

## On-line learning: frontiers in the creation of learning communities

Mike Davis & Kate Denning  
Centre for Adult and Higher Education  
University of Manchester

### Introduction

The aim of this paper is to look at the social and learning dynamics of computer mediated communication in postgraduate education. The research was conducted within the tradition of ethnographic action research and draws upon insights from the theory and practice of Adult Education, and from Social Anthropology.

The objectives were:

- to identify what group characteristics were demonstrated during action science casework using web conferencing collaborative technology
- to look for evidence of these groups becoming learning communities.

Key to this paper are concepts of learning communities and collaborative learning. Learning communities are learning environments premised on people sharing a set of common issues or problems and having the desire to learn ways to address them. Different from traditional teaching and training, learning communities focus on the collaborative efforts of participants to build knowledge and develop skills through practice and to reflect on the knowledge they have constructed.

Technology is becoming an integral part of the collaborative work and learning effort in organisations, often creating virtual groups functioning across time and distance. Collaborative technologies such as groupware, provide a dynamic process to support people in sharing experience through dialogue, inquiry, and “mutual knowledge” creation for the construction of “shared resolutions” to ill-defined problems (Schön, 1995). This type of technology can help to translate virtual groups into virtual learning communities, offering both a means and a reason for sharing experiences, building and capturing group knowledge, and improving performance in a distance environment. Hiltz (1994) makes this point when she contrasts first and third generation distance learning:

*Most distance learning has taken place using an individualistic or self-study strategy... However computer-mediated communication is especially well suited to collaborative or cooperative learning strategies. (Hiltz, 1994: 24).*

The purpose of this research is to explore the characteristics of learning communities in a virtual environment and identify the important elements that contribute to or hinder their development. Key figures in adult education such as Freire (1972), have suggested that students learn best when the learning environment is permeated with a sense of community. Whether community exists or not is a question that is being asked of the virtual classroom in a way that it has rarely been asked of the conventional classroom. But as Cook (1995) writes:

*First, we do not know how often community actually develops in classrooms. The assumption that a sense of community exists among students in traditional classrooms may be false in many or even most classrooms. (Cook, 1995: 36).*

Solloway and Harris (1999) believed that they were more likely to achieve community by consciously keeping out of the discussion forum but communicating via email and phone. Their fear that students would use the instructor as a marker for pegging their own responses was well founded in the initial panic-ridden messages they received. They quote one doctoral student as writing:

*If he doesn't get in the discussion, how will I know how he thinks? How will I know how to direct my answer to the big question or my journal responses to the readings? How will I know what he wants? (no page number)*

They go on to write:

*As the semester progressed, the technical problems and student frustration diminished. We received fewer desperate communications and more that expressed elation (no page number).*

Evidence from previous studies in CMC (Davis, 1997; Davis & Holt, 1998) suggest that successful interchange may not arise spontaneously and its absence can contribute towards social isolation and a lack of participation. While there are models that suggest that remediation of this can be straightforward (Harasim, Hiltz, Teles, & Turoff, 1995) we are keen to identify appropriate facilitation strategies to maximise effective participation.

Solloway and Harris found that *"the threaded discussion platform proved to be unsatisfactory for promoting a sense of community on-line"* and go on to advise that a variety of ways of communicating is necessary. We have not found this to be so in our use of the groupware <facilitate.com>. We have created groups some of which have formed learning communities, some of which not; some of which have demonstrated collaborative learning, some co-operative learning and some individual learning; whilst others have demonstrated very little learning. Clearly in our experience the key factors are more complex than the type of communication forum provided.

Hiltz, describing the software they use, writes:

*This assignment was carried out using the 'activity branch' software. In a response branch, each student must answer the question before being able to read the answer of others (Hiltz, 1994: 59).*

As we shall demonstrate below, this kind of structure may work counter to attempts at building a learning community. Whilst the focus is on making the individual learner work independently, then a scaffolding of ideas - students building upon one another's comments - is absent. Without scaffolding it seems unlikely that collaborative learning is actually happening or that a learning community will emerge.

The data for this study are the product of an on-line postgraduate course in adult education called *"Cross-cultural Perspectives on Reflective Technologies in Work-based Learning"* taught collaboratively by the Department of Adult Education, University of Georgia and the Centre for

Adult and Higher Education, University of Manchester. This course is based on the examination and interrogation of students' case studies using Action Science, "*the science of interpersonal communication*" (Argyris *et al*, 1985) Students take it in turns to present a case study in groups of five or six. The data are the verbatim on-line transcripts of the web conversations as they engaged in the action science casework. The use of <facilitate.com> web-conferencing software has enabled the researchers to act as participant observers, focusing on group behaviour and an analysis of participants' "talk" on-line as they work to understand actions and meaning created in the virtual context. The on-line work of each course has generated approximately 200 pages of transcripts for analysis using NUD\*IST (Non-numerical Unstructured Data: Indexing, Searching and Theorising). Additional data from participant and facilitator observations, reflection papers, and course evaluations has served as supporting documentation.

Among the more obvious findings is that some groups are more successful than others and this paper is an exploration of the contrast between two extreme examples: *Group Three* from the 1997 data and *Windows* from 1998.

### Findings

A quantitative analysis of the first case of each of the two groups under examination gives a stark account of some of the differences. The total number of interventions made into *Group Three* was 17 over the period of a week, and the total number into *Windows* was 198 including one late entry made outside the week's time limit. Within this the distribution of entries throws further light on what was happening in the two contrasting groups.

	Casewriter	Tutors	Remaining group members	Total
Group Three	2	4	11	17
Windows	79	7	112	198

Table 1 – Levels of activity in *Group Three* and *Windows* (Raw data)

Each of these figures can then be expressed as a percentage of the whole to see who is 'working' the most in the two groups.

	Casewriter	Tutors	Remaining group members	Total
Group Three	11.8	23.5	64.7	100
Windows	39.9	3.5	56.6	100

Table 2 – Levels of activity in *Group Three* and *Windows* (%)

An initial observation suggests that the casewriter and the tutors are particularly significant in the success of the group. The casewriter in *Group Three* did very little and there was therefore little for the group to work on. Action Science works by group members creating and following lines of enquiry. If group members receive no response to their questions and observations, they are unable to build a hypothesis about what might be going on. In this case, the fall in the level of activity by the casewriter has been mirrored by a rise in the level of activity by the tutor. This quantitative analysis, however, leaves many questions unanswered and even unasked.

Upon closer examination of the two groups there are a number of potentially significant differences in the content of the messages the participants sent to each other. A qualitative analysis provides a more useful indication as to the likelihood of a group becoming a learning community.

From our previous work we have highlighted a number of conditions which we believe are necessary for the formation of a learning community and several which we believe hinder. This is based on analysing the data from eight groups over a period of three years although in this paper we are concentrating on two groups.

Key criteria likely to promote the formation of a learning community, are as follows:

- risk-taking/experimenting - pushing the boundaries of what is acceptable
- challenging/facing rather than avoiding conflict
- building or scaffolding of ideas
- social activity
- humour
- metacommunication/reflecting on the process
- expressing interest
- feedback/disclosure

In contrast, criteria likely to inhibit the formation of a learning community:

- accepting without question
- denial
- passifying - avoiding rather than facing conflict
- closing down inquiry
- lack of interest
- lack of social activity
- working independently

The above list of conditions necessary for the formation of a learning community fall broadly into two categories which we have described as attention to group dynamics and attention to learning dynamics.

<b>Group Dynamics</b>	<b>Learning Dynamics</b>
risk-taking	building or scaffolding of ideas
facing rather than avoiding conflict	challenging
social activity	experimenting
humour	metacommunication?
expressing interest	reflecting on the process?
reflecting on the process?	
feedback/disclosure	

*Table 3 Some characteristics of group and learning dynamics*

Both of these sets of criteria have encouraged us to focus on six conceptual areas of consideration:

1. Social organisation – the extent to which people relate to one another

2. Type of learning – along the continuum from individual through co-operative to collaborative.
3. Orientation towards task and/or tutor – the response of individuals and group towards the work of the group and the tutor's role in encouraging learning
4. Bion's model of group work – Bion depicted two modes: *basic assumption*, in which a group is avoiding work, and sophisticated, which he came to call *Work*. Basic assumptions include flight/fight (BA *f*) pairing (BA *p*) and dependency (BA *d*) (Bion, 1961)
5. Emotional climate – the dominant emotional response to the task and the working of the group
6. Group strategy – response to challenge.

In considering these conceptual areas, it occurred to us that we could combine them in a grid – see Table 4 on the following page. We have plotted four possible responses on the grid and in each case, have identified the extent to which group members perform in relation to the above areas, as follows:

*Fragmented by technologies (1,1)* A group which is low on both learning and group dynamics may have very little activity and will not be concerned about the group processes nor will it be effective in its learning objectives. Members will be isolated from one another and their approach to learning, where it exists, is individual. Socially, they are isolated and their basic assumption is *flight* – from the task and any discussion about the task. This leads to public indifference (but there are email messages that indicate private frustration and anger) and a group strategy of passive resistance. This is all well summed up by a casewriter in group Three who commented on his own case as follows:

*Jack: i (sic) have reviewed your input, and appreciated your interest, the questions that were asked will help me focus on the situation.*

As indicated in Table 1, this represents 50% of this case-writer's output and clearly the experience has made little positive impact on the him and the rest of the group. The condition of anomie is described as:

*A condition in which the members of a superficially well organised society feel disconnected and isolated, resulting from an excessively specialised social structure which limits closeness and intimacy. (Reber, 1988: 38)*

and this seems to accurately describe aspects of the life of this group at this particular time.

*Summer Holiday (1,9)* If a group is high on group dynamics but low on learning dynamics then it might be where the group have fun but achieve little learning. Here, members are displaced from normal life and they demonstrate self interest and individuality. Work is avoided and the complex notion of BAp is acted out. In this, the group waits for a magical event to emerge from possible pairing of other participants. Accordingly, they can be high on social interaction – often manifested through social conversation at the expense of work, for example:

*Sally: Hello group from Univ of London - it's cool and beautiful here. I too feel refreshed after a couple of days of sleep before coming over.*

Indeed, the social is the dominant theme in this type of group and this, of course, can be very satisfying for the members.

*I'm ok, you're ok (9.1)* If a group is high on learning dynamics but low on group dynamics then members will show little concern for each other personally and will tend to work independently rather than interdependently. They will, however, be acting co-operatively but this has to be distinguished from collaboration. In the latter, understanding and insight grow from the social construction of knowledge. In the former, it is more competitive and individual understanding and insight is the desired outcome. Compare the following:

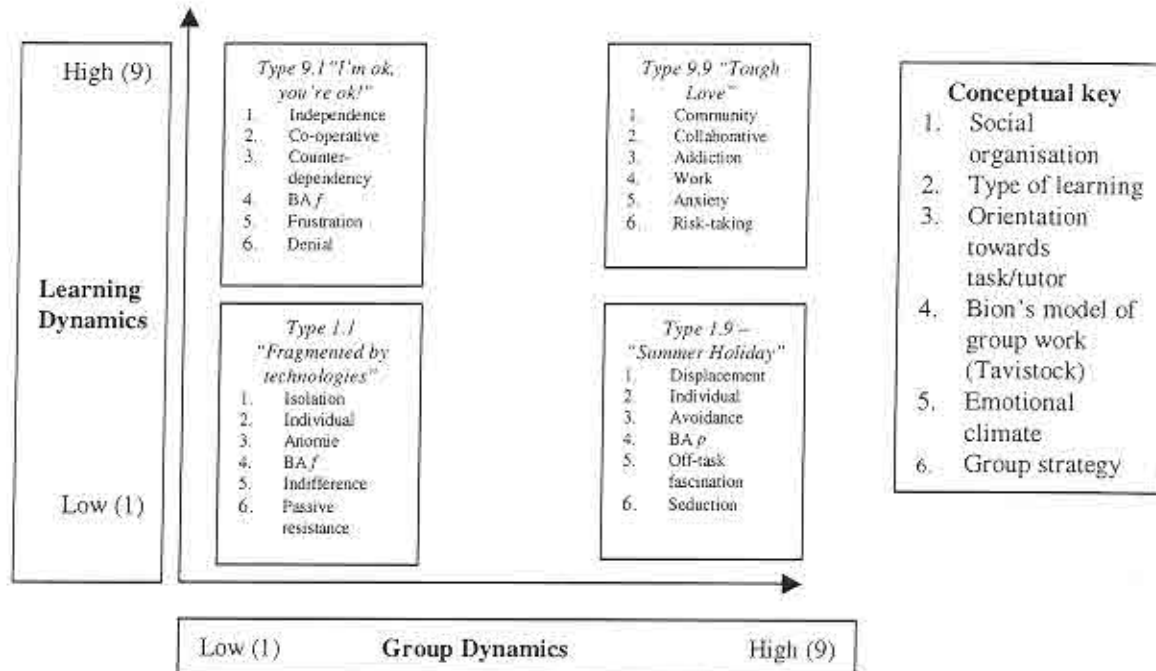


Table 4 Learning community grid

Kath: I find Katrina has made an intervention that has set me thinking...

Janet: Just to tag on to Kath's response...

Martin: Good job Kath you've hit a big problem on the head ... maybe one solution is ...

with:

Janis: It is a little challenging to offer a ladder of inference without (sic) some feedback from you, Jack

Inevitably, groups who find themselves in this situation demonstrate counter-dependent behaviour with frequent (although invariably unsuccessful) appeals to authority to deal with the uncertain group dynamics. Equally inevitably, tutors are held responsible for their failure to make the groups work more effectively and members deny their collective and individual responsibilities for the difficulties the group is experiencing.

*Tough Love (9.9)* Groups who manage both group dynamics and learning dynamics get as close as is possible to being a learning community. They behave in a collaborative manner, in particular in checking out assumptions and perceptions with other group members, e.g.

Kath: *I'm going to be really mean now Rowena and assume that "Ooh that's harsh" means I hit the nail on the head there. Is my assumption correct?*

The work of the group takes on an incredible pace and volume: students report logging in at all times of the day and night and many independently have talked of how addictive the process is, e.g.

Janet: *I agree about this becoming somewhat addictive. I find myself wanting to checking [sic] several times daily.*

The consequence of volume and intensity is that considerable insight is developed into the interpersonal processes under exploration through the action science cases. Action Science as an organisational intervention is very powerful but it can raise high levels of anxiety given that the design is to explore participants' interpersonal incompetence. Invariably people act out the characteristics of their case during interrogation, and that makes necessary risk-taking, as in these examples:

Teresa: *Rowena is there any way that D was directing her original statement/question to the coach or someone else (and not at you) and she perceived (sic) your comments as being pushy, or Rowena being a "know-it-all" etc*

Kath: *Here goes, I feel a bit scared at stepping into this one first so feedback would be helpful for me.*

The combination of these characteristics are what lead us to believe that learning communities of great value can be created on-line. While it is an ideal type, we have seen groups spend considerable periods in this modality, be capable of falling out of it and returning to it when conditions have been adjusted. Bion's model is helpful here. He argued that a group could either function in *work mode* or in *basic assumption* and we believe the same of groups in cyberspace.

### **Conclusion**

However, as yet there is no clarity as to how one group is successful and another is less so and that is the matter for our further research. What is clear to us, however, is that the on-line world can be a powerful learning environment that demands effective and challenging facilitation, with its attendant risks, as this email might imply:

*Kate today was great... In particular your comments, they really made me think. I have written this in the case for the rest to read, but I shall give you more detail.*

*For many years I rock climbed and I remember the feeling of being scared witless on many occasions ... I loved it - that was part of the challenge. And today the thought of something hidden that suppressed my emotions also scared me a bit.. The uncomfortable feeling I could compare with being scared during rock climbing.. I know it sounds stupid, but that's how it felt. [...]*

*I also would like you to know that it raises my hackles when you & Mike [...] challenge what I do feel and think and make me question how I behave and act.*

*This may be old hat to you, but for some one my age and "grooming" it is all new "territory" to me. (email correspondence March, 2000)*

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