Concepts facilitators use for constructing communicative spaces in organizations with advanced information technologies.

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New concepts for constructing communicative spaces in organizations with advanced information technologies.

A great deal of attention is given to the designers and users of the advanced information technologies proliferating at the end of the 20th century. Less attention, however, is given to the evolving class of communication specialists such as webmasters, network managers, knowledge brokers, sysops, and discussion moderators who make social and technical systems effectively interact. Their work is often hidden but always necessary. What these new communication professionals do and how they perform their work provides an opportunity to better understand how and with what consequence technology is used to intervene on the way people communicate in organizations. These professionals attempt to create particular forums in which others can communicate. They are less concerned with the production of messages that gain a target's compliance. Their aim is facilitative. That is, to make difficult forms of communication, like decision-making, planning, designing, and negotiating, easier for communicators to handle. The purpose here is to provide a preliminary exploration into the knowledge these specialists are developing.

The New Communication Professional.

To understand the role of the new communication professionals requires shifting standard conceptualizations about the purpose of communication professionals and how the use of technology in organizational communication is shaped. First, the standard concept of a communication professional comes from those who produce and design messages to gain compliance from individuals and publics. Compliance professionals are typically associated with the professional work that takes place in sales, marketing,

advertising, and public relations. The task of the professional is to provide expertise in shaping beliefs, attitudes, and actions in people and publics in directions favorable to the goals of the firm that purchases the service. These professions have prospered in the information age and will likely proliferate, evolve, and mutate along with changes and shifts associated with advances in networked computing technology. There are, however, other forms of communication professionals emerging in the era of networked computing. These new forms of communication professionals are more concerned with how to transform and construct communicative contexts where people can gather to do activities like decision-making, negotiation, and information sharing. These professionals attempt to create particular forums in which others can communicate. They are less concerned with the production of messages that gain a target's compliance. Their aim is facilitative. That is, to make difficult forms of communication, like decision-making, planning, designing, and negotiating, easier for communicators to handle. Practitioners like mediators and facilitators traditionally perform these roles. The new communication professionals, while similar to traditional roles, implement new communication technology designed to aid communication and thus respond to and create new kinds of communication spaces in and between organizational members.

Second, a standard treatment of the use of new technology in organizations is to focus on how primary users of a given technology shape the technology through their use of it in particular situations and contexts (Barley, 1986, Orlikowski, 1992; DeSanctis & Poole, 1994; Poole & DeSanctis, 1992). The technology structuring approach, however, misses an important aspect of technological intervention. Orlikowski, Yates, Okamura, & Fujimoto (1995, p. 425), for instance, point to "metastructuring" as "another set of

structuring activities that, although carried out by users, are not activities of use" but that "involve the shaping of other users' activities of use." Orlkowski et al. (1994, p. 425-426) describe "technology-use mediation" as a particular practice of metastructuring which:

> structures users' use of technology by influencing their interpretations and interactions, by changing the institutional context of use, and by modifying the technology itself. Because technology-use mediation is a sanctioned, explicit, deliberate, and ongoing set of activities . . . it is a particularly powerful mechanism in the context of dynamic organizations, enabling rapid and customized adpatations of the technology and its use to changes in circumstances, organizational forms, and work practices.

New communication professionals engage in a form of communication practice reflecting the shifts described above. Some, in particular, specialize in constructing communicative spaces for others by helping them effectively use collaboration technology. The work performed by these new professionals differs from the standard views of communication professionals and technology use in organizations described above.

The purpose here is to describe aspects of the work performed by these new communication professionals. The purpose is to portray their work in terms of how the technology-use mediation performed by these new professionals is a particular form of intervention on communication. That is, the use of technology is part of a deliberate effort to transform particular communicative circumstances into special forms of communicative activity. This point is developed by (1) illustrating the type of communicative expertise and influence new communication professionals exercise in

constructing communicative space and (2) developing some preliminary propositions about constructing communicative space with collaborative technology.

Computer Supported Facilitation.

Professionals who practice computer-supported facilitation are prototypical examples of the new communication professional. This form of facilitation consists of a human facilitator, networked computing systems, and collaboration software (see Poole, DeSanctis, Kirsch, & Jackson, 1995; Vogel, Nunamaker, Martz, Grohowski, & McGoff, 1989 for descriptions). Computer supported facilitation is a "set of functions or activities carried out before, during, and after a meeting to help the group achieve its own outcomes" (Bostrom, Anson, & Clawson et al., 1993, p. 147). This includes running the computer technology, shaping the communication that takes place outside of the computer technology, and assisting in meeting design (Bostrom et al., 1993; Clawson, Bostrom, & Anson, 1993). Clients hire computer supported facilitators because of their expertise in combining facilitation techniques, networked computers, and group decision software to ease the difficulty of communication events in organizations seeking to involve multiple parties into decision making processes (Bostrom et al., 1993; Clawson et al., 1993). Computer supported facilitators are charged to create communication contexts for decision-making, conflict management, and learning by helping organizational members articulate collaboration technology like group decision support systems (GDSS) into the intellectual work performed by groups of organizational members (Aakhus, 1997).

Those who practice computer supported facilitation see themselves as "making easy that which would otherwise be difficult" (Doyle & Straus, 1976; Bostrom et al., 1993). Their role is a complex communication role requiring that the professional manage multiple competing goals and demands that stem from professional obligations to help without coercing, to deal with the social and political complexities of decision events, and to understand how adapt technology to shifting circumstances (Aakhus, 1997).

Two scenarios outlining actual computer supported interventions, in which two of the authors participated, are described below. These scenarios help show how computer supported facilitators intervene on basic forms of communicative interaction. That is, they orchestrate how people talk to each other. In the first scenario, computer supported facilitation is used to more effectively realize a form of planning discussion in an organization. In the second scenario, a working group attempts to use computer supported facilitation but without the insight of a facilitation specialist.

Scenario #1: Optimizing Decision Practices

A major initiative is currently underway to improve the ability of Coalition Forces in the Pacific Theater to swiftly develop and execute solutions to significant issues which arise during military exercises. A key decision activity to be improved involves developing courses of action (COA) for a commander in an effective and timely manner so that the commander can best deploy forces to meet the unique situations that arise during an exercise. COAs are developed by a collaborative planning team of eight people. The team typically has operations specialist, logistics personnel, legal representation, air specialists, ground war fighters, and planning experts. Moreover, the

teams are often multi-national and comprised of military officers from Canada, Chile, Australia, Japan, and the United States. The development of COAs by teams includes developing an understanding of the commander's intent, rules of engagement and current operational situation and then to develop potential courses of action to be proposed to the task force commander. Typically, the team proposes three COAs which includes one "null" COA to remain at status quo.

Once initiated there is an 8-12 hour window in which all COAs must be developed. The standard approach, prior to implementing computer supported facilitation, involves the team spending about seventy-five percent of their time developing one plausible COA, spending a brief amount of time developing a second COA, and with whatever time is left develop a third "null" COA. The general approach is to outline the COA and then add pro and con statements for the COA. The pro and con statements are critical for the commander. To aid COA development teams put one COA on a white board and add pro and con statements to the COA. These statements are developed through conversation. After two COAs are developed a third null COA is added and the group is typically out of time and must present what they have to the commander. In addition to the time constraints, the group is comprised of members who have different models of warfare, cultural and language differences, different military specialties, and varying statuses within the coalition forces. Computer supported facilitation was recently introduced to deal with the challenges of these decision events in order to develop better COAs by making better use of talk and time.

To improve the development of COAs the teams used collaborative decision technology similar to standard group decision support systems on a local area network in

a decision room. Using the technology the facilitator was able to improve the first step. The first step in the COA development process is reviewing the commanders intent, the rules of engagement, current situation facing the commander of the task force, and guidelines to create COAs. A power point presentation was used for this review. The team members were allowed to use the group decision support system while listening to the review in order to draw attention to the assumptions made regarding the commander's intent and current situation. To aid this the facilitator continually asked the group to explain how the underlying assumptions outlined in the powerpoint show impacted the potential COAs they were about to develop. The list of assumptions was generated through the GDSS and put up on a main viewing screen to remind the group throughout the development process of the assumptions they made.

Following the review, each member of the group was asked to contribute 1 or 2 potential COAs for the group to consider. This was performed in the GDSS tool without any oral discussion about what people were entering. The team quickly created a list of potential COAs through the anonymity provided by the GDSS. Once the list was established, the facilitator lead an oral discussion by the group where they worked together to cull the number of potential COAs down to six by merging like COAs. Once the group established six potential COAs they used the GDSS to develop a list of criteria for selecting COAs to deliver to the commander. The anonymous interaction led to a list of 20 criteria which were subsequently reduced to eight in a manner similar to paring down the COAs.

Once the evaluation criteria were established, the group developed a list of pros and cons for each COA using a GDSS application that allows the group to collaboratively

develop and edit an outline. After developing an initial list of pros and cons for each COA the lists were reviewed to remove redundancies. The GDSS system was used to set up a selection activity using a voting tool. The facilitator arranged the public and private screens in the room so those participants could look at the pros and cons while simultaneously looking at the set of criteria to evaluate the COAs and while having the assumptions in the background. The results of the vote were not shown to the group until the participants had voted on all COAs and the results organized into a matrix using a spread sheet. The weighted results of the COA evaluation were reviewed by the group to determine if the numbers "made sense." After the evaluation, the COAs were organized by their weights with the potential pros and cons for each action listed for the commander's review. Thus, the team produced 6 potential COAs, which were well supported with pros and cons and had weighted recommendations to assist the commander's choice.

The use of computer supported facilitation for improving the development of COAs was found to be invaluable to the coalition's work as a warfighter. Preliminary results indicated that much higher quality options were created for the commander. Not only did the users believe the quality was better but the new approach led to more differentiated alternatives than was typical in standard COA development procedures. These improvements were attributed to the new ability of the team to work simultaneously and anonymously. These capacities enabled the group to better control when and how the members evaluated the COAs they developed. For instance, the group was able to develop criteria for evaluation and save evaluative discussion until after ideas were developed.

Central to the implementation of computer supported facilitation in scenario one is how the talk is organized through the intervention. The intervention does not change the basic model the organization is trying to implement but instead makes possible a better realization of the model. In this case, the model is a form of planning discussion. The intervention improves the capacity of the participants to create more fully developed alternatives by separating idea generation from idea evaluation, by developing pros and cons to transform disagreement into knowledge, and by shifting between anonymous, individual work and non-anonymous, collective work to foster cooperative selection.

Scenario #2: Dis-integrating Anonymity

A major Northeast utility is under guidance from its chief financial officer to close the monthly books three days earlier than the current practice. The two available approaches for achieving this goal are to (1) change the monthly calendar to push up the end of the month or (2) to truly achieve better, more efficient practices to allow earlier completion. The corporate controller's office chose the latter option but an initiative had to be developed to achieve more efficient practices. An initiative to explore current practices and develop new policies and procedures was funded to be lead by a team of two internal business process analysts and three external financial consultants. There was no facilitation specialist included in the early phase of the project development. The overall team developed a plan to elicit the input and direction of members of the corporate controller’s office who are responsible for closing the monthly books.

A series of working sessions were planned to develop new general ledger policies and procedures. The initiative team chose to use an electronic meeting support tool for these sessions in order to encourage group interaction, structure that interaction, and

encourage novel suggestions. The electronic meeting tool allowed participants to work anonymously. The team believed anonymity would nurture the team's willingness to offer new perspectives and lessen apprehension about evaluating the work and ideas of colleagues. Since members of the controller's office had worked together for several years, there was fear that the working sessions would be more of a rehashing of ongoing disputes rather than a session focussed on developing new approaches to accounting. The initiative team believed that anonymous interaction would be a key feature of the meeting system that would help the group overcome such ongoing disagreements.

The first working session. A workshop structure was designed to evaluate current informal policies and procedures and to educate the working group about a policy and procedural model, which defined the relationships and terms of component areas. The working group identified and confirmed four key areas for their attention: general accounting practices, systems, reporting, and general ledger closing activities. During the session, the group participated anonymously, yet they would occasionally identify which comments and ideas they had entered into the system. Identifying comments was primarily prompted by the actual or perceived misinterpretation of ideas. This typically happened when participants, in an oral discussion, collectively reviewed comments captured in the system. The participants were particularly concerned how a potential misinterpretation influenced beliefs in the group about definitions of work processes and the implications about responsibilities in the work process.

The second working session. The group was tasked with evaluating their own draft policies and procedures. During the session, individuals attributed ownership to all comments typed into the meeting system in two ways. First, the group members either

claimed or attributed comments to specific individuals. Second, individuals created conventions for easy identification of their contribution such as always starting a contribution with a specific phrase. This use of the electronic meeting system was helpful since there was a need for the members to exercise their individual expertise in specific business and financial areas including tax, information systems control, and capital management. However, by distinctly differentiating themselves as knowledge specialists the decision process encountered some discussion troubles. Deference to expertise and established responsibilities for particular business processes turned into an opportunity for group members to exercise control and censure over discussion about particular topics. In cases where existing responsibilities or processes were questioned, the expert quickly established what new ideas were acceptable. For example, when a team member questioned existing practices for estimating revenue and suggested a new process. The person responsible for this aspect of the business quickly shot down the suggestion by submitting the response that, "I have been through reviews before and this is the only way we can estimate." This contribution cutoff the suggestion without reason and worked to effectively maintain the status quo.

The working group essentially failed and the initiative team had to reconsider how they approached the basic problem-solving activity. The remaining scheduled sessions were cancelled and the entire initiative was postponed until further research work could be done. Management also decided to find different participants for the meetings. While there were numerous factors contributing to the failure of the group, the adaptation of the electronic meeting system into their decision processes contributed to their failure and reflects ineffective and untimely use of facilitative knowledge about mediating

technology use and transforming forms of talk. In particular, the adaptation of the technology by the working group to relax the anonymity features was reasonable given the differences of the two sessions and the nature of the intellectual task at hand. The first session, where anonymity was preserved and even appreciated (as noted in post-session feedback questionnaires), focused on general topic areas which affected the group in a consistent manner. The second session focused on evaluating specific practices which would impact the individuals charged to make the decision differently since each new accounting practice promised to change day-to-day job roles and responsibilities. When discussing these areas, the working group felt anonymity did not allow them sufficient control over their discussion and the decisions that would emerge through the discussion. Morever, their expertise and competence made them insist on identification and ownership of ideas. The initiative group did not exercise any control over the form of talk produced in the way the working group adapted the electronic meeting system. In other words, there was no real intervention since the use of the technology simply reproduced forms of talk that prevented producing a viable solution to the problem they had been given. The existing presumptions about work and issues between specialist areas were not transformed into a basis for solving shared problems but the attempted intervention with computer support actually fostered grounds for impasse. The disintegration of anonymity in this cross-functional team of experts contributed to the use of expertise as a barrier to cooperative problem solving.

Constructing Communicative Space

A key issue in understanding what the new communication professions are, what they do, what they know, and the consequences of their actions is understanding how

they make idealized models of communicative interaction work in less-than-ideal circumstances such as the scenarios described above (Brashers, Adkins, & Meyers, 1994). The authors have been dealing with this issue for some time now as we have been working and collaborating in different realms of the design and deployment of forms of computer supported facilitation. Based on this experience, we will put forward two preliminary propositions about constructing communicative space. These propositions are meant to spur further, closer attention to how talk is orchestrated via computer technology and how communicative contexts are transformed into particular forms of communicative activity (rather than other forms). An important background assumption we make, that was illustrated in the two scenarios above, is that successful construction of communicative spaces requires a theory of computer supported facilitation practice that minimally (1) posits models of communication and (2) techniques for making those models of communicative interaction real. Idealizations of communication activity and techniques for realizing those models are part of the stock of knowledge computer supported facilitators learn and it is a stock of knowledge that can be refined, improved, and elaborated.

While there are important differences in the two scenarios described above, both stories are about transforming the communicative circumstances of multi-disciplinary, cross-functional work groups so that the members can communicate in a form of cooperative problem solving. In both cases, computer supported facilitation was implemented to make cooperative problem solving a viable form of communication. The second scenario differed from the first in that the techniques for orchestrating talk were not as well defined nor were the techniques enforced to bring about a transformation in

the way participants communicated with each other. In understanding the new communication professions, it is important not to overlook a fundamental use of collaborative technology, which is orchestrating the opportunities for talk. Computer supported facilitators influence the substance and direction of talk for the benefit of those participating in it by the way they orchestrate that talk. New communication specialists, like computer supported facilitators, influence the way people communicate by mediating the use of the technology relative to particular models of talk and techniques for realizing those forms of talk. It is a form of influence unlike the compliance professional and unlike primary users' structuring of technology. Many new communication professionals are involved in managing the conditions of how people exchange messages in order that particular forms of talk are achieved by participants rather than other forms. This type of influence focuses on creating grounds for communication that shapes the sensemaking participants naturally go through in collective interaction.

We provisionally put forward two propositions to help clarify facilitative influence. The aim of putting these propositions forward, with the hope of further development, is not to predict the particular outcomes of meetings but instead to predict the forms of activity and participation that result from exercising facilitative knowledge about orchestrating interaction. We believe that the approach taken here is ultimately informative about why particular intervention outcomes happen but find a focus on outcomes, such as consensus, to gloss over important processes in intervention. More importantly, we put these propositions forward to help generate ideas about constructing communicative spaces through new technology. The following propositions draw attention to the relationship between manipulating structural opportunities for talk and

interpretive procedures and the forms of communicative activity that arise. The following propositions, while relevant, are not intended to address social and institutional contexts or long term change of organizational structure and culture.

Frames. First, we suggest that the direction talk takes in intervention is a function of how attention is framed (see also Tversky & Kahneman, 1984). For instance, we designed an intervention for a distributed learning environment that demonstrates the plausibility of this proposal (Aakhus, Adkins, & Glynn, 1997). We gave participants a decision making task that involved their use of a GDSS to create a policy statement. We provided the participants with some critical numerical data that contained a confirmatory bias. In other words, a quick glance at the numbers would indicate support for a policy while a critical analysis would indicate that the numbers do not support the policy.

We wanted to see if, through the way we performed the computer supported facilitation, we could amplify or dampen the confirmatory bias in the critical information. This appears to be the case. In one group we unobtrusively asked questions that drew attention to the error in reasoning that the group could make. In the other group, we unobtrusively asked questions that searched for justifications of the proposed policy. We found that the direction of talk in the second group developed around using the numbers to justify the policy while the direction of talk in the other group revolved around how to understand the policy given their doubt in what the numbers indicate. Moreover, when the two groups interacted with each other via a distributed GDSS link, they spent a good deal of time disagreeing about the interpretation of the numerical data in just the way they had come to understand the technical data. We used the results of the intervention to show the participants that the way a group treats decision bias influences the course and

content of their decision-making. This intervention shows how the proposition above can be elaborated into two hypothesis about constructing communicative space for further testing. First, a critical line of discussion of technical data results from questions that expose errors or traps in collective reasoning. Second, a confirmatory line of discussion of technical data results from questions that expose the existing lack of support for a policy.

Forms. Second, we suggest that the form of activity participants engage in is a function of the opportunities participants have for pursuing the grievances that emerge in interaction. We designed an intervention for a learning activity that demonstrates the plausibility of this proposal (Aakhus, Adkins, & Glynn, 1997). We had students work on another policy-making task that involved a sexual harassment grievance. We used two different rooms, each equipped with networked computers and a GDSS, that were linked so that a distributed meeting could be held. We fostered three different forms of conflict activity, minimalist, vengeance, and discipline and rebellion (see Morrill, 1995; Black, 1990), by the way we arranged opportunities for participant to pursue the grievances that developed in making the decision. Minimalist activity is when there is generally little clash in the interaction and that lines of disagreement are rarely picked up. Vengeance activity is when participants act to defend their group identity and any perceived attempts by non-group members to spoil that identity. Finally, discipline and rebellion activity is when participants use forms of punishment or sanction to make each other "toe the line" or when expressing differences of opinion to display forms of rebellion against the status quo.

We made some headway in fostering these different forms of conflict activity in the same group of students by the way we arranged their opportunities to discuss and react to the case we gave them. We fostered minimalism by asking participants to simply propose ideas and to react to the ideas posed by others. For their participation we set them up on a GDSS application that would allowed them to input their proposals but which gave them no control over who would receive a copy of their own proposal or which proposal they would receive. The application was set up to strip away anything that would identify who made a comment. Comments were instead identified by a numerical stamp. We fostered vengeance by breaking the group into a male and a female group and by having the two groups co-located. Their only opportunity for interacting was through the system. In addition, contributions were tagged with a sub-group identifier. So, for instance, when a member of a particular group made a contribution it was made available to all participants but it was also tagged with both a numerical stamp and as either a "man's" or a "woman's" comment. We also created a virtual break room for both the male and female groups where members of the appropriate group could make comments knowing that members of the other group would be unable to read or respond to the comments. We fostered discipline and rebellion by asking the group to prepare the policy statement for an external authority. We told the participants that everything contributed to the discussion would be made available to that authority figure who would use all the discussion to judge the quality of the policy they produced before making it available to the public. All contributions were tagged with a numerical stamp and the name of the person making the contribution.

There was some evidence that disagreements were handled differently in each setting. The arrangements intended to create a minimalist form of conflict management were associated with talk where disagreement were not overtly expressed and if they were not picked up on by the group. The arrangements intended to create a vengeance context were associated with talk that escalated the disagreements relative positions presumed to be favored by the group. The arrangements intended to create a discipline and rebellion context were associated with talk that was concerned with public presentation and that attempted to shut down or reinterpret apparent deviations from considerations of a publicly appropriate position. There was at least preliminary confidence that these arrangements led to particular forms of conflict management activity.

Much more work needs to be done to substantiate any of the claims made here. Indeed, the claims developed here are meant to be illustrative and hopeful about what can be done with technological intervention. In the context of the scenarios described earlier, however, the interventions in the learning settings help outline and define the type of knowledge facilitation brings to bear in constructing communicative contexts. The purpose of this paper was twofold. First, to illustrate the type of communicative expertise and influence new communication professionals exercise in constructing communicative space. This was accomplished by describing two computer-supported interventions and some designs for intervention attempted in learning contexts. Second, to develop some preliminary propositions about constructing communicative space with collaborative technology. This was accomplished by describing some intervention designs where computer supported facilitation was used to orchestrate the frames and forms of talk and

thus influence the substance and direction of what participants talk about. In so doing, the special knowledge that new communication professionals develop and bring to bear in technological interventions has been given some preliminary form. It is knowledge about discourse activity such as orchestrating turn taking, varying identifying information about contributors, and shifting presumptions about judging what participants say. It is through the exercise of this process knowledge that new communication specialists produce their own brand of influence and structuring of technology. By examining this brand of expertise we gain deeper insight into new concepts for constructing communicative spaces in organizations with advanced information technologies.

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