Working Hard In The 'Office': An ethnomethodological study of on-line workshops

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ABSTRACT

This paper presents a case study of two on-line workshops conducted using a real-time distributed, web based communication technology, OfficeHoursLive. The study is intended to introduce, ethnomethodology, a different perspective for studying CSCL. Ethnomethodogical studies place a particular emphasis on studying the details of situated activity as-it-happens. For the accomplishment of collaborative learning it is necessary that those involved can usefully interact with one another. Ethnomethodology, in its study of the detail of practical action and interaction provides a particularly useful way of understanding whether and how CSCL technologies support such action and interaction. The paper presents detailed analyses and highlights important issues both for the design of technology and the organisation of these events.

Keywords
CSCW, CSCL, OfficeHoursLive, Ethnomethodology, Synchronous learning, Distributed learning

1.0   INTRODUCTION

As practitioners who have primarily been involved in research into Computer Supported Co-operative Work (CSCW), a search through recent Computer Supported Collaborative Learning (CSCL) literature reveals a related field but one with specialised interests. Without a background in education we feel we cannot provide the type of analysis that can evaluate or make recommendations on *pedagogy*. However, as representative practitioners of an orientation to research – *ethnomethodology* - that is well established in CSCW (see Luff et al. (2000) for an introduction to the field) but appears to have attracted little attention thus far in CSCL, we aim in this paper to provide an introduction to how this research orientation can bring fresh insights for the *analysis of collaborative interactions*, *evaluation of system*s and *design*.

We shall seek to elucidate this approach through examples from two exploratory studies of workshops on the topic of e-learning conducted using a new CSCL technology. OfficeHoursLive is a multi-media, synchronous (real-time), distributed, web based communication technology. It is purported to enable the type of real-time interaction between educators and students on-line, hitherto only possible in *"physical academic venues"* as shown in this quote from their website:

"January 22, 2001: **HorizonLive Unveils OfficeHoursLive**

- Educators Now Able to Speak with their Students Live Online -

NEW YORK, NY - January 22, 2001 - HorizonLive today announced the launch of OfficeHoursLive, the first virtual office designed specifically for faculty, teaching assistants, tutors, counselors and other distance learning professionals. The product, which enables instructors and students to speak with each other live over the Web, can be used to hold virtual office hours, "Q & A" sessions and study groups, deliver live lectures, host exam review sessions, or present guest speakers. The ability for educators to speak live with students about their subject matter, and the ability for students to engage in real-time verbal

discussion with their teachers and colleagues are essential elements of quality learning experiences. Such true human interaction in the world of teaching and learning has been reserved for physical academic venues, rendering it noticeably absent from the world of online and distance education - until now."

Can these claims be substantiated? When contrasted with the negative comments of one of our participants (who clearly seems to have a greater technical knowledge than many potential users), we may wonder whether such claims are rather premature:

James's problem

"I followed the link that you gave in the email, which 'tested' my system and pronounced it to be ok. However when I linked to the Web site for the seminar it started downloading a plug-in automatically - I think that this was a Java plug-in. The plug-in failed to install: I can't remember the exact extension but it was only two letters long (i.e. this document.doc VS thisdocument.doc) and hence my PC couldn't do anything with it! I tried a few times but it failed to install properly on each occasion. I then tried entering the lecture room which seemed to work but I didn't have sound, only the chat box. At that point a few of the other guests started typing that they had had the same problems then you commented that you would go and sort something out. I hung on until about 3.30 but then decided to call it a day - apologies for logging off but I really didn't think that you were going to get it to work at all. I hope this feedback is useful for you - in my experience net conferencing (and especially video conferencing) over a Web link never goes smoothly, roll on broadband."

We are not simply attempting to denigrate such technologies and the claims made about them, rather, we are seeking, in the manner of Berg (2000), to *evaluate them in actual use*. In so doing, we hope to understand the effects they have on action and interaction and from this productively inform both their future development and subsequent use.

2.0   EDUCATION AND ETHNOMETHODOLOGY

In the words of Garfinkel (1967), the founder of the research programme, ethnomethodological studies:

"…seek to treat practical activities, practical circumstances, and practical sociological reasoning as topics of empirical study, and by paying to the most commonplace activities of daily life the attention usually accorded extraordinary events, seek to learn about them as phenomena in their own right."

This school of sociological research, which can be usefully employed alongside *multiple methods of systems design*, therefore has a very particular focus. Its focus is on witnessing and honestly reporting on social action and interaction (of all types but often the most everyday). This is analysed to discover the ways in which such activity is achieved as demonstrated in the material records of that activity. Consequently, the materials, or data, for such an analysis consist of recordings of that activity as it actually occurred. For this purpose the materials researchers collect and analyse are detailed field notes from participant-observation, pictures and copies of artefacts (particularly, in this case, technology in use) and recordings; visual, audio and text chat.

Ethnomethodology is not to be confused with the method of research employed to gather its data - ethnography (or participant-observation). Ethnography is a catch-all term which describes (usually prolonged) study of activity in its natural setting of occurrence. This type of study may (or not) be related to theoretical concerns of various traditions in a number of ways. For example, the ethnography may serve as the basis for generating a "grounded theory" (Glaser and Strauss, 1967), or it may be structured around a pre-existing theory or used as an evaluation of, or to expand theoretical constructs. Ethnomethodology differs markedly in its use of the ethnographic method, eschewing theoretical concerns altogether and instead focusing on the methods through which the given activity is structured and achieved in an on-going fashion by the participants themselves as a recognisable social accomplishment. CSCL readers may be familiar with a moderated form of ethnomethodology - sometimes called "situated action" - described by Suchman (e.g. 1987), however there is a wealth of other relevant studies within this sociological discipline (e.g. see Luff et al., 2000 for an introduction to the corpus of work and technology studies).

Ethnomethodologists see education, as with any other social action and interaction, as something that is most basically rooted in situation-based collaboration. That is the context in which the process of showing, demonstrating, discussing, debating, arguing takes place, in which ideas and knowledge are presented and dealt with. These activities in context provide the opportunity for individuals and groups to learn through being part of the process as it goes on. Ethnomethodological studies of education therefore focus on studying it as an *everyday practical accomplishment*. For a useful introduction to such studies see *"Local Educational Order"* (Hester & Francis, 2000).

Ethno-methodological analyses are preoccupied with making visible particular naturally occurring phenomena. The studies are concerned with discovering how people make sense of a situation at the most fundamental level of co-ordination of social action and interaction. They study in detail the methods by which people in-and-through their actions and interactions propose, negotiate and *for all practical purposes* come to shared understandings of what has happened or what is going on. This type of shared understanding is crucial in the first place, to communicate ideas and collaboratively learn, work or so forth (Sharrock & Anderson, 1986).

CSCL technologies of the kind discussed in this paper create new issues with how this basic shared understanding may be achieved and maintained. Detailed analysis of actual use of these technologies in a CSCL situation provides an opportunity to understand issues useful for the design of such technologies and the composition and delivery of CSCL events using them.

The following sections interleave analyses with the issues of discussion that they provoke. They are intended to demonstrate to the reader the usefulness of employing this specialised and rigorous orientation to research. We are aiming at an approach that can seriously inform the design of CSCL technologies and events on a foundational level.

3.0   TECHNOLOGY AND METHODS OF ANALYSIS

OfficeHoursLive - as described in the first quote above is a web-based technology that purports to support synchronous/distributed and collaborative learning. For this purpose it consists of two 'Rooms', the 'Lecture Hall' and the 'Office'. Both of these rooms support:

❖   presentation of slides (by a presenter) in a slide window integral to the interface,

❖   launching of web pages and applications in separate windows,

❖   text chat for all participants,

❖   a listing of all logged-on participants,

❖   live audio capabilities

❖   a feedback tool – allowing users to respond 'yes', 'no' or '?' to questions.

The two rooms are differentiated by audio capabilities and a recording option. In the lecture hall only the presenter can talk to the participants (one-to-many audio) and this may be recorded. Conversely, the office allows multi-way audio communication between all participants but cannot be recorded.

Two on-line workshops were conducted. These were part of a three-workshop programme on the subject of e-learning. The first was a conventional face-to-face workshop, which involved a variety of participants with some degree of experience and expertise in e-learning and/or CSCW/CSCL technologies. During this workshop various notions of e-learning were discussed both conceptually and through the elucidation of experience. The workshop generated various definitions and requirements for technologies to support

different forms of e-learning. On the basis of the products of the first workshop, materials were generated for two exploratory[1] follow-up workshops using OfficeHoursLive.

The on-line workshops had the advantage of enabling participants from a wider geographical range to join some of the guests from the original workshop, for example, one of the participants of the on-line workshops, located in Canada, was a seasoned distance educator. One of the authors was an observer of the workshops; another took part as a guest.

Ethnomethodological analyses involves looking in detail at the materials collected during the study. In this case the field notes and text chat and audio recordings. The next stage is to look at the way in which participants coordinated and achieved activity as demonstrated in the materials. We provide a number of examples broadly cast as being of either technological or procedural relevance. These examples were chosen on a judgement of their relevance for the topics and the present audience, as well as for their interest and for their demonstration of our orientation to research. They are by no means our only findings or the only way in which the materials may be analysed from an ethnomethodological perspective. For example, we might have instead focused on use of topics, problem identification and solution, achievement of participation and so on. Instead, the paper is meant to provide an useful introduction that will allow the reader to see how an ethnomethodological analysis may be conducted and how it may be useful for CSCL.

4.0   TECHNOLOGICAL EFFECTS ON ACTION AND INTERACTION

4.1   Setting up the workshop

In both on-line workshops at least half an hour was taken to set up and make checks on the technology. During this period both the presenter-facilitator (P-F) and the participants ran checks on the system over and above the system check they completed when joining. This pre-event period shows interesting features. As soon as a participant enters a comment, such as a greeting, in their text window they can see that this tool is operational for them. Such an understanding is not so easily established with the audio tool. Consider example 1 below:

Example 1

Yasser says: "hanif, how can I use the mic"

Yasser says: "if I want to speak"

 Janet says: "try pressing control to talk"

Mahmood says: "Please read the instructions sent my Hanif in his last

mail, yasser"

Mahmood says: "Just press ctrl key to talk"

Yasser says: "hanif, did you hear me?"

 Janet says: "I think Hanif is busy getting things ready!!"

In this example, Yasser addresses the P-F ("*hanif*") asking him how the audio works. This query is answered by two of the other participants, Janet and Mahmood, who both provide directions on what to do. Mahmood is also directing Yasser to the event instructions (interestingly, the instructions given by the participants are not correct and the actual reason why Yasser's mic does not work is that in this part of the workshop only the P-F has audio privileges). Yasser addresses "*hanif*" again. The use of *"hear"* may well

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[1] We use the term exploratory here because although the workshop was a serious event participants knew that with such new technology a certain amount of patience might be required. They were also told that comments on workshop itself (e.g. structure, technology) were welcomed.

suggest that he has been trying his audio channel, however he might also be repeating his original question. Janet then suggests that Hanif is unable to attend to his question because he is busy "*getting things ready*". This example raises a couple of questions. **Firstly**, should there be a way for participants to test the complete system 'live' when they have logged in *on the day*? **Secondly**, is the dual presenter-facilitator role too much for one person? Clearly, it is difficult for Hanif to constantly attend to the chat while carrying out other activities in setting up. It has been suggested that in teleconferencing there is a role for a *skilled technology-facilitator to troubleshoot*, help participants connect to the system, etc. This reduced the amount of time taken to set up and problems with the technology during the event (Mark, Grudin & Poltrock, 1999). It seems that such a role was badly needed here. This then introduces the need for extra manpower when running on-line events. Participants uncertainty over what is and is not working could be eased by a **status indicator**, that is, a tool which would enable both them and the P-F to monitor which aspects of the application were working correctly, that is, do participants have an audio channel, text chat, access to the slides, etc.

Following on from this example Hanif clears up Yasser's problem over audio. Then Hanif runs a check to see if the participants can all hear him. He asks the participants to use the application's feedback tool. This has three options for them to record, *'Yes', 'No'* or *'?'*. Most responses are *'Yes'* but the following text discussion is triggered:

Example 2

> watson says: "Hanif - there's an echo though of everything you say about 5 seconds after you say it!!!!"
>
> Janet says: "I don't get an echo here"
>
> watson says: "hi Dave"
>
> Nadia says: "I get an echo too…"
>
> Janet says: "but I don't get it - so can't be your end…"
>
> watson says: "yes, but I will turn my volume down…its not too bad"

Although the participants can hear the audio, watson raises a problem with *"echo"*. What follows is a sequence where participants are trying to establish the problem source to try to rectify it. Janet reports *no* echo, *conversely* Nadia reports that she has an echo. Sequentially in the text chat, Janet's next utterance would seem to be attending to Nadia and Watson's utterances, stating again that she does not experience the echo therefore its source cannot be at their "*end*(s)". Indeed watson appears to read it this way, shown in his next turn. He agrees but then states that by adjusting the volume 'at his end' he has ameliorated the problem. If Janet's statement had been intended for watson it appears contradictory. If the participants have differing experiences of the audio it is likely to be problem *specific* to their end and unlikely to be a *general* problem. Janet's comment makes more sense when we know (from other fieldwork material) it is a comment to Hanif (P-F) in response to his *audio* query, which asked whether the echo was a generally experienced problem emanating from the position of application control (his end). This example illustrates that when participants enter text chat in response to an audio query (as they cannot answer over audio themselves) there is potential for the text to be (mis)taken by others as responding to previous text chat sequentially. This is a problem created by *asymmetric access to communication media*.

4.2 Disruptions caused by changing 'Rooms'

After the initial part of the event, where audio is only available to Hanif (in the 'Lecture Hall') the participants were asked to move to the 'Office', where audio and text are available to all, for an open discussion. This involves exiting the 'Lecture Hall' and moving to an area called 'Lobby' from which the Office application can be launched[2]. This creates some problems. Consider Example 3, from the first event:

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2 The utility of the metaphorical 'Lobby' as an intervening venue between 'room' is questionable. Although there may always be difficulties in changing applications, the Lobby provides an extra venue for participants to get lost in.

Example 3

Ian says: "I'm in the lobby. What now?"

Ian says: "Can we talk in the lobby?"

iesi says: "I will be right with you"

Janet says: "you were in it for a second"

Janet says: "he's not on the audio list"

watson says: "I get a message from Hear me saying… "Can not open Wave out device .. close any applications using play back

device"

watson says: "I am going to log out and log in again…bye for now!!!"

iesi says: "Ok"

Ian says: "Why has the sound quality deteriorated?"

Janet says: "because it's a different talk thing"

watson says: "hi guys… I am back and all seems to be OK now"

Mustafa says: "Yasser is trying to log in but he is unsuccessful"

The example begins with Ian stating that he is in the lobby and asking *"What now"* and whether they can talk (use audio) there. Then follows a sequence when participants are trying to log into the 'Office'. Janet (who is in the 'Office' already) provides information on the status of Hanif (indicated by "i*esi*") then watson. First (to Hanif), that Hanif was "*in it* ('Office') *for a second*". Hanif's system crashed logging him out of audio but not text, thus meaning he needed to re-connect. That his system has crashed is not directly available for the participants, instead his name appears on the attendees list for a short period before disappearing again, just as it would if he had deliberately logged out. As well as the problems the P-F had, both (Dave) Watson and Yasser also experience problems joining this new 'room' (application).

This example shows that precisely the type of difficulties that arose at the beginning of the event resurface here. Checks of equipment are required and also there is a widespread confusion as to the location of participants and whether they are properly logged on. Clearly a few (Hanif, watson and Yasser) all experience technical problems. The 15-20 minute delay in changing rooms *disrupts the on-going business of the workshop*. In event 2 similar difficulties occurred during relocation. That changing 'rooms' may well cause disruptions is something to consider when organising such a workshop. It is also important as a system's design issue, that is, such a metaphor only seems to increase the confusion of the participants rather than facilitate the changing of applications. The situation in the both events is exacerbated by the P-F's role problems.

4.3   Mixed media confusion

Another interesting issue can be illustrated by interspersing the text from Example 3 with a basic transcription of the audio talk surrounding it (text as before in grey):

Example 4

Hanif: *"hello, hello, hello. Can you hear me now? (Long pause…) I think you can hear me now. Can you speak please? Push*

on and hold on the CTRL key then speak. I hear you well Nadia, Ian, Dave? Mustafa I hear you very well. Hello Janet, I hear

you well. You know better than me Janet right? Is everybody there now?"

Janet: *"Dave."*

Hanif: *"Are you there, can we hear your voice."*

> Hanif: *"You can speak by holding down the CTRL key and start speaking. We can go on with the rest of the session now."*
>
> Janet says: "he's not on the audio list"
>
> Janet: *"Dave is not on the audio console any more, I am not quite sure what has happened to him?"*
>
> watson says: "I get a message from Hear me saying… "Can not open Wave out device .. close any applications using play back device"
>
> Hanif: *"Okay, so I think. Dave, Do you have problems with Audio?"*
>
> Janet: *"He cannot hear you, use text Hanif."*
>
> watson says: "I am going to log out and log in again…bye for now!!!"
>
> Hanif (reading Dave's message in chart area) *"I get a message from Hear me audio error, close other tools using audio… I will log off and come back again. Okay Dave see you in a while."*
>
> Janet: *"Hanif he could not hear what you are saying."*

Just like Example 2 where confusion occurred when Janet answered Hanif's audio query using text, similar problems over mixed media occur in the Example 4. In the first utterance Hanif asks the participants to undertake an audio check. Janet seems to note that Dave has not spoken by uttering "*Dave*". She then types that Dave is not on the audio list before re-iterating this vocally. Dave then types in his error message to indicate his problems. Hanif then asks whether Dave has problems before Janet states that Dave cannot hear him and directs him explicitly to the text window for communication. Hanif then reads out Dave's message before Janet repeats that Dave could not hear Hanif. Here we see the type of difficulty that can arise using **mixed communication media**, particularly in cases where technical difficulties arise. Hanif uses a communication medium currently unavailable to Dave to ask him to run an audio check. It is apparent he is not attending to the text box, as this should have led him more quickly to understand the problem. Instead, Janet brings this to light and directs him to where evidence of the difficulty may be found (in text). This is an archetypal difficulty of the technology, which would not arise in face-to-face communication. It requires *a monitoring of two channels* (audio and text) to understand. One may well consider, that in his role as both presenter and facilitator, this task is made more difficult for Hanif. Janet's contribution to solving the problem by drawing Hanif's attention to watson's problem, since watson cannot, bears similarity to the way that users in Collaborative Virtual Environments helped one another out, demonstrating the *'work to make it work'* required by the participants (Bowers, 1996).

4.4   Separate rather than integrated applications

Potential difficulties arise when launching other applications through Office Hours. They launch as a separate window, which can be obscured by the main application window. In Example 5 the P-F has launched a web page showing "*PlaceWare*" (a CSCW application), for the participants to discuss, as indicated by Ian's question ("*Is Gemisis=PlaceWare?*"):

Example 5

> watson says: "I am distracted… where are we up to…"
>
> Ian says: Is Gemisis=Placeware?"
>
> watson says: "I can't see this screen… where is it? I must have been checking my email
>
> when you told us about it…"

It is launched centrally and is accessible to all, but watson indicates that he cannot see it. Hanif has to direct him verbally so he can re-orient himself what they are doing. Notwithstanding the fact that Dave may have lost his place due to other distractions, "*I must have been checking my email…*" such examples suggest a **fully integrated interface** would be preferable. Incidentally, participants' *multi-tasking*, such as watson's checking of his emails, has been noted elsewhere when using remote technology and can be considered both a good and a bad thing (Mark, Grudin & Poltrock, 1999).

5.0 EVENT ORGANISATION: EFFECTS ON ACTION AND INTERACTION

A number of problems arose in the on-line events that were due to the material's structure and it's manner of presentation. To illustrate these problems a description of the events and activities surrounding key points in the workshops are given below.

5.1 Presentation of slides in "Lecture Hall": Event 1

The first slide shown (after the agenda) was a long textual definition of e-learning, with a text box for participants to input comments. This was presented by P-F as a definition agreed at the face-to-face workshop. He then directed: '*This is the first slide, a definition of e-learning, could you please give feedback on it, enter your name and type your responses*'. In text chat Mustafa, who joined the workshop shortly prior to this slide being presented asks 'What should we do now?'. Hanif, who has received no comments from the participants, elaborates on his previous instructions, directing these at Mustafa. He also types the instructions into the text chat area. Then, still having received no responses he tells the participants that they only have a short time to respond. Janet then asks him to read out the definition (text) and Hanif does so. In the text chat the participants discuss problems with resizing the window. *Hanif has received no responses and he moves onto the next slide*. This is another textual description requiring text comments from the participants.

For the first slide Hanif received no comments at all. The event continues like this, even once the participants are in the Office where they can respond by audio (this will be discussed further below). There is general confusion about what is expected and the slides are moved on too fast for the participants to complete what is requested of them. This results in a certain amount of frustration on the part of both the presenter, as indicated by his repeated pleas for comments, and the participants, as illustrated, for example, by watson's text comment;

Watson says, "have we finished this one... arghh...too late..."

Now this might seem like poor workshop presenting and management, or alternatively like recalcitrant participation, until we consider what is actually going on from both the sides of the participants and the presenter:

❖ *Lecture theatre - the participants experience* : The participants are presented with slides, which they must read and then comment on by typing into the comment box. It is necessary to scroll the definition slide to read it and enter any comments. This particularly makes reading more difficult and Janet actually requested that Hanif reads the slide aloud rather than just presenting it by text. Overall, in this context, reading and typing takes a longer time than listening and speaking. In addition, where synchronous text is used for communication, comments are notably short. The definitions were lengthy and the task required reading, thinking and producing typed comments, which takes a considerable amount of time and effort. It also seems, that the task was not well defined for the participants – consider both Mustafa's question (above) and Janet's comment:

Janet says, "what comments do you want on this slide – I am unsure"

The task, then, was not an easy one and participants became involved in a text discussion about the technology (the ability to resize, or not, the window and how to add their name to the comments). This can be seen as a form of **pre-work**. That is, the participants are *attending to the properties of the technology* and how they might make the task easier, rather than *attending to the task itself*. So here the task is hampered both by its presentation, and by the properties of the technology used to present. Indeed, this issue of resizing the window is not trivial as in addition to the text discussion here the issue was again raised during the audio discussion. The problems the participants experienced were compounded by the removal of the slides before they had completed their comments.

❖ ***Lecture theatre - the P-F's experience***: Now consider the same activities from the P-F's perspective (shown in his actions and interactions). He puts up the slides and waits for the comments. However, no comments come in. After a request for clarification by a newly arrived participant, he rephrases his instructions. No comments come in. He reiterates his request for comments. No comments come in. On request from a participant he expands on the slide. No comments come in, but the participants are engaged in a text discussion about window re-sizing. When still no comments are received the presenter moves on to the next slide. The presenter ***cannot locate the source of the trouble***, the system gives him ***little indication of the activities of the participants*** – are they carrying out the task he has set them? Are they doing something else? Face-to-face the presenter would be able to see if the participants appeared to be attending to the task or, if not, to address the situation through additional instruction and/or discussion. Hanif's only feedback on the task is through his receipt of comments, which only happens once they have been completed (and he seems to underestimate the time it takes to complete the task) and through the text chat, which in this case might appear to be unrelated to the task (although it is in fact related to the procedure of the task rather than the content of the task). On the evidence available to him Hanif appears to conclude participants are not attending to the task in question. He prefaces the move to the Office with '*I think you are bored enough now*'. ***The presenter is dissociated from the participants and their activities***. In this situation then, trouble is occurring and can be seen to be occurring but the presenter has difficulty locating the source of the trouble. He appears to see it as non-participation when in fact it seems to lie in the combination of task and technology. Some comments were received on the next slide but they were brief and perfunctory and similar problems seemed to occur, with complaints about slides being removed too quickly.

5.2 Presentation of slides in "Lecture Hall": Event 2

In the second workshop Hanif took a different approach to the presenting of slides. Instead of long textual slides the slides were presented as a short statement with multiple choice answers. Although this restricts the comments that could be made, this worked better, since feedback was actually received. However, still the fact that the actual activity of the participants was obscured persisted as a problem. Again slides were removed whilst participants were still completing their responses. This is neatly illustrated in the two text chat extracts below, where participants frustration is clearly visible, occurring as Hanif moved between slides;

Example 6

> Ben says: "You STOLE my form"
> Janet says: "I didn't fill in the form – it vanished halfway through!!!!"
> Ben says: ":-X"

Example 7

> Janet says: "no"
> Ben says: "NO!!!!"
> Ben says: "HOLD ON!!!"

These examples suggest the need for a **presenters' indicator** showing the activities of the participants. One simple resolution could be to indicate to the presenter when participants are interacting with the slides, either by entering text, scrolling, or other indicators of interaction.

5.3 Facilitating discussion

One of the most notable features of these on-line workshops was the lack of in-depth multi-party discussion arising during the events. It might have been supposed that in the "Office" environment, when multi-way chat is available, there would be a discussion. However in the Office little discussion ensued from the slides. On being asked for *"comments"* one person would speak. Occasionally after they had finished, on prompting from the P-F, another might contribute. The P-F would then move on to the next slide. Reasons for the lack of discussion might include:

❖ The presenter did not appear to attend to the responses simply giving minimal acknowledgements then asking for more comments. Thus the presenter did not seem to be facilitating the discussion. One reason for this is that the presenter in the first workshop was playing two roles, one of a presenter and the other of a technical facilitator and thus was often occupied with the technology itself, plus monitoring comments in the text chat, and so *was not* attending to the answers given (data from field notes). In the second workshop two different people carried out the presenter and technical facilitator roles and so the presenter was able to pay more attention to facilitating the discussion. This encouraged greater interactivity but discussion was still stilted.

❖ A major factor in the lack of discussion is likely to arise from problems in turn-taking and conversational management that arise from the use of such technologies. These problems have been discussed in detail elsewhere (e.g. Heath, 1991) and arise from the unavailability of many of the subtle cues used to manage everyday interactions, such as glances, body orientation, etc.

❖ It is interesting to note, that rather than the non-participation that the presenter seemed to attribute to the participants the participants *worked hard at making the workshop work*. It has already been noted how the participants attempt to help one another with technical problems and how they report problems such as the echo with the sound and the slides being moved on before they have been completed. In addition, during the audio session, the participants spent much time trying to address the problem of getting a discussion going, with Janet asking the presenter to expand on points and to slow down and watson suggesting the need for more structure. In fact, it is this talk about the problems with the event, which comes closest to a discussion of the issues of e-learning. That most of the participants make some sort of comments on one of the slides, demonstrates their willingness to participate despite the obstacles presented to them by both the technology and the organisation of the event.

❖ So if as it seems, the participants are working hard to make the event continue, why does the presenter appear to attribute non-participation to them? The answer might lie with how the technology affects interaction, as has already been noted by the activities of the participants, which are not readily available to the presenter so non-response could have a number of meanings, from gone for a coffee to attending to the task. In face-to-face situations a whole range of cues including facial expression, body orientation, etc. give feedback on the attentiveness of the audience, for example a sea of blank faces might cause a presenter to re-phrase the question. These cues are not available in Office Hours. Also, in face-to-face situations silence is an important interaction device and the use of communications technology brings new meaning to silence (be it technical failure, transmission delay or uncertainty as to who's turn it is to speak), yet users when a technical failure is not assumed (Bowers, 1996) tend to use their everyday methods for understanding such silences which can call into question the interaction competencies of the users (Ruhleder & Jordan, 1999).

❖ Thus the presenter is also working hard to make the workshop proceed. This can be contrasted with the face-to-face workshop where fluent discussion about the issues at hand, that is e-learning, occurred through the work of participants and the presenter together. Whereas here despite all the presenter's and participants' work to make the workshop work a smooth running event is not achieved.

❖ Thus we can see that the technology, that is the medium of presentation, interacted with the material presented and its manner of presentation to create multiple problems; and despite the best efforts of the participants and the presenter to address these problems, the business of the workshop was disrupted, leading to notable frustration on all parts.

Some suggestions for how such a workshop might be organised to counteract some of these problems include:

❖ Separating presenter and technology facilitator roles.

❖ *Addressing the task to the properties of the media*, for example, not requiring reading of lengthy passages, rather designing highly structured tasks perhaps employing a round-robin format to encourage verbal participation, etc.

❖ Signalling when tasks are completed, for example using the feedback tool.

6.0 CONCLUSIONS

In this paper we have sought to demonstrate how an ethnomethodological study of a CSCL technology in use can inform both future design of these technologies and the organisation of learning events using them. To this end, throughout the analysis, pertinent issues have been brought to light.

When setting up the workshops a specific period of time was required to test the technology and users experienced confusion over what aspects of the technology were and should have been working. This period also first brought to light the limitations of the dual P-F role suggesting the need to organise checks as a necessary part of the event with a dedicated technical facilitator in constant supervision. This, of course, raises issues of the manpower required to run such seminars. A status indicator would also help the participants and facilitators to keep track of which aspects of the application are fully working and any breakdowns that occur. It was noted that problems also occurred when participants changed rooms and that these disrupted the flow of the event. For all involved keeping up with what was going on and attending to the latest action caused problems at times. This was demonstrated in the instances of confusion caused by using mixed communication media and asymmetric access amongst participants. Similarly problems occurred when new applications were launched in separate windows, suggesting a single coherent interface would be preferable. Currently keeping up requires constant immersion and attention to different aspects of the computer screen and communication media. This can be exacerbated by the tendency of users to multi-task while participating! This burden might be lessened with *event notification* and the ability of participants to highlight specific actions, for example, with the use of earcons (auditory icons) for 'help' or to direct attention to text chat (Gaver, 1991). In event 1, reported here, this might have been particularly useful for Watson when his audio was not working.

The analysis of the organisation of the event illustrates the interaction between the technology and the tasks to be completed through it. Currently such technology is far from transparent and the properties of the media available to the participants should naturally be considered in the design of the tasks. For example more structured audio discussions could encourage greater participation since this could overcome some of the turn taking problems associated with such media. In addition, in these workshops the P-F was dissociated from the ongoing activities of the participants leading to various troubles facilitating the event. Remedies for this could be technical such as providing activity indicators for the presenter, or organisational; for example, requiring participants to indicate task completion using a feedback tool.

Real-time, distributed CSCL is increasingly possible with the development of technologies like Office Hours. This paper reveals that such technologies currently provoke extra, on-going work for participants to establish the grounds for learning to take place. This raises some issues concerning the quality of educational experience currently possible. However, as with all new environments, new practices will evolve in concert with technical development. This can be aided by reflective evaluation. We hope that we have introduced and demonstrated through this paper how this may be achieved through an ethnomethodological study.

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