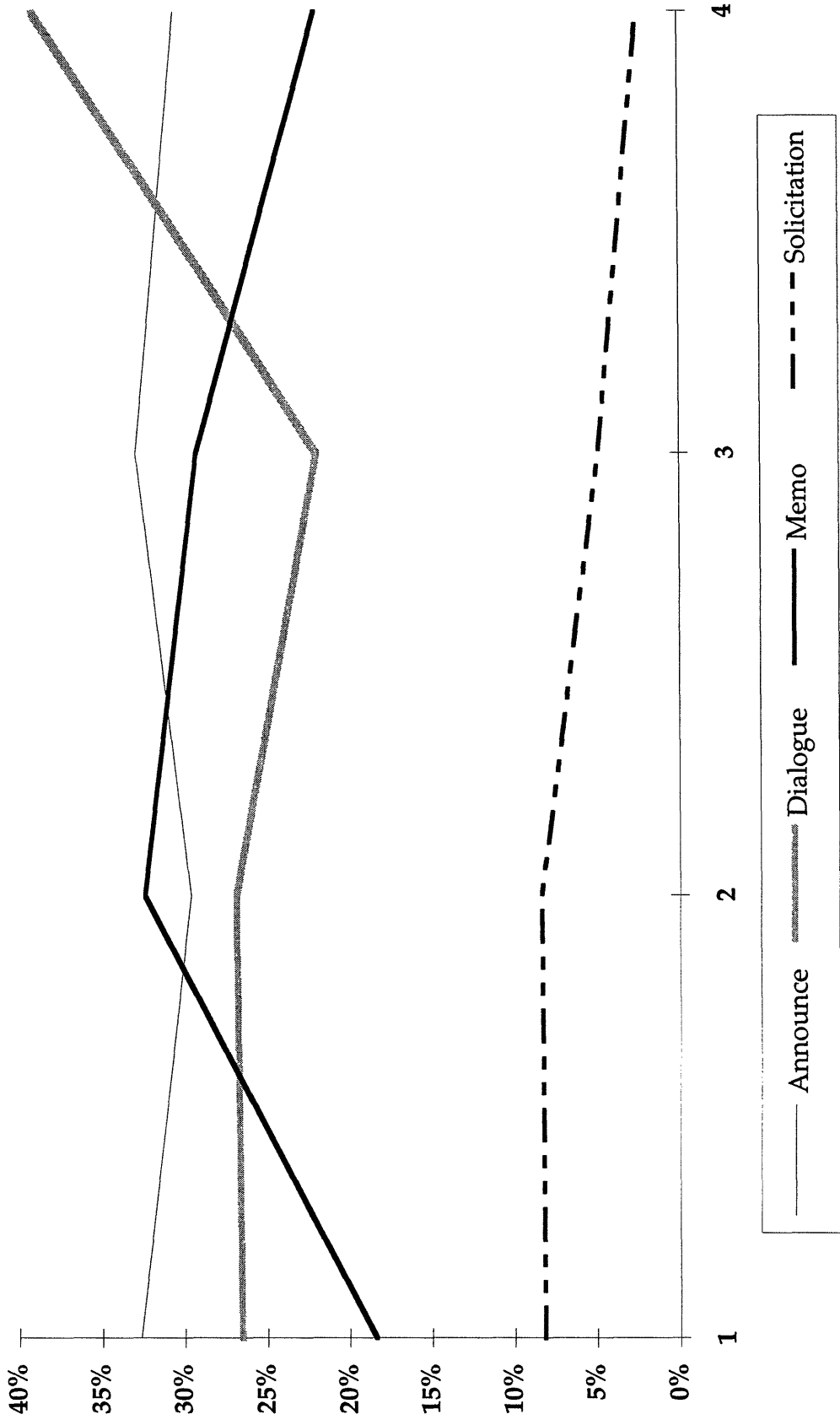


Figure 6: Use of Genres in SYS over time

