Proceedings of the Second European Conference on Computer-Supported Cooperative Work
Bannon, L., Robinson, M. & Schmidt, K. (Editors)
September 25-27, 1991, Amsterdam, The Netherlands

The Group Facilitator: A CSCW Perspective

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What unites CSCW research is the need to help people work together (Greif, 1988) or, to be more precise, "...the support requirements of cooperative work." (Bannon & Schmidt, 1989). An important contribution to the understanding of these requirements, therefore, are the results from research into group working, its structure, and dynamics. A well recognised concept in group work is the role of the group facilitator; someone who's responsibility it is to assist the group in achieving its objectives. This recognition, however, is not yet reflected by work published under the CSCW banner. This paper aims to take a first step at addressing this omission.

1 Introduction

CSCW is a subject that draws on research in numerous disciplines, such as computer science, psychology, sociology, and artificial intelligence. What distinguishes it from these other areas is that whilst group work may be considered a special interest for them, the provision of computer-support for groups of people working together is central to CSCW (Greif, 1988). Group work itself is a much longer established discipline which can be traced back to the beginnings of sociology and social psychology at the turn of the century (McGrath, 1984). Over this period, a number of concepts have become established in the wealth of research that has been undertaken. For example, the group's task - its reason for existence - can be divided into its content (what is to be achieved) and process (how it is to be achieved). Furthermore, the group process may be divided into task behaviours - aimed at achieving the group's task; and maintenance (or socio-emotional)

behaviours - aimed at maintaining the group as a cohesive unit. These two types of behaviour are antagonistic, and group members must engage in both types as they progress towards fulfilment of the task (Smith, Beck, Cooper, Cox, Ottaway & Talbot, 1982). It is in smoothing out the problems in group process that the skills of a facilitator become important. Someone who understands group processes and can therefore assist a group to understand its problems, and find solutions for them, is a valuable asset to any group.

When group interaction takes place via computers, then CSCW is the relevant discipline for its study. The role of the facilitator, however, has been largely neglected by CSCW research, despite the importance of such a role in improving the effectiveness of group work. The need for the facilitator's role to be discussed in the context of CSCW systems is the motivation behind this paper.

In what follows, a description of the facilitator's role is given, and the effects of communication via computer on this role are considered. Four 'CSCW scenarios' are identified, and the facilitator's role is examined in two of them. Finally, the extent to which the role should be supported and/or automated is discussed.

2 The Role of the Facilitator

Research and practice in group work use a multitude of terms for the person who has the facilitating role within a group. In social work and psychotherapy for example, the group may have a *worker* (Douglas, 1970), or *therapist* (Whitaker, 1985). Another major application of group work is in the management sciences, where groups have much clearer defined tasks in terms of furthering the aims of the organisation concerned. These groups are typically made up of members who already exist within some other organisational structure and therefore have an established relationship between one another. These groups will usually have a *leader* (Smith *et al.*, 1982), who will also quite often be the most senior member of the group in terms of the organisational structure.

A feature common to these group situations is the notion of someone who's role is to assist the process of group working, generically referred to as a facilitator. The term facilitator itself denotes a set of skills and behaviours that may be applied by a group-worker, teacher, manager, therapist, coordinator, and so on. The application of these skills may be different in the various contexts. Nevertheless, "facilitator" is a readily identifiable, common 'core' of skills and behaviours that may be used by any of the above.

The Shorter Oxford English Dictionary defines facilitate as "To render easier; to promote, help forward". The role of a group facilitator, therefore, is concerned with assisting the other group members in performing their collective task as a group.

2.1 The 'Central Person'

Early work on the role of the group facilitator introduced the concept of the *central person* (Redl, 1942). This person is so named because s/he evokes a common emotional response in the other group members, and the group formative processes take place through her/him. Redl defined this person as someone who provides an object of identification, an object of drives, and an ego support for the other members of the group. Douglas (1970) states that this role definition is not very useful in itself because of the static nature in which it treats groups. Heap (1968) noted, however, that the static description of the central person applies very well to the initial stages of a group's development, and can therefore be modified to take into account the dynamics of group work.

At the initial stages in a group's lifecycle, the relationship towards the facilitator may be all that is common to the other group members, and thus the facilitator becomes the group's central person. A facilitator, with their knowledge of group process, can utilise this position to improve group cohesion, and for the setting of group norms. As a group develops, individuals will identify themselves more as group members, and the common relationship of everyone towards the central person will become less important (Douglas, 1970). During these middle stages of the group's lifecycle, the central person's role is much more that of enabler, sitting back from the group and only intervening when necessary. Finally, as the group nears its end, the role of the central person becomes more important again, as s/he assists the other members through the process of winding-up the group. The precise role played by the facilitator at this stage will depend upon the circumstances in which the group is breaking up; for example, whether or not the group has fully achieved its purpose (Douglas, 1970).

2.2 Membership Status

Opinions differ on the facilitator's status within a group. Some of this difference can be explained by the 'bias' of the source. For example, if the facilitator is to perform some leadership function for the group - as in management situations - then s/he will be in a position of power over the other group members. Conversely, if s/he is someone who is brought in from outside of the group as a professional facilitator, then her/his function will be more of an assistant to the group, helping the other group members to achieve their objectives without having any stake in the outcome. This second example describes the facilitator's role in its generic sense, the key factor being that the facilitator is concerned with enabling the *process* of the group achieving its aims, whilst having no stake in the *content* of these aims. Three different views of this relationship between facilitator and group are presented in figure 1, which is adapted from Douglas (1970). The first viewpoint is the status of the facilitator when a group is first set up, the second illustrates the status of the facilitator in its generic sense, whilst the third represents

when a member of the group performs the role of the facilitator (as in management situations).

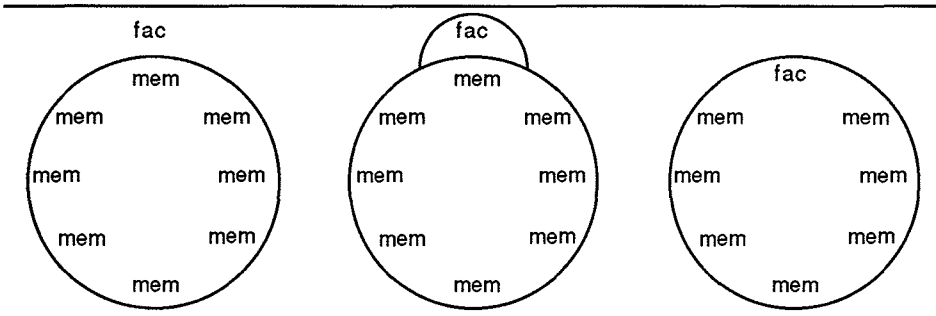

Figure 1: Membership status of facilitator

2.3 Intervention strategies

The role of the facilitator described so far is open to criticism for its relatively static nature. A group working environment is by no means static, with participation by, and relationships between, the various members changing throughout a group's life. Whilst the dynamic aspect of group work is one of its advantages, problems can develop, and when they occur the facilitator's role takes on greater importance. It is necessary for any facilitator to be able to recognise when a problem is developing, and to also have the skill and knowledge of how to enable the group to deal with it. Any action that a facilitator takes to 'correct' group process problems is known as an *intervention.* Five *Generic Problem Syndromes* (along with their symptoms, possible causes, and possible interventions) have been identified by Westley & Waters (1988) - presented in table I - along with two intervention methods: *Interpretation*; and *Direct Action.*

2.3.1 Interpretation Method

This type of intervention involves the facilitator shifting the focus of the group away from task-content to process in two steps. First of all, after a process problem has been diagnosed, the facilitator articulates the observed cues to the group in as neutral a manner as possible. Descriptive language is used, whilst avoiding over-generalising and being evaluative. Subsequently, the group is directed to focus on the process problem that has been identified. If the facilitator has a clear picture of the problem, then a diagnosis can be proposed to the group. Alternatively, s/he can invite the group to discuss the problem as a result of her/his reporting it. The following discussion in the group should aim at solving the identified problem. For this, it is essential that the facilitator is capable of suggesting a *design* for the solution - how the group can solve its problem and return to the content of its task - otherwise a breakdown in the group is inevitable.

'Multi-Headed Beast' syndrome	
SYMPTOMS	Digressions; interruptions; multiple topics; no listening; no integration of ideas.
POSSIBLE CAUSES	No agreement on agenda; no process design; mixing problem-solving strategies.
POSSIBLE INTERVENTIONS	• Suggest round robin to clarify task • List perceptions of task • Seek synthesis (rephrase, find continuities, categories) • Formulate/reformulate agenda

'Feuding Factions' syndrome	
SYMPTOMS	Repetitious arguments; open attacks, anger.
POSSIBLE CAUSES	Hidden agendas/power struggles; fear of change.
POSSIBLE INTERVENTIONS	• Stop action: "we're having difficulty agreeing on a solution..." • Allow individual to privately list criteria • List criteria independently of alternatives • Measure alternatives against criteria.

'Dominant Species' syndrome	
SYMPTOMS	'Plops'; 'unequal air-time'; passive/aggressive body language; withdrawal
POSSIBLE CAUSES	Dominance: not heard, frustrated Withdrawn: afraid, frustrated, insulated
POSSIBLE INTERVENTIONS	**Direct:** question/poll under-participators; thank/limit over-participators
	Interpretative: At end of meeting, share perceptions on levels of participation • self rating • round robin on views • solicit norms on participation

'Recycling' syndrome	
SYMPTOMS	'Broken record' behaviour; irritation with lack of progress; failure to gain consensus.
POSSIBLE CAUSES	Ideas not being recorded; confusion about problem-solving process.
POSSIBLE INTERVENTIONS	• Introduce/reintroduce problem-solving steps • identify which issues belong to which steps • identify 'where we are, where we've been, where we're going'.

'Sleeping Meeting' syndrome	
SYMPTOMS	Long silences; absence of energy/ideas; withdrawal.
POSSIBLE CAUSES	Fear of volatile issue; hostility; depression, fatigue.
POSSIBLE INTERVENTIONS	• Describe observation - 'blocked condition of meeting' • Suggest mood-check • Then: - take a break - address underlying problem - decide on action plan to rectify • and/or - return to task, allotting time to address the problem at end of meeting.

Table I: Generic Meeting Problem Syndromes

2.3.2 Direct Action Method

As opposed to the above method, where the flow of the meeting is suspended to deal with a process problem. This method directly manipulates the processes of the group, for example: preventing interruptions until the current speaker finishes; or encouraging a hesitant participant by giving positive feedback to their contribution. This type of intervention is not suited to all situations, or to all individual facilitation styles. It would be unsuitable, for example, if the problem is part of an underlying trend that would be better dealt with explicitly through the use of an interpretative intervention.

The choice of intervention method made by the facilitator will depend upon both the nature of the problem, and on the facilitator's personality and experience of group working. The interpretative method is more likely to be successful for a facilitator who is not very experienced or who is not sure how to solve a particular problem. Either method may be resisted by the other group-members, although the interpretative method is less likely to be seen as manipulative.

3 Face-to-Face versus Computer-mediated Communication

Having introduced the facilitator's role in its traditional sense, this section will give a brief comparison of face-to-face and computer-mediated communication, prior to investigating 'electronic' facilitators, and their role in CSCW.

Face-to-face communication can be broken down into audio and visual channels, with each being decomposed further, as shown in figure 2 (Hiltz & Turoff, 1978). This model of face-to-face communication illustrates the richness of the medium, thus allowing a facilitator many ways of monitoring, and intervening in the group process, in a face-to-face meeting.

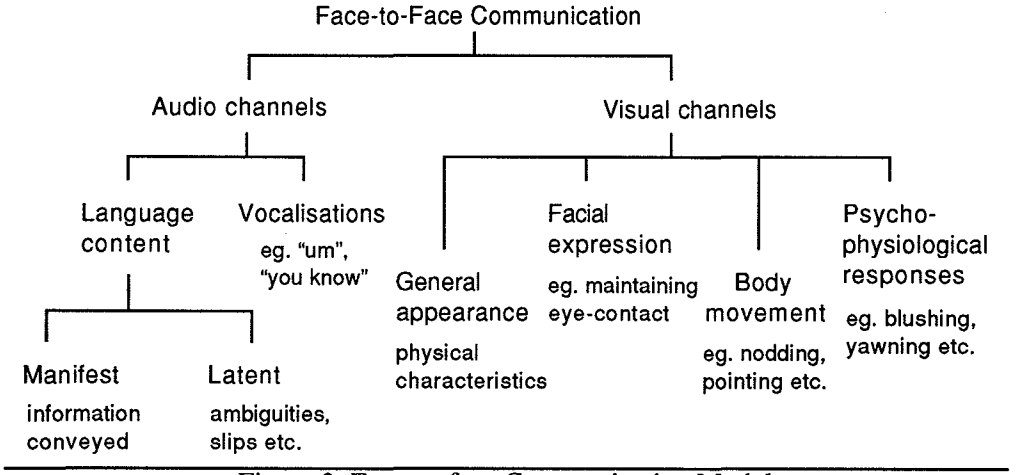

Figure 2: Face-to-face Communication Model

Communicating via computers replaces the above channels with (usually) a single visual channel conveying the language content. This can have a number of effects on the quality of communication, and obviously has implications for the facilitator's role in the group. Some of the differences are outlined below.

3.1 Extra Visual Channel

The written form of computer mediated communication provides an additional visual channel for participants to utilise. The use of indentation, numbering, capital letters, and spacing enables individuals to structure their communication, thus aiding comprehension by the message's recipients.

3.2 Expression

The visual channels convey information about the speaker and hearer's feelings as well as enabling the use of gestures to reinforce what is being said. Without this information, participants can only use the structure of their text to provide emphasis; and they can only treat messages on 'face value', being without access to any signals that may indicate deliberate misinformation, for example, on the part of the 'speaker' (eg. lack of eye contact).

3.3 Precision

Not only are individuals able to structure their messages, they can take as long as they wish to do so, taking time to ensure that what they write is expressed correctly. This leads to more organised communication than is usually observed in a face-to-face situation.

3.4 Participation

Without the information about people's general appearance etc. being conveyed, individuals from the groups in society that are traditionally discriminated against (eg. women, disabled people, or people of different ethnic origin), stand more chance of being treated according to what they say rather than what they look like.[1]

3.5 Turn-Taking

In face-to-face communication, the cues governing turn-taking in conversation are usually conveyed as vocalisations, through body language, and by facial

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1 This could only now be said to apply to the more primitive mailing systems that provide very little information about the sender. It also assumes that the sender does not, intentionally or unintentionally, reveal the information, eg. in their message style.

expression (Levinson, 1983). Therefore, the removal of the audio and visual channels in computer-mediated communication interferes with the normal turn-taking mechanisms. This affects synchronous, rather than asynchronous communication, with messages in the latter mode potentially taking up more than one turn in a conversation (Bowers & Churcher, 1988).

4 The Facilitator in CSCW

A broadly accepted framework for the study of CSCW systems classifies the type of work according to its temporal and geographical distribution (eg. (Cook, Ellis, Graf, Rein & Smith, 1987), (Ellis, Gibbs & Rein, 1991)). In this two-dimensional space, four types of cooperative working can be identified (see figure 3). These working types correspond to four different meeting types, or scenarios, in which the cooperative work is supported by computers. The remainder of this section will concentrate on two of these scenarios, and the implications on the role of a group facilitator in each one is discussed.

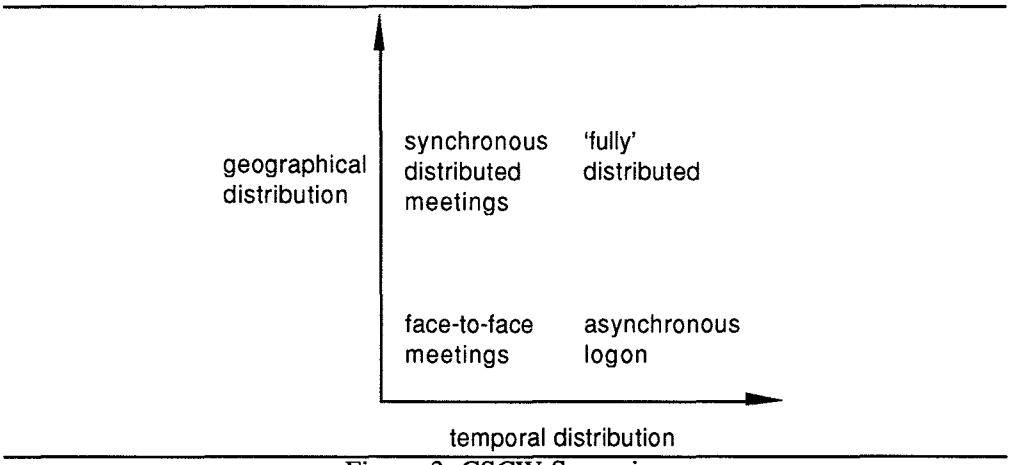

Figure 3: CSCW Scenarios

4.1 'Fully' Distributed

This is the longest established type of computer-mediated communication, and (probably because of this) the only scenario for which specific research on the facilitator's role was found (known usually in this context as the *moderator* (Brochet, 1985), (Feenberg, 1986), (Kerr, 1986)). Computer Conferencing systems, or Bulletin Board systems, have been in use since the late 1960's, and numerous examples exist in both academic and industrial contexts (Quarterman & Hoskins, 1986), encompassing early systems, such as EIES (Hiltz & Turoff, 1978) through to recent Computer-Based Messaging Systems, such as COSMOS (Young, 1988).

Facilitating (moderating) computer conferencing systems is seen as a means of reducing communication problems that are due to the lack of the face-to-face communication channels. Whilst it is acknowledged that a conference can be successful in the absence of a facilitator, this is the exception to the rule (Brochet, 1985). Feenberg (1986) outlines seven functions that characterise the role of the facilitator in computer conferences, these are: Setting the contexts, setting the norms, setting the agenda, recognition, prompting, weaving[2], and meta-commenting.

If the last four of the above items are shared by other members of the group, the conference is likely to be more successful, in fact, Feenberg (1986) states that they are listed as functions of the moderator more to ensure that they are carried out, rather than being exclusive to the facilitating role.

Brochet (1985) gives a different classification in terms of what stage the conference is at. The stages given are:

- Successful beginnings;
- Nurturing the introductory stages;
- Maintaining the mature conference; and
- Wrapping up the conference.

Successful beginnings is concerned with the setting up of the conference - deciding on the topic, setting an agenda, inviting potential participants, etc. Also included at this stage are activities such as organising training on the system to be used; introductory 'parties', where participants may meet face-to-face; and maybe also organising an initial face-to-face meeting to get the conference started. Kerr (1986) also encourages the setting-up of a face-to-face training session to assist group cohesion.

The introductory stages require nurturing on three levels: firstly, the facilitator must ensure that both system hardware and software are available and serviceable; secondly, the facilitator needs to set ground-rules and norms regarding, for example, defining success for the group, group decision-making process(es) used, and copyright issues; finally, the facilitator is responsible for stimulating discussion and identifying new topics.

During the 'mature' stages of the conference, the facilitator plays a number of roles to maintain participation and cohesion amongst the members of the conference. Brochet (1985) gives these roles as: organiser; goal-setter; discriminator[3]; host; explainer; and entertainer. The facilitator must ensure that discussion does not stray off the agreed topic of the conference, if necessary highlighting the need for a separate conference to be set up for the discussion of matters arising from the present topic.

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2 This function in particular illustrates an effect of the communication medium on the facilitator's role. Here, the phenomena of multiple turns in messages (Bowers & Churcher, 1988) necessitates the 'weaving' together of threads of one conversation across many messages.

3 As in discriminating between useful and useless ideas, and in helping to make complex matters simple.

It is helpful to announce the 'wrapping-up' of a conference well in advance, as this type of announcement can quite often lead to a flurry of last-minute contributions. The facilitator should close the conference down in two stages: firstly making it into a 'read-only' conference, allowing participants to copy any information they wish to keep; then finally 'purging' the conference from the system.

In this scenario, the facilitator must assist the group as in a face-to-face meeting, whilst working via a modified communication medium as described in section 3. Important cues used by the facilitator in face-to-face settings are now missing, and the asynchronous nature of this scenario requires her/him to work with the group over days or weeks rather than minutes or hours. Support for the facilitator in this scenario, therefore, must compensate for these aspects of the communication medium that make her/his job harder. Without specific support, for example, the facilitator will not know how much the different members are participating, other than through the number and length of messages transmitted. The system, however, is able to monitor such things as login frequency, messages that have not been read by individuals, activity on text editors etc. This information can be provided to the facilitator in such a way as to supplement her/his 'picture' of the group's performance, and to enable her/him to facilitate more effectively.

4.2 Computer-Supported Meetings

Participants in this type of meeting are able to use all of the usual face-to-face channels, in addition to the extra visual channel provided by computer-mediated communication. It is unlikely, however, that both types of communication will be used simultaneously to their full; experiences indicating that participants will switch between the two (see, eg. Foster & Stefik (1986)). The facilitator, therefore, will also need to switch to whichever means of communication the other group members are using at the time.

This type of cooperative working is the focus for a growing number of research projects and systems, with more established examples being Colab at Xerox PARC (Foster & Stefik, 1986), (Stefik, Bobrow, Foster, Lanning & Tatar, 1987), and Project Nick at MCC (Cook *et al.*, 1987). Of the two projects, Colab appears to 'hard-wire' the role of the facilitator by incorporating it into the processes of its tools. For example, the Cognoter tool (Foster & Stefik, 1986) structures a group's efforts in collaboratively organising their thoughts for the purpose of making a presentation. With this tool, the process is supported in three stages: *brainstorming*; *ordering*; and *evaluation*, with the participants guided through the process by the tool. Whilst noting the danger of the tool being too prescriptive, they also recognise that a 'funneling' environment would assist group-members to achieve their goals in a more efficient manner. In other words, the tool implements some aspects of the facilitator's role and 'imposes' this facilitation through the structuring of the process.

Project Nick (Cook *et al.*, 1987), however, supports a human facilitator with the provision of the following features: there is a means for the facilitator to record the group-process activities using minimal keystrokes/mouse movements; in addition to this, there is an allowance for other group-members to communicate comments about the group-process to the facilitator. The facilitator is thus able to keep a record of, for example, how much time is spent participating in the group process by the various individual members, and therefore monitor over or under participation, as well as keep an overall record of the time taken for different agenda items etc. Furthermore, explicit comments on members' feelings about the group process (eg. boredom, need to push on, etc.) can be received by the facilitator to enhance the information that s/he has collected through her/his participation in the group session. This information can be used to facilitate the group in a more effective manner and will supplement the facilitator's impressions of the group process obtained through observing the members' interactions, as in face-to-face communication.

In this scenario, therefore, the facilitator has a larger choice of communication channels to use for monitoring the group process. At the same time, s/he has the same increased choice of channel to use when making interventions. For example, eye contact can be utilised to prevent an interruption with less distraction for the other group members. Similarly, there is less need to prevent sub-groups or side-discussions from forming since these also can take place, to a large extent, without distraction for the other members of the group.[4] Means to monitor such communication, that is potentially detrimental to the group's working together as a unit, should be provided for the facilitator. The extent to which such monitoring could take place - should facilitators be allowed to 'tap' private conversations, or should they only be provided information regarding who is talking to whom, and how often? - is an area for debate, dependant upon how much 'power' is desirable for a facilitator to have over other group members.

5 Allocation of Tasks

When allocating tasks for a computer system between the computer and its user(s), the extent to which the tasks are automated can be looked at as a continuum between no support (a completely human system) through to full support (a completely automated system). These two extremes, however, will not be considered here. Considering the importance of the facilitator's role, to provide computer support for a group without specifically supporting the facilitator is to make the task of facilitating the group harder, and less effective. Furthermore, group facilitation is an essentially human task, which if carried out by computer

4 There are obviously limits to this as a sub-group or side-discussion could take over the discussion for the whole group, with those not involved unaware except for their knowledge of keyboards being used without any resultant messages appearing on their screens.

alone will not be fulfilled sufficiently. This section will consider, therefore, how computer support can augment the role of the facilitator in terms of her/his individual tasks, and group tasks.

5.1 Support for Individual Tasks

The individual tasks referred to here are the tasks that a facilitator carries out when working with a group, that are private to the facilitator. Over and above the tools that each member of the group will possess to support their tasks (for example, word processing facilities, 'notebook', graphics generation, database access etc.), there are tasks specific to a facilitator that must also be supported. These facilitator support tools should be aimed at supporting the tasks that are seen as the facilitator's responsibility, and will include: time-keeping aids; monitoring of the group in terms of degree of participation of each member; creation and maintenance of an agenda; and support for administrative tasks.

These support tools are therefore aimed at the level of collecting and structuring information about the group to enable the facilitator to make 'better informed' decisions and to facilitate more effectively. For example, an agenda creation and maintenance tool could be combined with a time-keeping aid in order to set points in the agenda that should be reached by a certain time (in order to coordinate with another group working on a related task perhaps). These times should be agreed upon by the whole group during its initial stages and the tool can then keep the facilitator informed as to how well the group is running to schedule. The emphasis here, then, is that any such tool is providing information, not directives, and how the group is conducted is still down to the judgement of the individual facilitator. In a similar vein, providing a monitoring tool will enable a facilitator to have a clear picture of which group-members are monopolising the discussion, or conversely, which members are under-participating. Once again, the tool should be aimed at providing the facilitator with structured information that can be acted upon, or not, as decided by the individual facilitator.

5.2 Support for Group Tasks

In contrast with the above, this allocation of tasks sees the computer taking a more 'active' role in group facilitation. In essence, this is an extension of the above allocation, with the computer automating part of the facilitator's role, rather than just supporting it. Obviously, it would be easy to propose that the tools required in such a system would simply continue with the information as structured by the tools mentioned above, and act upon it according to some heuristics. Whilst this sounds fine in theory, decisions would have to be made in practice as to whether group members will find computer-made interventions desirable. Similarly, the parts of the facilitator role that are automated should not require other members of

the group to modify the way in which they interact with each other, as this would almost certainly be resisted (Grudin, 1988).

Another aspect of the facilitator's role that could be automated is the support of decision-making procedures. Kraemer & King (1986), review a number of group-support technologies and includes three methods of automating the group decision-making process. These *structured group process* methods are: social judgement analysis, delphi technique; and nominal group technique.

In reviewing the above, McGrath (1984) notes that when compared with interactive groups (as opposed to structured), all the methods perform better than the average, but significantly worse than the 'best individual' performance (they actually perform at about the same level as second best individual). It can be seen, therefore, that whilst they can all potentially be automated, they are by no means perfect.

One further area that has potential for automation is the monitoring of over and under participation of the group-members. This monitoring would take different forms dependent upon the scenario in which it is used. Essentially, this would go one step further than the supported individual task of reporting the amount of participation to the facilitator by the system. Rather than structuring the information to enable the facilitator to make better informed interventions, the system itself would make the interventions, perhaps by informing participants of the proportion of group participation they 'are responsible for', if they exceed or fall below certain limits. As mentioned above, the way in which system interventions are made will have to be decided upon carefully to avoid putting off people from becoming members of the group.

6 Conclusion

The omission, to a large extent, of any consideration for the role of the facilitator in CSCW systems was the impetus for the work presented in this paper. The facilitator is a well established and important role in 'traditional' group work, existing to enable the other members of a group to achieve the group's objectives by assisting them in negotiating any problems that may occur.

Communicating via computer has a number of effects on the interaction between members of a group, and therefore on the actions undertaken by the facilitator when performing her/his duties. These effects differ depending upon the 'scenario' in which the interaction takes place, but are primarily due to the removal of the face-to-face channels of communication, the addition of a new computer-mediated channel, and interaction between usage of the two types of channel.

To provide support for a group without also supporting the group's facilitator is an omission which inevitably will be detrimental to the effectiveness of the group. Therefore, support for the facilitator's role must be considered when designing CSCW systems. How the role could, or should, be supported is a matter for

further research. The extent to which the role is supported, or automated, in particular CSCW systems will depend on the application concerned. Consideration must be given, however, to the effect that this support will have on the facilitator, and especially on the other members of the group.

Acknowledgements

I would like to thank Martin Lea (Department of Psychology, University of Manchester) and Linda Macaulay (Department of Computation, UMIST) for their encouragement and assistance throughout the production of this paper. This paper is the result of work funded by a SERC Advanced Course Studentship at the University of Manchester Department of Psychology.

References

Bannon, L.J. & Schmidt, K. (1989): "CSCW: four characters in search of a context", in J.Bowers & S.Benford (ed.): *EC-CSCW'89: Proceedings of the First European Conference on Computer Supported Cooperative Work*, Computer Sciences Company, Gatwick, UK, pp. 358-372.

Bowers, J. & Churcher, J. (1988): "Local and global structuring of computer mediated communication: developing linguistic perspectives on CSCW in COSMOS", in I.Greif (ed.): *CSCW'88 Proceedings of the Conference on Computer-Supported Cooperative Work*, ACM, Portland, Oregon, pp. 125-139.

Brochet, M.G. (1985): "Effective moderation of computer conferences: notes and suggestions", in M.Brochet (ed.): *17th Ontario Universities Computing Conference Proceedings*, pp. 123-130.

Cook, P., Ellis, C., Graf, M., Rein, G. & Smith, T. (1987): "Project Nick: meetings augmentation and analysis", *ACM Transactions on Office Information Systems*, vol. 5, no. 2, pp. 132-146.

Douglas, T. (1970): *A Decade of Small Group Theory, 1960-1970*, Bookstall Publications, London.

Ellis, C.A., Gibbs, S.J. & Rein, G.L. (1991): "Groupware: some issues and experiences", *Communications of the ACM*, vol. 34, no. 1, pp. 38-58.

Feenberg, A. (1986): "Network design: an operating manual for computer conferencing", *IEEE Transactions on Professional Communications*, vol. PC29, no. 1, pp. 2-7.

Foster, G. & Stefik, M. (1986): "Cognoter, theory and practice of a Colab-orative tool", in D.Petersen (ed.): *CSCW'86- Proceedings of the Conference on Computer-Supported Cooperative Work*, ACM, Austin, Texas, pp. 7-15.

Greif, I. (1988): "Overview", in I.Greif (ed.): *Computer Supported Cooperative Work: A Book of Readings*, Morgan Kaufmann Publishers Inc., San Mateo, CA, pp. 5-12.

Grudin, J. (1988): "Why CSCW applications fail: problems in the design and evaluation of organisational interfaces", in I.Greif (ed.): *CSCW'88 Proceedings of the Conference on Computer-Supported Cooperative Work*, ACM, Portland, Oregon, pp. 85-93.

Heap, K. (1968): *The Social Group Worker as Central Person*, Case Conference, Cited in Douglas (1970).

Hiltz, S.R. & Turoff, M. (1978): *The Network Nation. Human Communication via Computer*, Addison-Wesley, Reading, MA.

Kerr, E.B. (1986): "Electronic leadership: a guide to moderating online conferences", *IEEE Transactions on Professional Communications*, vol. PC29, no. 1, pp. 12-18.

Kraemer, K. & King, J.L. (1986): "Computer-based systems for cooperative work and group decision making: status of use and problems in development", in D.Petersen (ed.): *CSCW'86- Proceedings of the Conference on Computer-Supported Cooperative Work*, ACM, Austin, Texas, pp. 353-375.

Levinson, S.C. (1983): *Pragmatics*, Cambridge University Press, Cambridge.

McGrath, J.E. (1984): *Groups: Interaction and Performance*, Prentice-Hall, Englewood Cliffs.

Quarterman, J.S. & Hoskins, J.C. (1986): "Notable computer networks", *Communications of the ACM*, vol. 29, no. 10, pp. 932-971.

Redl, F. (1942): "Types of group formation, group emotion and leadership.", *Psychiatry*, vol. V, no. 4.

Smith, M., Beck, J., Cooper, C.L., Cox, C., Ottaway, D. & Talbot, R. (1982): *Introducing Organisational Behaviour*, Macmillan, Houndmills.

Stefik, M., Bobrow, D.G., Foster, G., Lanning, S. & Tatar, D. (1987): "WYSIWIS revised: early experiences with multiuser interfaces", *ACM Transactions on Office Information Systems*, vol. 5, no. 2, pp. 147-167.

Westley, F. & Waters, J.A. (1988): "Group facilitation skills for managers", *Management Education and Development*, vol. 19, no. 2, pp. 134-143.

Whitaker, D.S. (1985): *Using Groups to Help People*, Tavistock/Routledge, London.

Young, R.E. (1988) (ed.): *Interim Report on the Cosmos Project*, Cosmos Coordinators Office, Queen Mary College, London.