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ABSTRACT

Research into indicators of learning occurring in e-mail discussion groups investigated how to maximize factors that enhance learning and networking using e-mail and how to minimize factors that inhibit learning using this medium. Data from a range of e-mail discussion groups formed the basis of the research, with focus on e-mail discussion that supports informal learning contexts. These three professional development groups were followed: organizational development and learning (Group A), primary and high school administrative issues (Group B), and women's health (Group C). Five days of discussion and three topics per group were analyzed to explore how communication was being mediated and managed. Findings indicated the prevalence of challenge in the interactions among members in all groups. Group A exhibited a consistently positive outcome from the challenges. Features contributing to this outcome included high moderator involvement; a climate of respect, support, and consideration for the other members; minimum of personal attacks; successful clarification processes; and a discussion that progressed and developed. Factors that contributed to an increase in dissonance in Groups B and C and to lack of progress and positive development were individual misunderstandings and misinterpretations of a previous post and spending more time on restating opinions rather than discussion. (Contains 57 references.) (YLB)

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ELECTRONIC LEARNING COMMUNITIES? LESSONS FROM THE ETHER

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Abstract

This paper will summarise research-in-progress into indicators of learning occurring in email discussion groups. The research seeks to investigate how can we maximise the factors that enhance learning and networking using electronic mail, and conversely, how we can minimise those factors that inhibit learning using this media. Data from a range of email discussion groups form the basis of the research, with focus on email discussion that supports informal learning contexts. These include community groups, groups using email for professional development purposes, and within-organisation groups. The paper will compare and contrast what is known about learning in traditional group formats with learning utilising electronic media, thereby providing an analysis of the intersection of conditions that seem to effect the utility of the email discussion group as a forum for learning.

Paper D6/1998 in the *CRLRA Discussion Paper Series*

Introduction

In this rapidly changing world more and more individuals, groups within workplaces and organisations are communicating using electronic means for sharing, learning and teaching across the boundaries imposed by geographical constraints. In trying to make sense of this emerging technological environment some authors highlight its utopian possibilities (e.g., Nestor, 1997; Rheingold, 1994) and others its negative or destructive features (e.g., Shenk, 1997; Stoll, 1995). Given the burgeoning nature of computer-mediated communication in general and usage of electronic mail in particular, it is important to understand the ways in which email communication enhances and inhibits processes of dialogue and thus learning, so that these communicative strategies can be maximised. Therefore, the study for evidence of learning, if it occurs, and how it occurs within this virtual context is extremely important.

The aim of this research was to investigate the characteristics of the learning process when it is facilitated by computer mediated communication in non-formal learning contexts.

Non-formal learning in adult and vocational education is becoming increasingly important as continuous learning and improvement processes become recognised as imperative for organisations, professional groups and communities to keep up to date in response to changing environmental conditions (Owen, 1995; 1996.). The use of email discussion groups in both formal and non-formal learning situations will be enhanced if we know and use those features of email discussion groups which facilitate learning.

Literature review

Despite the significant increase in email traffic, there is a dearth of research into email use in (a) non-formal contexts and (b) in the ways in which engagement in this form of communication is part of a learning process. The purpose of this research is to help overcome this serious limitation. A review of the literature reveals that past research into email usage has largely examined advantages and disadvantages of email use in formal educational courses such as those found in TAFE (e.g., Beckett, 1997; Quested, Mitchell & Bluer, 1997; Zanado, 1997), tertiary settings (Chen, 1994; Courtney, 1993; Gardner, Kendall & Kendall, 1997; Hesketh et al, 1997; Maglen & Lee, 1997; McQuail, 1994; Sebrechts, 1995; Seymour, 1994), or as part of curriculum aimed at professional development (e.g., Janavicius & Grffiths, 1997; Lewey, Fowell, Bowskill & Worsfold, 1996; Wesley & Franks, 1994). Of the studies that have investigated email in non-formal contexts (e.g., Castells, 1996; Maglen & Lee, 1997; McIssac, 1997, Tapscott, 1996) none have focused on learning as an integral part of the communicative endeavour. It is contended that understanding how email

participatory lists are used in the process of learning will enable better use to be made of the growing resource base of computers and electronic networks for electronic communication (Fowell & Lewey, 1995; Scott, Diamond & Smith, 1997; Walkers, 1995). A better understanding of how email lists are used in learning will enable individuals and groups to use them more effectively.

Indicators of Learning

The investigation of what constitutes "learning" has generally been limited to research undertaken in formal educational settings, such as schools, colleges or universities or undertaken under in laboratory conditions (Patel, 1995; Lave 1996). The understanding arising from such studies has been found wanting (Bredo, 1994; Chaiklin & Lave, 1996; Resnick, Levine & Teasley 1993); and more recently there has been a call to develop better understanding of learning as it occurs in dynamic real world environments (see Chaiklin & Lave, 1996; Engestrom, 1994; Patel 1995 ; Resnick, Levine & Teasley; 1993). To this end, for the purposes of this paper, learning has been defined as the transformation of experience, through reflection, conceptualisation and action (after Kolb, 1984). According to Swieringa & Wierdsma (1992), Kolb's work established a bridge between methods of learning.

> One gains experience through doing; reflecting is the mediating on this experience; thinking is the attempt to understand that experience by means of analysis and conceptualisation; one then makes choices, decides on the next steps and then the cycle repeats itself (p. 23).

An experiential learning model is regarded as a strength because it pursues a framework for "examining and strengthening the critical linkages among education, work and personal development" (Kolb, 1984, p. 3). Such learning often occurs in dialogue with others. Hence, the term "community" has been used in this paper to signify the social nature of learning and is used in a broad sense. Community is not used to define a geographical location but rather a "community of practice". Communities of practice refer to the relationship individuals strike up to solve problems. When engaging in a community of practice people "share tacit knowledge and through dialogue bring this to the surface; they exchange ideas about work practice and experiment with new methods and ideas; they engage in discussions which affirm or modify theories in use; they innovate new problem-solving routines and simultaneously repair the social context" (Hendry, 1996, p. 628). Learning which takes place in communities of practice is enhanced by social capital in the form of networks, commitment (seen as the result of developing trust) and shared values. Kilpatrick et al (1998) suggest five indicators of the quality of the learning processes involved as social capital is developed: shared language, shared experiences, self development, developing trust in others, and identification with the community.

From this perspective, the following features of learning can be identified as important. Learning:

1. is actively constructed by individuals and groups based on their interpretation of their experiences in relation to their histories and the relationships between them and the social world.
2. is both a process and a product of the interactions we have with others.
3. is embedded in contexts which are socially and historically constituted and are linked to broader societal structures and systems.
4. is often mediated by artefacts. As such, learning is distributed across individuals, other persons and the physical environment.
5. is contested. Learning involves people who are related in multiple and heterogeneous ways "whose social locations, interests, reasons, and subjective possibilities are different, and who improvise struggles in situated ways with each other" (Lave, 1996, p. 17).
6. has an emotional component, because the need for learning often arises from discrepancies between knowing and experience, which in turn produce "visceral arousal" (Brookfield, 1995).
7. is a matter of degree. It can be reproduction (of past practices, beliefs or attitudes) adaptation and adjustment or it can be innovative (leading to the creation of new knowledge and a reconceptualisation of understanding and changed action).

A study investigating how email is used for learning purposes provides a good example of learning in the social world. Individuals share their particular experiences, reflections, understandings and strategies (1) with one another (2). Such dialogue is located within a particular context of the email discussion group (it will be influenced by the email groups' history, structure and established protocols for communication) and that dialogue will also be influenced by the cultures and societies of participating members (3), including the cultures of particular occupational groups or workplaces. The learning that may occur is mediated by the form of communication being used (email) (4), and the learning contained within the email discussion group resides not in any one individual's head, but is distributed through the text and across the individuals participating in the group. If dialogue is about matters that are important to participants then there are likely to be differences of opinion, challenges and alliances that are contested as participants attempt to make themselves understood and to understand the perspective of others (5,6). The dialogue will have differing purposes, and will involve reinforcement of existing practices, minor adjustment or major re-conceptualisation involving transformed understanding and action.

Research design

The major research questions included the following:

- What are the similarities and differences between opportunities for learning in physical environments and in virtual environments using electronic mail?
- In what ways are email discussion groups being used for learning?
- What is the nature of communicative process in electronic mail?
- How does this interaction enhance or inhibit learning?

Procedure

Following university ethical clearance for the research, a list of potential email discussion groups were identified. The sample included email lists from workplaces, professional development and small business groups because of their relevance to the Centre's work in regional Australia. The selection included lists where discussion seemed to be prolific as well as lists where communication was more spasmodic. List owners were contacted, advised of the purpose of the research and how it would be conducted and asked, if they supported the proposal, to post to the list a "notice of intention to subscribe to this list for research purposes". The notice outlined to list members the purpose of the research and that if members were comfortable with the research proceeding, then we would subscribe to the list and "listen in" for a period of one month. List participants were encouraged to contact their list owner if they were concerned about the research and if they did not want it to proceed. Participants were also encouraged to contact members of the research team if they wanted more information or to receive a copy of the findings. Strategies for identifying material that should not be included in the research analysis during data collection were also outlined. Participants were advised that if they did not want specific comments to be collected as part of the data, then they should post "not to be reproduced outside this list" in front of the message and we would observe their request. However this strategy was never used.

Of the twelve list owners contacted, three declined to participate, explaining that they believed the subject matter discussed on the list was sensitive, or the list was not well enough established. Two others did not reply at all. Seven list owners agreed to post the notice of intention to the list. Following this, on one group a member expressed concern and on the list owner's advice, the purpose and methodology of the research project were described in more detail. This served to allay the participant's concerns. There were a number of group members who voiced support for the research and requested a copy of the findings when available.

Data were collected from seven groups over a one month period, yielding 41,809 lines of text for analysis from 94 data sets (much of the data were collected in a daily digest form and one workplace forwarded an entire month of email in one file). The characteristics of the email discussion groups include: two used by people involved in small business in remote locations (Australian sheep and beef graziers); three groups used by people for professional development purposes (educational administration; human resource development; women's' health); and two organisations using email to enhance work practice (a service provider and a provider of basic utilities). In addition to these sources of data, we had proposed collecting email from two formal educational institutions where email is part of study requirements (TAFE and University), however this has not yet occurred, though it may in the future when the academic year recommences.

Data analysis

The data have been entered into a data analysis program called NUD*IST (Non Numeric Unstructured Data Indexing Searching and Theorising). This program allows for text units to be coded and analysed for relationships and theory building The data has been supplemented by demographic information obtained from the List owner.

Three types of data analysis have been performed to date:

1. The entire data set has been searched for key words and phrases to indicate learning.
2. A detailed analysis of one five day sample from each of the discussion groups has been coded; and,
3. From each group, three "threads" or specific topics of discussion have been identified and analysed in terms of the processes of dialogue or discussion in evidence.

Reviewing the data for indicators of learning

In terms of (1), indicators of the processes of learning, included reviewing the data for evidence of:

- experiencing (describing one's own or others, telling stories, recounting a problem by seeking information, asking questions);
- reflecting (which includes elements such as noticing and attending, identifying, labelling, pattern seeking, associating);
- conceptualising (which includes elements such as, pattern generating, explaining, theorising, generalising, re-evaluating);

- experimenting (which includes elements such as envisaging, developing choices, enacting, validating) and finally appropriating new experience.

For (2) the data were coded in terms of the (i) characteristics of the list, (ii) of the group, and (iii) of the text. For the list characteristics we coded in terms of moderator involvement, purpose and size of the list and the density of traffic. This included Johnson and Johnson's framework (1986) of task and maintenance functions which were used to examine group process. In addition, we looked at the text for emotion, sarcasm, manners, email protocols, grammar protocols and the descriptors used in the contributor's signature field. Text communication was also coded considering the types of communication that was occurring. For example, information seeking and sharing, and feedback such as clarification.

In terms of (3) the data were explored to identify how new topics of conversation were initiated and what then happened in the conversation that ensued. Data were collected on who participated; how often and what was said. Dialogue was coded for patterns which included giving and seeking information and/or opinion, challenging, supporting responding and expanding.

Limitations of the research

Learning is an inherently personal phenomenon. The aim of this research is to look for indicators of learning: That is, evidence of learning processes displayed in written text. However, there is no guarantee that learning has indeed occurred or that what appears in the written text constitutes what a person has learned. Nevertheless, text-based communication does share many features of others forms of communication through which people learn and so, indicators of learning can be identified in the data.

Limitations also include the size of the database. Data from seven groups could hardly be generalisable to all usage of email. Nevertheless, there are some conclusions that can be drawn from the analysis of the data set that can inform email list owners, moderators and participants about strategies to enhance the learning that can arise from the electronic discussion.

Findings and implications

In relation to the first research question, Table 1 compares some of the features of physical group learning environments and virtual learning environments in a non-formal context.

Table 1: Features of communication

Comparison of Traditional and Virtual Learning Environments

Features	**Physical Group Learning Environments**	**Virtual Group Learning Environments**
Time and Place	Finite Synchronous	Infinite A synchronous
Forms of communication	Face to face Spoken Continuous and immediate One topic Memory trace not easily visible Requires continuity in concentration	Virtual Written Space to reflect and refine Multiple topics concurrently Easily visible (text) Non- continuous
Role of facilitator	"teacher" plus group Can be both direct and indirect, therefore finer degrees of intervention.	"moderator" plus group Public More visible
Features of communication	Embodied	Disembodied

A synchronised email discussion has several features which sets it apart from face-to-face interaction. The key distinction between physical group learning environments and virtual group learning environments is that when people meet physically; their communication and learning is embodied, in

that it occurs within a particular place and time. In a virtual environment, such communication and learning processes are disembodied, so that features such as time and place no longer shape the interactions.

Many of the barriers to participation in traditional classroom and other training settings imposed by time and space do not apply to a synchronised email discussion. People have time to think about their answer. They can polish what they want to say and consult with resources (people and artefacts). There is no problem 'getting a word in' - there is always space for one more contribution. Yet despite this, there are many people who do not contribute and who "lurk" on lists. People can remain unheard in the background and contribute as frequently or infrequently as they wish. In physical learning environments, people can draw on a wider array of communicative strategies, which include non-verbal communication and immediate feedback. In contrast, virtual learning environments are limited to communication via text and do not have access to these other communicative tools. However, the amount of communication can be more varied in a virtual environment compared to a physical one, since "multiple conversations" can occur almost simultaneously.

In a physical learning environment, the responsibility for group direction may rest simply with group members or there may be a facilitator involved. In a virtual learning environment, the list moderator plays a facilitative role to some degree in that they can intervene if the conversation gets off track, they can edit a contribution or suggest the conversation needs to move on. This role is somewhat akin to the role of a chairperson in a physical group discussion. Given that a facilitator or chairperson operating in a physical environment has access to a greater number of communicative strategies (as described above), their interaction can be exercised in both direct and indirect ways. By contrast, the group communication process and interventions by the moderator are visible in the text.

Indicators of learning within email discussion groups

To consider the research question: "In what ways are email discussion groups currently being used for learning?" searches were undertaken on key words indicating learning as follows:

Indicator:	*Examples searched for*
inquiry	asking a question
experience	my/one/his/her experience
reflection	reflection, reflect, reflecting, notice, wondering,
conceptualising	understand(ing) concept, conceptual, generalise, think, theory

experimenting experiment, act, acting, plan, planing, choice, choose

The results displayed in Table 2 illustrate that there seems to be a lot of inquiry and learning occurring within the email lists. As an indicator of seeking information and inquiry, the database was searched for questions and 88 of 94 (94%) documents contained these. Less questions were asked in the workplace groups than in the professional development groups which indicates that the lists probably serve different purposes. Determining the purpose a list will be one of the first issues that will need to be resolved by anyone thinking about establishing an email group. Is the purpose of the electronic communication to make announcements, to share information, or to problem pose and problem solve?

Table 2: Summary of indicators of learning across documents

Results of Search for Indicators of Learning

Organisation	Total Documents	Inquiry	Experience	Reflection	Concepts	Experiment
Small Business	18	14 (77%)	7 (38%)	4 (22%)	11 (61%)	14 (77%)
Prof. D'ment	62	60 (97%)	53 (85%)	57 (92%)	59 (95%)	60 (97%)
Workplace	14	14 (100%)	4 (28%)	13 (93%)	4 (28%)	14 (100%)
Total	94	88 (94%)	64 (68%)	74 (77%)	74 (78%)	88 (94%)

In terms of the kinds of information being discussed, the review of the entire data set provides evidence of learning being as part of the content of discussion. The data indicates that experiences were being shared and discussed in 68% of documents; reflected upon, generalised from and used as a basis for action in the majority of documents. Yet the broad review also shows some large differences in these indicators of learning activity across groups. For example, what were the nature of these questions being asked, the experiences being shared and the theories being invoked? Were they addressed to the satisfaction of participants? Were certain stories, reflections, suggestions likely to trigger a greater pooling of ideas and resources in particular contexts? To answer these sorts of questions a more finely tuned qualitative analysis was needed,

Managing communication in computer mediated communication

As stated in the literature review, successful learning involves reflection on experience and the transformation of that experience through conceptualisation and action (Kolb, 1984), and that this process occurs in a social context. In the case of email discussion groups, the social context is the communication through textual dialogue with others. Just as use of computer mediated communication is expanding, so also is its development as an unique form of communication (Halliday, 1993, Spender, 1995, Witmer and Katzmen, online, Voiskounsky, online). To develop a greater understanding of how people interact and communicate in computer mediated communication, it is important to learn more about this new and genre, and to ascertain how computer mediated communication might enhance or inhibit the learning process.

In order to answer the research questions "What is the nature of communication in email discussion?" and "How does this communication enhance or inhibit learning?" we decided to look at the three Professional Development groups, which we will call group A, B and C (see Table 3) as these groups had the highest incidence of indicators of learning. Five days of discussion and three "threads" or topics per group were analysed in order to learn more about how communication is being mediated and managed in email groups.

Table 3: Summary of characteristics of professional development groups

Professional Development Groups

Features of Groups	Group A	Group B	Group C
Interests	Organisational development and learning	Primary and High school administrative issues	Women's Health
Communication traffic	High	High	High
Moderator involvement	High and direct	None	Limited and indirect

There were a number of interesting findings from this analysis, some of which were particular to one or two groups, and others which seemed to be a shared trait among all of the groups. One of the most interesting features which was common to all of the groups was the prevalence of challenge present in the interactions among group members. The reason that this feature is so interesting is because of the potential for challenge and a challenging environment to both enhance and inhibit learning, depending on how it is managed. It is generally recognised that challenge and support contribute to a conducive learning environment (Brookfield, 1996; Pogson & Tennant, 1994; Kaye, 1994). A supportive environment is necessary for individuals and group members to feel safe to take risks and to disclose fears and/or concerns to the group. Challenge is also needed for learning, to encourage participants to critically examining and clarify their assumptions, thinking, value systems, attitudes and/or practices (Kaye, 1994).

However, there were two differing outcomes from the challenges which occurred in the discussion groups. Group A exhibited a consistently positive outcome from the challenges that were issued. The features of this group which have been identified as contributing to this outcome include: high moderator involvement; a climate of respect, support and consideration for the other members was maintained; personal attacks were minimal, and those that did occur were either 'snipped' by the moderator or publicly addressed; clarification processes seemed to be successful; and the discussion or thread seemed to progress and develop. However, when people were challenged in groups B and C there were a number of factors which contributed to an increase in dissonance among group members and to the lack of progress and positive development. The challenges seemed to result from individual misunderstandings and misinterpretations of a previous

post, which in turn lead to conflict, tension, dissonance and personal attacks. Kaye (1994) stressed that '...challenging and feedback are more likely to succeed when they are *not* construed as personal attacks' (p. 223, emphasis added). The participants of Groups B and C spent more time restating and reproducing their own positions and opinions on an issue, rather than discussing the introduced topic and the contributions of the other members. It would seem that the challenges and dissonance which occurred within these groups had an inhibiting effect on both the discussion and the groups processes, rather than a constructive result. The differences between the outcomes can be noted in Table 4:

Table 4: Summary of difference between outcomes from discussion group challenges

Difference between Group Challenges

Group A	Groups B and C
Climate of respect and trust is maintained.	Climate is volatile which creates tension.
No personal attacks	Frequent personal attacks
Discussion develops and progresses	Discussion becomes stagnant
Moderator involved	Moderator not involved

One of the main contributing factors in the increase of dissonance among groups members was the prevalence of misinterpretation of a message and how this misinterpretation and following clarification were handled. Conceptually, the communicative process involves the coding of messages into the chosen medium: speech or text. The recipient of the message then, through a process of interpretation, decodes the message. In order for the communicative process to be completed the message must be received and understood (Gee, 1990). However, to achieve this understanding there is a process of interpretation. Interpretation and interpreting are integral parts the communication process. However, it is recognised that interpretation is a complex process (Halliday, 1985; Fairclough, 1989; Gee, 1990), and that any text will produce '...multiple meanings, alternatives, ambiguities, metaphors' (Halliday, 1985, p.xiii). Consequently, it is during this process of interpretation that tensions can be created through misinterpretation.

The difficulty of establishing a 'correct' interpretation of a text is not a modern issue. In Plato's *Phaedrus*, Socrates condemns writing as a bastardised form of communication. He said that once words are written down 'they are tossed about anywhere among those who do and among those who do not understand them...they cannot protect or defend themselves' (Jowett, 1871, p.611). Face-to-face and oral communication involves facial expressions, gestures, voice intonation, pitch, visual clues and cues, and usually clarification and correction of interpretation are readily available from the speaker. As described earlier, in written (or computer-mediated) communication the reader does not have the same number of tools and clues with which to interpret the text, neither is the author of that text present to stipulate the correct interpretation.

In the data, evidence of misinterpretation, and the difficulties of making oneself understood and clarifying meaning, were extensive. The differing reactions to this can be seen in the previous discussion and comparison between group A and groups B and C. A number of arguments emerged and continued among list members as they attempted to make clear the meaning of their previous posts and discussions, attempting to clarify and correct the various interpretations presented by other list subscribers. Such misunderstanding can create frustration, irritation, anger and tension between members of the list and seem to be the catalyst in a number of 'flames' (a message which includes aggression). Some examples of comments where participants were attempting to make themselves understood appear below.

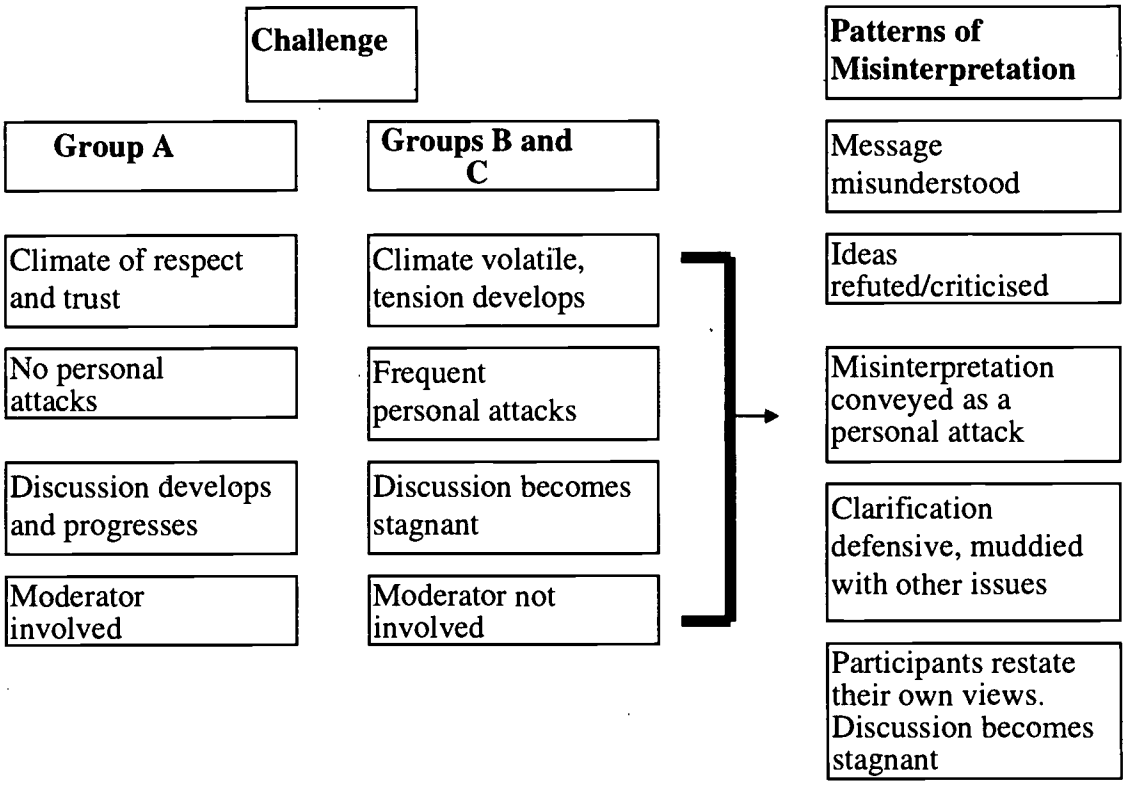
> 'I find it very difficult to keep having to respond to your interpretations of what I say. You make up things you think I am saying instead of just reading what I am saying. Please don't interpret my words'
>
> 'It IS tough to have the written word only. So easy to misinterpret, read an unintended tone, surmise an attitude or emotion.'
>
> 'You don't really read what we write. You tend to interpret our words instead of just reading them'
>
> 'My comment was not to say what you think I said. Read further. The internet is sometimes a wild place to express ideas and the interpretation can get confused'.

These incidences of negative challenge seemed to follow a pattern of misinterpretation among members of groups B and C. The initial misinterpretation which occurred was conveyed to the original speaker as a criticism of their ideas and often as a personal attack. The following clarification tended to be defensive and confused with other issues. As a result, the interactions became more personal, the disagreements began to involve other participants, and the discussion of the original topic became stagnant (see Table 5). It is important to note that the tensions and conflicts which started between individuals often crossed over into other threads and involved more participants. It would seem that these arguments were

neither isolated to one topic nor to a small number of members, but moved and involved a number people.

Table 5: Summary of the challenge process in relation to misinterpretation

The Pattern of Negative Challenge and Misinterpretation



However, it should be reiterated that dissonance and conflict among groups and individuals does not always have an inhibiting effect upon learning and productive discussion. As noted earlier, learning can involve the contestation of ideas, a process which is often linked with the feelings and the emotions of the learner. Such a situation will produce dissonance and tension among individuals as they reflect and critically examine their own values, assumptions, thinking and ideas. Similarly, disagreements can also be beneficial in group development as people to learn to work with others and as a group. Through reflection and discussion of such dissonance, group members can learn how to operate their group processes more effectively.

The tensions which exist within these forms of computer mediated communication are similar to those which occur when any form of interaction, in particular written communication, is subject to 'decoding'. However, it should be noted that electronic communication is, in many

ways, different to conventional written language. It is more visual and possibly more expressive through the use of "emoticons", that is, graphic icons, graphic accents and/or 'smilies'. These are symbols which are developed from conventional keyboard marks (see Table 6). Other features of computer mediated communication include words written in capital letters to emulate shouting or emphasis; the creation and adoption of unusual spellings; extensive and multiple use of punctuation, especially exclamation and question marks; the expression of 'action' by putting words inside < > or * *; abbreviations, and acronyms (see examples below). The development, acceptance and usage of characteristics, such as the creation and use of symbols, indicate that over time this form of textual communication might become recognised as a new genre of communication (Halliday, 1993, Spender, 1995, Jones, 1995, Witmer & Katzman, online).

Examples of Computer Mediated Communication Textual Characteristics

Capitals:	IIIIIIIIII DDDDIIIIIIIIIIDDDD IIIIIITTTTT!!!!!!!
Colloquialisms:	Gonna, wanna, yup
Unusual spellings:	Cuz and cos
Action words:	*grin* or <giggle
Abbreviations:	My 2c
Acronyms:	IMHO - in my honest opinion

Table 6: Summary of graphic accents

:-((Very sad	:-)) Extra smile
:-) Sad	8-) Intelligent/wearing glasses
;-) Winking – "just joking"	:-{ "Oops" – slightly serious
=-o "Oooooooo" - surprised	:-} "Oops" - humorous
:-)> Sticking your tongue out	;-p Sticking your tongue out
:o) Clowning around	:-<> A kiss
:-) Smilie	:-Q Smoking a cigarette
(_o^o_) Smart ass	(..) Embarrassed/shy – looking through your hands
_o \o_ __\ \ / |__ o _ o/ \o/ |- __/ __/o \o | o/ o/__ /\ /| | / > > / \ (\ /o\ /) | (\ / | < \ / \	

Another interesting point to note, with reference to groups B and C and the communication which occurred within these groups, is that group B participants were mostly male and group C had a predominantly female membership. While the levels of challenge, conflict and dissonance appear to be comparable in both groups, there was more evidence of self-effacement, and the use of conciliatory and encouraging comments in the female group (see Table 7). Some examples of the kinds of conciliatory comments which formed part of the communication in group C included: "my two cents", "warmly", "fondly" "best wishes", "thanks for your time", "I really appreciate your time" "just my humble opinion", "peace", "thanks for reading this if you made it this far".

Table 7: Summary of male/female conciliatory comments

Discussion Group	Number of Messages	Number of Threads	No. of Conciliatory Comments
Group B (mainly Male)	176 Messages	27 Threads	45 Comments (in 25% of messages)
Group C (mainly Female)	193 Messages	33 Threads	85 Comments (in 44% of messages)
Difference	17 Messages	6 Threads	40 Comments

This has been noted by Herring that in computer mediated communication there are more assertions, self-promotion, authoritative orientation, and challenges by males. Alternatively, females offer more attenuated assertions, apologies, supportive remarks, explicit justifications and personal orientation (Herring 1993). It will be interesting to explore in further research what the overall male/female ratio is in the groups which exhibit these sorts of characteristics, and how this might influence the levels of male/female participation.

Conclusion: "Lessons" from the ether

The findings outlined in this paper support the following conclusions and provide "lessons" for those interested in enhancing continuous and ongoing learning using email as a form of computer-supported communication. They include:

(1) Group based email communication serves different purposes. It is important for those planning to establish email lists to consider the purposes the list is to serve. Is it to provide information and to play a role similar to a bulletin board? Is it to encourage discussion and problem solving? Is it to support an emerging community of practice? The purpose of the list will have implications for the ways in which the list may need to be moderated.

(2) People use lists for different purposes. There was some evidence, from the private emails received in support of the research project from group members, that a lot of people observe and monitor the email discussion without participating. While many might be happy to remain silent members, it is important to consider ways in which the structure of the email list may limit opportunities for participation. For example, many discussion group are multi-threaded, and if

members receive their email posts in one digest form, it can be hard to monitor all of the different conversations and reply to them before the topic has moved off in a another direction. In all seven groups, the level of group participation in the discussion recorded for one month averaged 9 percent of total group membership. Examining reasons for differing levels of participation and developing strategies for enhancing participation is an area that requires further investigation.

In contrast to silent group members, are those who treat the email forum as a "stage" for their own purposes and needs. There were a few people who seemed to revel in their capacity to inflame a situation, create disruption and/or to take the discussion off on a tangent suited to their own ends. Responses included taunts, put downs and antagonistic comments. In many of these emails, a gendered discussion also seemed apparent, with a number of put downs directed from men toward women as a result of a challenge made by a woman contributor, which was in turn ignored and deflected. Group members and the moderator have a role to play here in making sure the dialogue occurs in a climate which respects all participants.

(3) When dialogue involves issues of genuine importance to people, there is a capacity for the discussion to become heated, particularly when it involves a clash of values. List moderators and members need to consider the level of intervention that may be required to bring a conversation to a close or to remind group members of the protocols of productive dialogue. In one list, the moderator played a facilitative role in a reasonably unobtrusive way, by regularly posting the "guidelines for participation" to the list. This seemed to work as a reminder to list members of the public nature of the virtual space in which they were operating and thus as a means of providing focus on the purposes of the list. The moderator's level of intervention and ways in which potentially inflammatory situations are managed can also provide a role model for list members. A rich area for future research would include examining the similarities and differences between the roles of a moderator and an group facilitator; identifying the educative strategies email moderators could bring to their role.

(4) As a means of attempting to resolve potential points of misunderstanding, group members could monitor the degree of message complexity in their own posts. Is the purpose of the message to seek clarification of someone else's post? To provide clarification of an earlier contribution ? To support, refute or expand on an idea? It seemed that there was a greater incidence of misunderstanding when all of these aspects were combined into one message, without first ensuring that the receiver has interpreted the message as it was intended.

These conclusions are presented as a means of attempting to identify strategies which can enhance email communication to support continuous learning and development. Computer-mediated communication presents some wonderful opportunities to enhance and transform the way we work, live and communicate with others. However, it also has the capacity to simply transfer a range of inequalities and dysfunctional communication approaches that can inhibit learning and development in this social context. Attending to the ways in which learning is part of the email communication process is important so that processes supporting and enhancing electronic communication as a medium for learning can be effectively established and supported. We hope that these tentative findings will be of use to list moderators, educators, community developers, professional development facilitators, workplace trainers and organisational leaders.

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