

Anonymous Collaboration: An Alternative Technique for Working Together

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Abstract

This paper describes an alternative technique for groups to work together, based on anonymity. This is viewed as an alternative to the common direct interaction approach where group members interact with one another at a personal level. Human interaction problems such as over or lack of participation, narrow-mindedness, and personal biases are unavoidable when people work together directly. These problems are the reactions of people when they face others with differences to themselves. It is believed that an alternative interaction technique is needed to solve or reduce the human interaction problems in groups.

The philosophy behind the proposed anonymous collaboration (ANOC) technique is to create an environment where collaborators share information and work, without knowing each others' identity or contributions. This kind of human interaction is seen as suppressing direct contact and therefore, also suppressing problems related to human interpersonal interaction. ANOC implementations require the following provisions: anonymity of collaborators and contributions; presence of facilitators; broadcast dialogues; and individual but shared work. Possible implementation scenarios in the areas of electronic discussions, electronic conferencing, and group authoring, are described.

ANOC is seen as an alternative especially for groups with members that have conflicting interest and personality, or where equal contribution from everyone is highly regarded.

Keywords

Anonymity, Collaboration, Computer-Supported Cooperative Work (CSCW), Groups, Scenarios.

Introduction

The terms *cooperative*, *collaborative* or *group work* mean activities that one person does, which directly helps others to achieve compatible goal(s)—where compatible goals are goals that are favourable to both the helpers and beneficiaries. In any cooperative work setting one will find evidence of members, goals, work (structured activities), and *outcomes* or *end-products* (which may include decisions, ideas or tangible things). A group consists of persons who have certain interest or skills in common, agree to certain rules, interact and work with one another to achieve common goals.

People have an inclination to join groups to socialise, identify with and seek assistance from one another [Daw89]. Most formal organisations form groups because they can collectively handle more substantial work than a single person and therefore complete goals in shorter times. When people begin to work in groups, they are faced with several new challenges that did not exist when working alone. It is discovered that *set-up* and *human interaction* problems are two of the most evident issues. *Set-up* concerns problems such as agreeing on common methods, rules, tools to use, place and time to meet. However, collaboration is much more than merely being able to come together to work. Good collaboration involves harmonious interpersonal communication. Therefore, *interaction* problems are concerned with situations where harmony or cooperation cannot be achieved because of human differences.

Software designers have seen the potential of being able to help groups to better collaborate and work. Their efforts lead to a new collection of computer-based solutions known as *groupware*. Other people besides software designers also saw this opportunity. A new discipline now commonly known as *Computer-supported Cooperative Work* (CSCW) was born. CSCW

uses a combination of audio-visual, communications network, human psychology, social sciences, computer hardware and software technology to help groups work together. [Elli91] CSCW implementations have been helping groups to communicate, coordinate and perform activities together. However, most of these solutions have been designed to concentrate on solving set-up problems. Solutions that are focused at solving human interaction problems first before set-up problems, have yet to be investigated thoroughly. It is strongly believed that future CSCW development should emphasise more the human interaction aspects by solving human problems and helping group members to better relate to one another, instead of merely empowering members with more tools.

Human Interaction Problems

It has been observed that the more persistent problems that plague work done in groups despite the use of modern tools, are:

- *over* participation or contribution from some and *lack* of participation in other members,
- *narrow-mindedness* of the contributions, and
- continued existence of *personal biases*.

For example, lower ranking members may not dare to challenge ideas proposed by their superiors. Subordinate members may totally conform without thinking, also known as 'group-think'. A dominating person will always contribute ideas (even if they are useless), without giving others the opportunity. A shy person will tend to hold back ideas even if they are useful. A person may choose to disregard useful contributions from another because of personal biases or grudges [Dawi89]. Cliques (informal groups within a larger group) may develop and isolate certain members.

The above problems often cause or lead to dissatisfaction within the group, if not unsatisfactory work [Dawi89]. It seems that the problem remains because it is related to the differences in individuals such as personalities, status and level of acquaintance with one another. These differences are unavoidable because every person is unique.

A Solution

One possible solution to this problem is to suppress those differences of characteristics, so that individuals can contribute at a similar 'level'. It is hypothesised that anonymity is the best way to achieve this.

Anonymity results from concealing any knowledge about a person and what the person has done. Anonymity can be seen in everyday life. A child running away after breaking a vase, a teenager shouting in the midst of a large lecture, and the provisions of suggestion boxes are all common examples.

Anonymity helps to shift the focus away from specific individuals. No one will know who is 'talking' and who is 'listening', except that someone did 'talk' and everyone was able to 'listen'. To a certain degree, embracing anonymity means separating one's self from one's identity. Evidence of a tangible person with a name, standing and personality, will cease to exist.

No one will know that Peter (a normally shy person) said, 'I think this is a better solution because of this, this and that...'. Peter will for the first time receive challenges to his opinion because no one will know that he (the President of the company) made the statement. Peter will no longer be able to discard all the views made by Jane because he does not know which ideas belong to her. Even when Peter makes an opposing view, no one will absolutely agree with him unless his opinion made some worthy sense.

The goal behind this study is to use anonymity in a more formal and structured method so that it can be practically used in work groups. This paper introduces the philosophy behind one such 'attempt' and shows the possible scenario of applying it to existing group practices.

This alternative way (to the direct and personal approach) of working together is called *ANOC* (pronounced 'ay-knock', after the words 'anonymous collaboration'). ANOC is a set of guidelines that define how individuals in groups should interact and work with each other. Its main objective is to allow group members to collaboratively work while remaining anonymous.

Since ANOC is just a set of conceptual guidelines, it is open to a variety of implementation options, with or without the aid of computers. The following are scenarios of how anonymous collaboration may be used by groups. Although non-computer based implementations are possible, only computer based ones are described in this paper because implementation is believed to be more simple, reliable, effective and efficient.

Scenarios of ANOC-based Computer-supported Group Work

Johansen classifies all computer support for groups, into three broad categories: support for face-to-face meetings, support for electronic meetings; and support for activities between meetings. He describes a total of seventeen approaches that belong to either one or more of the three categories [Joha89]. Scenarios in the face-to-face meetings category are deemed to be unsuitable if anonymity is to be preserved. Scenarios that were seen as more suitable foundations for ANOC include electronic meetings and group authoring.

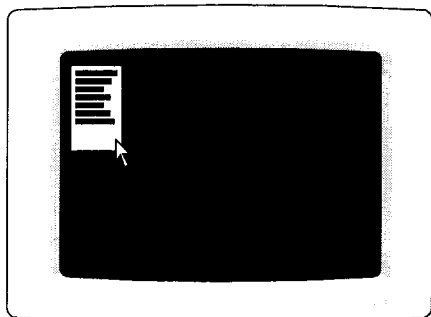
Electronic meetings heavily involve communication. In this paper, electronic meetings have been separated into electronic discussions and electronic conferences. *Electronic discussions* are *ad-hoc* and less formal discussions, like the common brainstorming sessions. On the other hand, *electronic conferences* involve more formal discussions, are more suitable for upper management, and require formal decisions to be made. Lastly, *authoring* is deemed to be a work-related activity and often involves producing end-products.

The scenarios deal with what Adam (a fictional person) does at a multi-national corporation. Adam is part of a research team that is scattered in different parts of the world. Adam is based in Australia.

Support for (Real-time) Electronic Discussions

A group meeting would need to be scheduled. Members would then participate in the meeting through their workstations in their own workspace. Each meeting has a facilitator or leader. The facilitator prepares the agenda items for the meeting. The agenda items are visible on each participant's workstation. The facilitator has to choose between a linear or parallel meeting mode. In the linear mode, the facilitator selects an agenda item for everyone to discuss at the same time. However, in the parallel mode, each individual can select an item to discuss. A parallel discussion mode allows more people to contribute at any one time, and is usually used in large groups.

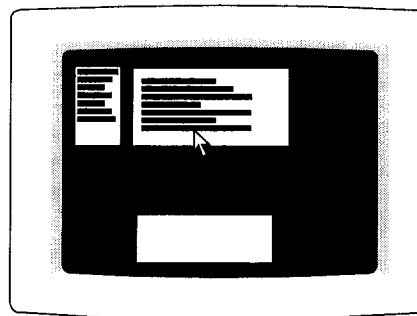
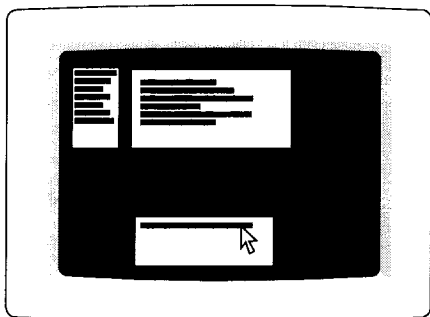
Adam is told that an electronic meeting is scheduled at 10:05 a.m. local time today. It is now 10:00 a.m. according to his workstation's clock. Adam starts the company's standard anonymous meeting software. When a connection is established, Adam enters a password and joins the meeting in question.



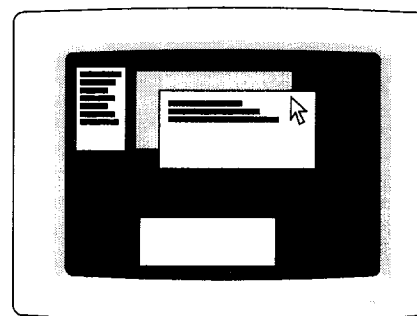
A window appears that contains a personal greeting from the facilitator-cum-leader, and a list of agenda items. It is also indicated that discussions would occur in parallel. Adam smiles as he notices that many agenda topics are of no interest or use to him...

Once the meeting starts, members contribute to the discussion by presenting various comments. Names of contributors are not enclosed or attached to any messages to preserve anonymity. All participants also have access to a shared workspace, where diagrams can be drawn. A token system is used to regulate all interactions. Only the member who has a token can contribute. Others have to wait. In a parallel mode, the token convention is still used, but there are several tokens available—one for each agenda item. This allows parallel discussions to occur.

At 10:05 sharp, the meeting begins. Adam double-clicks on an agenda item and another window appears.



He starts entering comments into that window. He waits for a few moments, but after receiving no responses, he opens another agenda window.

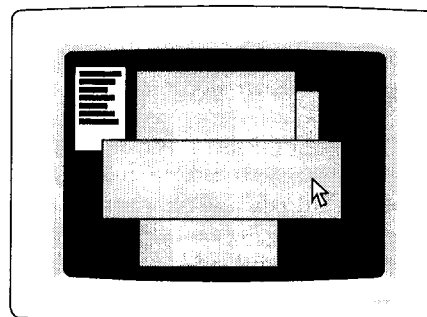


This window is full with comments. Adam starts to read the previous comments made.

Soon, he is able to follow the discussion. Adam makes several comments when it comes to his turn. At the same time, he keeps an eye for responses in the first agenda window.

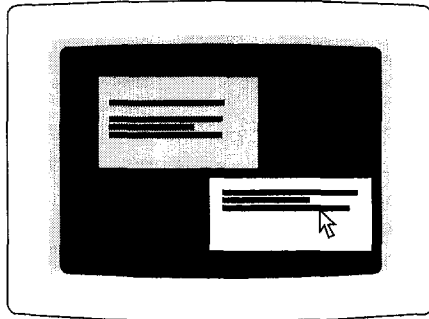
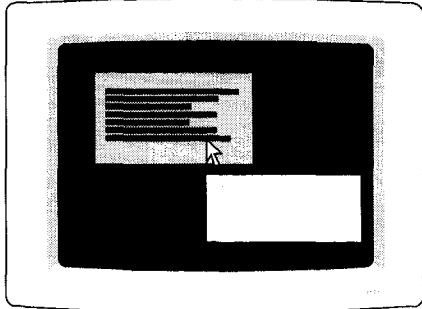
Suddenly, he sees some comments starting to appear in the first window. He quickly replies to those comments. More comments start to appear. This goes on for about 1 hour...

Besides deciding when to move to the next agenda item (in a linear meeting mode), the facilitator may also select important comments, classify them, and enter them as voting questions. If a decision needs to be reached, the facilitator can initiate a voting procedure that all members have to respond before being allowed to leave the meeting in a graceful manner. Results of the votes are displayed and details extractable by each participant. When the meeting is finally over, a transcript of the meeting is stored on a database. This transcript is indexed by the topic, keywords, facilitator, date and time of the meeting. All of these are entered by the facilitator.



A warning dialogue box appears with an announcement that the meeting will end in five minutes.

With that, Adam quickly finishes his final comments and waits for the meeting to end. Before the meeting ends, a vote for when the next meeting is to be held is initiated.



After a brief moment, results of the vote appear in a window. Adam places a copy of that into his electronic notepad.

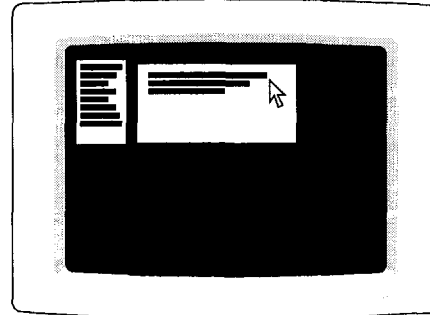
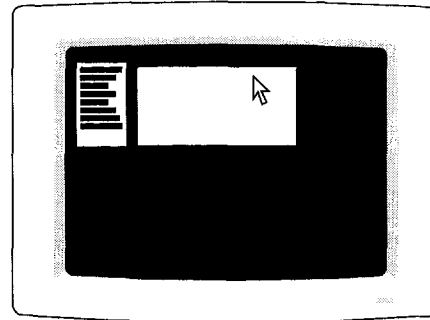
When the meeting ends, Adam downloads a transcript of the meeting. He then uses his favourite word-processor to study the discussions, in search of new ideas for his research.

Support for (Non Real-time) Electronic Discussions

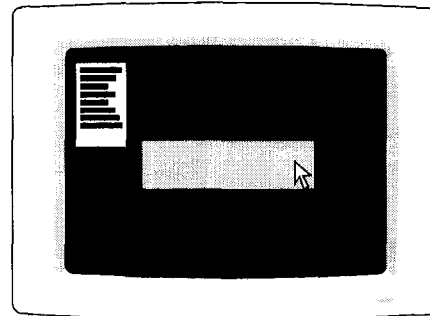
A group holds electronic discussions using an anonymous bulletin board. Members access specific discussion topics or agenda items on the bulletin board, and make their own comments at their own convenience. Members from any part of the world can join this discussion with the appropriate network access. All senders are anonymous. Each member who has a workstation can become the facilitator of topics or agendas. Facilitators have the authority to remove an agenda (from discussion) that they have initiated themselves.

Adam is uncertain about a particular issue and wishes to seek comments from others. He sits at his workstation and starts up the company's standard anonymous bulletin board software. With the appropriate password, he gains access into the system. A window of all available topics for discussions is presented. Adam searches the

current available topic to see if there are any on-going discussions concerning his problem.



After discovering that there are none, he sets up a new discussion topic. He creates a problem statement message and places it under his discussion topic. Then, Adam goes off for lunch.



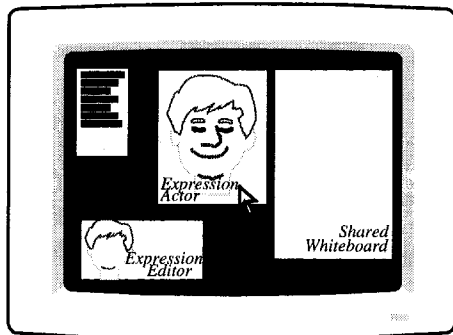
When Adam returns, he sees the system informing him that there is a new message in his discussion topic. He does not know who amongst his team members has sent that message, but he finds the comments to be very useful.

Support for (Real-time) Electronic Conferences

Just as the electronic discussion scenario, a group discussion takes place. However, electronic conferencing also uses voice recognition, voice synthesis and expression actor services. The system is also capable of displaying other presentation materials (such as video, illustrations or text), but only from one member at a time.

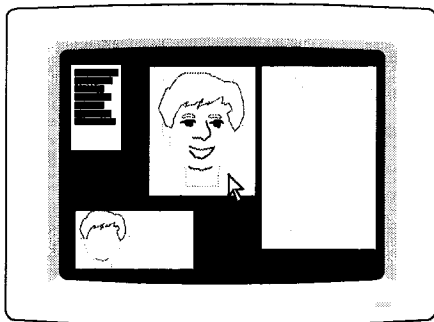
Adam is told that an electronic conference is scheduled at 10:05 a.m. local time today. It is now 10:00 a.m. according to his workstation's clock. Adam starts the company's standard anonymous conference software. When a con-

nection is established, Adam enters a password and joins the conference in question. A window appears that contains a personal greeting from the facilitator-cum-leader, and a list of agenda items. Several other windows also appear.



One is an expression editor, another is a shared whiteboard and lastly an expression-actor window (currently displays the face of a person asleep)...

When members want to contribute a point, they speak through a microphone. The system converts the voice into text. While speaking, the users can also control the expressions of an actor that is used to representing them to the others. Other team members see an expression actor showing various expressions on the screen, while also reading or hearing (text read by a voice synthesiser) the message. There are also facilities for a member to make annotations on a shared workspace.

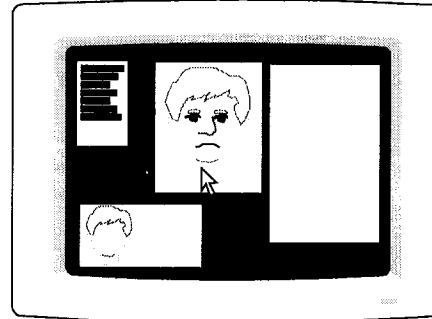
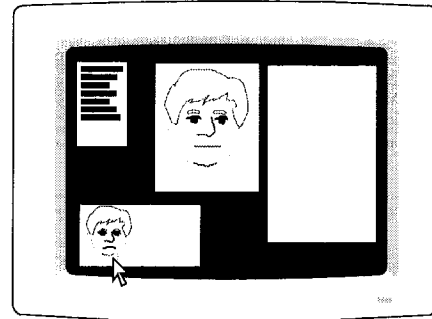


At 10:05 sharp, the meeting begins. The first agenda item is highlighted. Adam sees the actor in the actor window coming alive with expression. He then hears a voice synthesiser making comments.

Adam sits quietly and patiently to hear the discussions that go on because the current agenda does not interest or concern him. He begins to feel bored hearing a monotone voice. He selects the agenda items that are of interest to him and instructs to system to inform him when discussions start on those areas. The system then mutes itself.

After about an hour, the system makes several loud chimes. Adam stops reading a journal and

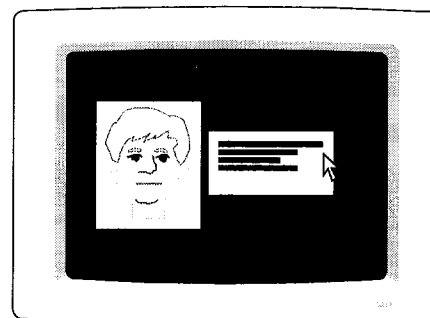
looks at his workstation. An item that appeals to him is finally up for discussion.

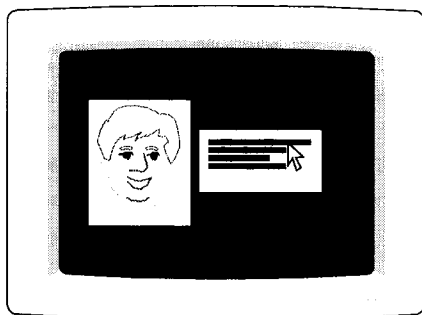


Adam quickly tries to make a comment. He speaks his comments to a microphone, while at the same time selects an expression that suitably describes his face. He then sends his message and associated expression to others in the conference. This goes on for many more hours...

Just as before, no one is certain of the source of messages if the contributors do not disclose their identity. The meeting facilitator follows the conference like a team member. However, the facilitator has the authority to make decisions. Any decision made is written on an electronic notepad that is made visible to all participating team members.

As the discussions continue, Adam sees the decisions made by the facilitator on certain issues. When the meeting ends, Adam places a copy of these decisions into his own notepad. He also downloads a transcript of the conversations recorded by the voice-recognition extension. This transcript is in a special format that preserves information about the expressions used.

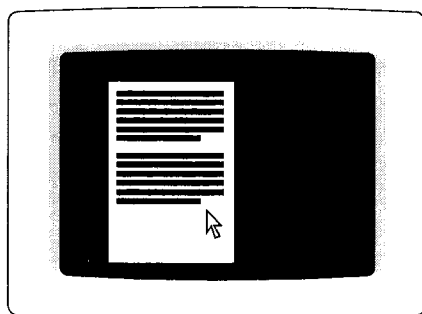




Adam uses a special expression editor to view the transcript along with the expressions,

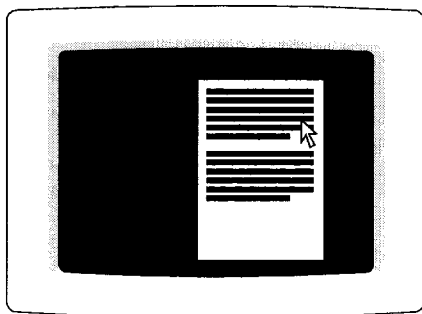
Support for Group Authoring

Each group member works independently on a project. While a member is working, a computer agent assigned to him observes the work done by other members in similar areas. The agent then returns to inform him of efforts by others with the option to extract parts of their work.



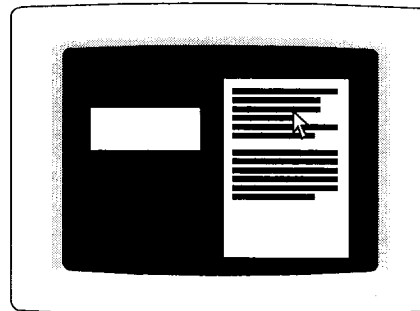
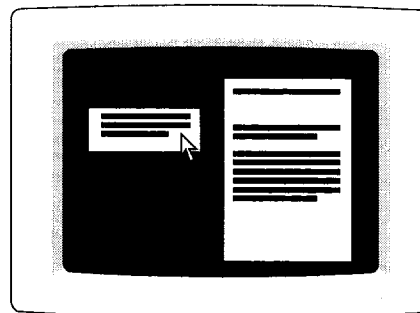
Adam uses a special editor to work on a document. He opens his document up for others to review.

Joe, a good friend of Adam stationed in London, receives Adam's open offer. Joe uses his workstation, establishes connection with Adam's system and starts making revisions. Many others all around the world join in editing this document. Joe like many others, has agents assigned to him.



Just as Joe was editing a paragraph, his agent tried to catch Joe's attention by flashing on and

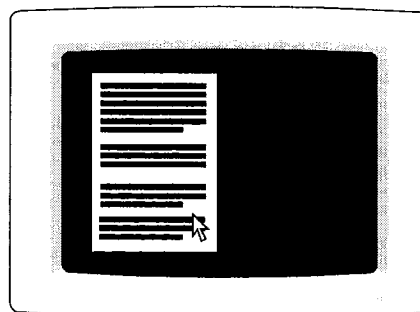
off on the menu bar. Joe decided to allow the agent to interrupt him.



The agent showed Joe a paragraph done by someone lately. Joe examines it and thinks that it has some useful bits. He extracts fragments of text and incorporates them into his own revision.

After browsing through a large collection of anonymous contributions, Adam decides that he has accumulated enough suggestions. Adam, holding the role of a facilitator, instructs his system to stop receiving contributions. So, when Joe tries to offer suggestions, he gets a message on his workstation informing him (in a tactful manner) that Adam no longer needs or accepts suggestions...

At the end, a chief editor extracts suitable pieces of work from the individual co-authors and compiles the final product.



Adam then selects and adopts some of the 'better' ideas into his own document. Being a conscientious person, he acknowledges that his work was compiled with the help of various anonymous persons around the world!

ANOC Model

The features that distinguish the four examples above from any previous CSCW implementations are the presence of one or more of the following requirements:

Anonymity of Collaborators

Collaborators or *contributors* are sometimes used to refer to group members. It is often not enough to physically separate collaborators to achieve anonymity. This must be supplemented by strict measures that try to prevent collaborators from knowing the name, character and credentials of other members during group work. As a guideline, collaborators must not meet face-to-face, be addressed by aliases, roles or positions, and not discuss work issues at other informal gatherings.

Facilitators

Facilitators are known persons and usually team leaders. They coordinate the efforts of the group and prepare the rules and outline for collaboration. They do not know who has participated in a collaborative session. In most circumstances, facilitators play a passive role in the collaborative activity. They play a role much like a meeting secretary, taking down notes on discussions made. However, they have the authority to make the final judgements or conclusions on all matters when needed. For example, a 'fair' facilitator would choose the option A if more than 90% of the people voted for A. In other situations, facilitators may play a more active role like a meeting chair, keeping the group from 'wandering off' the official discussion. It is foreseen that much of the facilitator's role can be automated when the appropriate technology arrives.

Anonymity of Contributions

Contributions are the outcomes of a person's work, that may include comments or an end-product. All sources of contributions must remain unknown. There may be ways of partially guessing who produced a particular contribution but there must not be a clear and direct link between the contributor (i.e. the author) and the contribution.

Broadcast Dialogues

Collaborators should not be allowed to hold personal dialogues (conversations). To allow communication, all messages must be broadcast. Every member should be free to join the discussion. More research is needed to determine if direct use of voice is suitable.

Individual but Shared Work

Each individual in the group must be able to work separately and alone. However, their work efforts must be made visible to others. The purpose of working separately is to promote anonymity and freedom, while sharing of ideas permit further improvements or creation of new ones.

Conclusion

Most of the concepts presented for this preliminary ANOC model are still under study and would need refining. However, it is believed that they are sufficient to suggest how some exist-

ing CSCW systems may be modified for groups experiencing conflicts of personality and ideas.

While ANOC can be seen as an alternative interaction technique, it is not without problems. The main concerns at the moment are that some people may view this mode of interaction as being too 'radical' for formal work. Others may not find it comfortable to work with unknown persons, or find it dehumanising to work without face-to-face or direct contact. Another likely problem would be a feeling that their work is not adequately credited, because their efforts are anonymous.

To overcome these problems, the kind of people and work must be selected carefully. ANOC is suitable when cliques exist within a group because anonymity would allow everyone to work at the same level. Also, when members have a quiet or 'shy' nature, anonymity would allow them to describe their views without attracting much attention to themselves. Last, when work involves sensitive matters or personal views, anonymity can avoid personal conflicts.

The scenarios presented above should only serve to show the lower boundaries of the possibilities that anonymity has to offer. Anonymous collaboration should be viewed as a supplement and not a replacement to direct human interactions. It is believed that a group will benefit most by utilising anonymity when warranted, and not dismiss anonymity as means for avoiding duties or having 'fun'.

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