

Overcoming Transactional Distance as a Barrier to Effective Communication over the Internet

Steven Barrett

University of South Australia steven.barrett@unisa.edu.au

The use of the Internet as a medium for distance education requires students to transmit large amounts of socio-emotional information to people who are often total strangers. This can make people feel vulnerable, so they limit the amount of this type of information they transmit across the Net, which in turn creates a barrier to effective communication. This study assessed the quality of the communication that occurred as part of the teaching in a subject in a Doctorate of Education program. The quality of the communication did not accord with the expectations gleaned from the literature, due to the nature of the relationships that existed between the participants. The findings of this study can be used as the basis of interventions designed to improve the effectiveness of the Internet as a medium for undergraduate distance education.

Distance education, transactional distance, discourse communities

INTRODUCTION

Verbal communication is supported by a raft of non-verbal signs and cues that reinforce what we are saying or clear up any ambiguities. For example, we may cross our arms when we feel threatened by what somebody else is saying, or we nod our heads when we agree with what they are saying. However, barriers to communication may arise because people from different cultural groups sometimes have different forms of non-verbal communication. The confusion that can be caused by seeing non-verbal communication that does not accord with what you are saying can lead to misinterpretation. Consequently, when we talk to other people we also need to engage with them non-verbally in order to reduce the transactional distance that exists between people.

Most users of email are probably aware of the problems that can be caused by transactional distance. When we use the Internet or email as a medium of communication we cannot use non-verbal forms of communication to help us get our messages across to our readers, sometimes with dire consequences. Scott Fahlman of the Department of Computer Science at Carnegie Mellon University was the first person to successfully address this problem. Fahlman is reported as saying that he saw the chaos that resulted from misunderstood postings. He is quoted as saying "the problem was that if someone made a sarcastic remark, a few readers would fail to get the joke, and each of them would post a lengthy diatribe in response. That would stir up more people with more responses, and soon the original thread of the discussion was buried" (Gengler 2002; 3). So on 19 September 1982 Fahlman sent the world's first emoticon, :-), the smiley face with which we are all familiar. The second emoticon was the grumpy face, :-(, followed soon afterwards. Fahlman intended that these two emoticons be inserted before a statement to indicate that the statement as intended to be taken light heartedly or seriously. However, the grumpy face soon evolved into a marker for displeasure, frustration or even anger. Emoticons are comprised of ordinary keyboard characters that form an image when viewed sideways. Within a few months lists of dozens of emoticons began to appear in emails and on Internet sites. Emoticons therefore, substitute

for non-verbal forms of communication, which facilitates communication across the Internet.

Transactional distance is becoming increasingly recognised as a barrier to the effective use of the Internet as a mode of distance education delivery. The highly personal nature of the communication that occurs when subjects are delivered over the Internet means that students are required to communicate significant amounts of socio-emotional information. The need to transmit large quantities of socio-emotional information to strangers over an impersonal mode of communication can make people feel vulnerable and open to personal attacks. So they limit the amount of this type of information that they include in their email messages or bulletin board postings, which in turn creates a barrier to communication. Emoticons are useful substitutes for non-verbal communication in emails, but is their use sufficient for Internet moderated teaching activities? This study investigated the variety of strategies that a class of postgraduate students used to reduce the transactional distance when using the Internet as a substitute for face-to-face seminars.

This paper has three further sections. The first section of this paper is a brief discussion of the problems associated with transactional distance in the context of distance education. The second section is a report of the cyber-colloquium, which was a study of the methods that doctoral students used to maximise the effectiveness of the Internet as a substitute for face-to-face teaching activities. The third section is a brief checklist for action when using the Internet as a teaching tool. This section incorporates some of the lessons that were learned during the cyber-colloquium.

TRANSACTIONAL DISTANCE

The University of South Australia, like many other Australian universities, is a second-generation distance education institution. These institutions are characterised by their reliance on the use of printed materials as the primary teaching medium (Jones 1996). As opposed to third generation distance education institutions who use the Internet as their primary teaching medium. The major objective of second generation distance education organisations is the production and distribution of print based teaching materials. Consequently, little attention is paid to the concept that learning is a social process that relies heavily on communication between students and between students and their teachers.

Print-based media rely heavily on the postal system to distribute teaching materials and return of student assignments. However, the increasingly international nature of the distance education services that are offered by Australian universities, such as the University of South Australia, and the continued reliance on postal services results in significantly increased time to distribute teaching materials. These increased times can lead to significant learning problems for distance students. Jones (1996) identified the following eight problems;

- the late arrival of teaching materials;
- inability to respond to errors or omissions in the teaching materials;
- inability to respond timely to student concerns;
- delays in providing both staff and students with feedback on the progress of students;
- a general lack of communication between students and their peers and teachers which results in feelings of isolation;
- long lead times in developing teaching materials;
- little control by teaching staff over the style and presentation of teaching materials; and
- an inability to cope with change.

Despite these obvious problems print based media remains popular with Australian distance education providers for a variety of reasons.

Distance educational students are commonly disadvantaged by both geographical and transactional distance (Caladine 1993). Transactional distance is the psychological space that exists between the learner and the teacher. It is a function of the extent of the dialogue that students have with other students and their teachers as well as the responsiveness of the subject to respond to the needs of individual students. The print-based nature of second-generation distance education institutions is not only static, but it also limits the dialogue between students and their teachers. It also reduces the responsiveness of the subject. These problems with print based teaching materials results in large transaction distance for distance education students.

Harasim *et al* (1995) argue that teaching across networks, which of course includes the Internet, allows students to communicate with their teachers and other students outside of normal class times or business hours in order to;

- extend opportunities for class discussion and debate;
- increase access to teachers;
- submit or exchange assignments;
- facilitate group tasks; and
- expand opportunities for informal group discussion and social interaction.

In the context of distance education, networking and the use of Internet tools such as WebCT can be used to enhance;

- communication between students and teachers;
- information exchange;
- assignment submission; and
- feedback.

Networking also introduces opportunities for improved interaction between students and collaborative learning opportunities in distance education.

Consequently, both geographical and transactional distance can be overcome by using the Internet as a medium for distributing teaching materials and as a forum for learning activities. The Internet also permits distance education students to engage in the informal learning activities that on-campus students take for granted. However, the increased use of the Internet is unlikely to be extended to point where it supplants the use of printed materials in second-generation distance education institutions due to the cost of hardware and the cost of providing additional information technology support personnel. For example, UniSANET, the Internet platform that was recently introduced at the University of South Australia does not include a function like WebCT due to the cost of installing sufficiently powerful servers. Hence, the coordinators of subjects that are taught externally cannot conduct bulletin boards or chat sessions.

However, it is possible that the geographical and transactional distance between staff and students might be reduced through better use of email. For example, at the University of South Australia it is becoming increasingly common for subject coordinators to set up web serve lists of student email addresses. These lists serve a variety of functions, but they are primarily used as a medium by which information and teaching resources are transmitted to students by the subject coordinator. However, they can also be used as a mode of communication between staff and the class as a whole. This ability of web serve lists to facilitate communication between staff and students may act to reduce the transactional distance between staff and students who are studying in both the internal and external mode,

but not to the extent that web based communication tools allow. Consequently, web serve lists might be a low cost, *albeit* an inferior, alternative.

THE CYBER COLLOQUIUM

Introduction

The participants of this study were the dozen students enrolled in *Doctoral Colloquium*, which is a compulsory subject in the Doctorate of Education at the Flinders University of South Australia, and the subject coordinator. This is a full year subject that provides final year doctoral students with an opportunity to reflect on the research projects that they had undertaken during their doctoral studies. The primary teaching activity is a two-hour weekly seminar in which students present their own work for discussion. The cyber-colloquium was designed to replace the last seminar for the subject. The participants logged onto WebCT from their homes and offices, while the session was facilitated by the subject coordinator from his office at the university. The cyberspace colloquium was conducted in two phases. The first was a bulletin board that was open from Wednesday 3 November to Sunday 7 November 1999. During that period, students were required to post at least one comment to the bulletin board each day. The second phase was a one-hour synchronous chat session held on Monday 8 November in place of the usual seminar for this subject. The class was given a two-hour training session on the use of WebCT in the week prior to the chat session being conducted. Participants were asked to read the report entitled *Community Partnerships in Education 1998, Volume 1* (DETE 1998), which is commonly referred to as *Partnerships 21*, from the perspective of a member of a school council who has been asked to report back to his or her school council to recommend whether the school should accept the State Government's invitation to participate in the *Partnership 21* initiative. The bulletin board and chat session were designed as fora in which the students in this subject could discuss the issues, develop their arguments and arrive at their conclusions.

The focus of the study was not a report on the merits, or otherwise, of *Partnerships 21*. Rather, the focus of this study is to report on the quality of the communication that took place during both phases of the cyber colloquium and to make recommendations about how the quality of the communication could be improved.

The Bulletin Board

The comments posted to the bulletin board were, by and large, quite long and quite formal. These comments tended to be at least one, but often two or more long paragraphs in length. The paragraphs resembled the building blocks of good essays. They tended to be well constructed with lead sentences, a formal argument and a concluding sentence. Indeed, a report about the merits or other wise of *Partnerships 21* could easily be written simply by collating these paragraphs into a single document.

The report that the class was asked to read clearly polarised the group. Most did not favour 'opting in'. However, at least two members of the group did favour 'opting in'. From reading the comments it became clear that that contributions to the discussion reflected the value systems and political beliefs of the contributors. The group is too highly educated for the comments to be simple assertions of their point of view on the discussion topic. Consequently, these paragraphs tended to be argumentative and supportive of the writer's own views. Hence they often contained references to texts in order to provide evidence to support the argument of the writer.

The participants were using time and space very differently during the bulletin board phase than they did during the face-to-face seminars. The physical separation of the class members

and the asynchronous nature of bulletin boards provided participants with the time required to carefully craft a well constructed comment or response that reflected their points of view. The bulletin board format also meant that contributors to the discussion could not be interrupted. However, it needs to be noted that the participants in this study were all mid-career educators with good written communication skills who were employed in one bureaucracy or another. Hence, they are highly experienced at communicating complex ideas through the medium of short pieces of writing, such as letters and memoranda. At this stage it is important to note that the written communication skills of the participants to this study are, hopefully, much better than those of the vast majority of undergraduate students. This observation may have some implications for the effectiveness of WebCT and other Internet tools as a medium of communication.

The views being expressed in contributions reflected strongly held beliefs, or values, of the contributors. It was therefore very surprising to observe that contributors were so readily prepared to wear their hearts on the sleeves in the bulletin board. Especially given how reserved most of the participants tended to be in the face-to-face seminars. Presumably, the physical space that existed between participants also created some emotional distance between them and their posting to the bulletin board, which allowed the participants to open up to the class and so include more socio-emotional information in their postings. The group seemed to be acutely aware of how much some people were opening up to the group and couched their contributions to the board in ways that were supportive of other contributors.

The highly personal nature of the communication during the bulletin board meant that participants were required to communicate significant amounts of socio-emotional information (Lai 1998). Participants used the following five techniques during the bulletin board phase in order to enhance the sense of trust that had been developed during the course of the face-to-face seminar series.

- **Salutation;** participants tended to commence their contribution with a friendly, either personal or to the group, greeting of some kind.
- **Thanking;** participants thanked other members of the class for their previous comments before moving onto making their own contributions to the discussion.
- **Personal references;** participants commonly referred to each other by use of their first names.
- **Acknowledging and praise;** participants often acknowledged and praised the contributions of other before making new contributions. Indeed, a small number of cases the contributions were solely comprised of acknowledgment and praise of other contributions.
- **Sharing personal information;** a number of participants really opened up to the class and prefaced their contributions by sharing a personal insight with the group.

At this stage it is interesting to note that at no time did any of the participants use emoticons to facilitate the discussion.

In order to enhance the trust that had already been developed within the class, participants tended to be courteous and uncritical, in a personal sense, but not an academic sense, of the contributions of others. That is, participants were careful to direct any critical or negative comments directly to the material posted on the bulletin board and not the author. This approach allowed participants to develop a degree of emotional distance between themselves and their postings. Such an approach also represents good practice in assignment marking. Experienced markers attempt to create some emotional distance between their students and their work so that students do not task negative feedback personally because feedback is directed at the work and not the student.. Contrary to what is often reported in the literature

concerning the conduct of participants in public discussion fora (Lai 1998). Participants did not use inflammatory comments. They also tended to use terms such as “personally” to indicate that their contribution was personal and a tentative view.

The participants also explicitly acknowledged the perspectives of the other participants by making comments such as “I agree with what you are saying, but”. Indeed, it was clear that there was significant disagreement between participants. Nevertheless, the word “disagree” did not appear in the discussion. Again this observation does not accord with the literature, which tends to argue that heated debates prevail in computer-mediated discussions due to the impersonal nature of this medium (Lai 1998). However, it needs to be acknowledged that most studies that have been conducted into communication across networks have been conducted with undergraduate students. Perhaps in a postgraduate program where people have developed strong relationships as a result of spending three years studying together, which included eight months of face-to-face seminar, combined with the knowledge that the participants may work with each other at some time in the future, mitigated against the likelihood of a heated argument and personal attacks. It may also reflect the maturity and professionalism of the participants in this study. However, the most likely explanation of this paradox is that all the participants belonged to the same discourse community as a result of the length of time that they had spent studying at university and working in the education sector. The participants appeared to have been acculturated into the values and mores of academic argument, which facilitated vigorous debate about what the participants had to say, without degenerating into personal attacks.

The Chat Session

In stark contrast to the Bulletin Board, the Chat Session was a far more informal affair with the contributions being less well structured and much more immediate. Also in contrast to the bulletin board, the discussion did not address the issue we were asked to discuss. Indeed, there were two or three separate conversations going on that were totally unrelated to the set task. This situation was caused by the inability of the Chat Session facilitator to log onto WebCT and so facilitate the discussion. The discussion also tended to be dominated by people with good keyboard skills. For example, the author attempted to respond to a number of contributions. But by the time he had constructed his comments by hunting and pecking over the keyboard, the touch typists had moved onto to other points. The chat session was also interrupted for a protracted period as the WebCT server went down for quite a while.

Evaluation

Despite the apparent failure of the chat session four invaluable lessons emerged from the study. First, people who intend to use this technology need to ensure that everybody is adequately trained in the software to be used. Some people may benefit from additional training in keyboard skills. Second, it is important that participants confirm ahead of time that their hardware has sufficient power to operate these resource hungry packages. Third, the chat session needs to be effectively facilitated in order to ensure that contributors stick to the task at hand. Fourth, subject coordinators need to be aware of the strengths and weaknesses of bulletin boards and chat sessions. They both have different effects on the discussion in terms of the quality of the contributions to the discussion and the number of people who are included in the discussion. These differences can have a strong impact of the effectiveness of teaching activities and so subject coordinators need to be mindful of these differences when they decide to use the Internet as a teaching medium. Finally, it is vital that IT support is available immediately. Hence, facilitators need to work closely with IT support people to ensure that people are on hand if server or other network problems arise.

A CHECKLIST FOR ACTION

Bill Gates is often quoted as saying that “email is great to prepare for a meeting or to record a meeting, but it is not a substitute for a meeting”. What Bill Gates is arguing here is that communication is a two way process and so is much more than the transfer of information between people. Nevertheless, information technology experts and educators are constantly looking for ways to use email and other Internet data transfer applications to create on-line classrooms. Real communication may not actually take place across the Internet, especially if users do not have good written communication or keyboard skills. Nevertheless, increased access to the Internet is set to play an important future role in reducing the transactional distance that adversely effects the educational performance of distance education students.

The basic reason for teaching across the Internet or any other computer network is to facilitate collaborative learning and not to deliver a subject in a predetermined and rigid format. In order for this goal to be achieved, Harasim *et al* (1995) argue that teachers should be mindful of the following points when using a bulletin board as part of delivering subjects over this medium:

- **Do not lecture:** An elaborate, logically coherent, but long sequence of comments often produces silence. Use short comments that are open-ended and which invite responses.
- **Clearly communicate your expectations:** Students need to be clear of the expectations that their teachers have of them for the subject as a whole and every component of the subject.
- **Be flexible and patient:** Teachers should guide the conversation and not dominate it.
- **Be responsive:** Ensure that every comment is responded to, especially at the beginning of an on-line subject or activity. If no one else replies, respond directly with a message or mention the author’s comments in other messages.
- **Do not overload:** Teachers should contribute no more than one long comment each day, or even less if the students are actively contributing. Students are more likely to read and value several short notes, rather than one long entry.
- **Monitor and prompt for participation:** Teachers should frequently read the status reports provided by the system. Private messages should be sent to those students who are falling behind or are reading, but not writing. If students do not sign on for more than a week or do not reply to the private messages, then they should be telephoned and assisted with their problems.
- **For assignments, set up small groups and assign tasks to each group:** If the class is too large to have a single discussion space without overloading the students, then the class should be divided into two or more discussion groups.
- **Be a process facilitator:** Teachers should make sure that the students understand and abide by good ‘netiquette’ by not insulting each other or getting too far off the subject topic. Teachers should encourage meta-communication about the process, and make suggestions for improving the experience for all participants.
- **Write weaving comments:** Every week or so, teachers should write, or assign participants to write, comments that summarise the previous week’s comments and focus the discussion.
- **Organise the interaction:** Electronic housekeeping includes moving or deleting items that do not belong in a particular conference and organising and modeling the use of key words and explicit references and associations among items to show relationships.
- **Set rules and standards for good netiquette;** and encourage meta-communication about anything that is causing the experience to be less valuable or enjoyable for all than it might be.

- **Establish clear norms for participation:** This includes developing procedures for grading on-line work that gives credit for good participation.
- **Allow others to play the role of facilitator:** Assign individuals or small groups to play the role of teacher and moderator for components of the subject.
- **Close and purge moribund conferences in stages:** Participants should be given an opportunity to save any messages that they wish to keep.
- **Adopt a flexible approach towards curriculum integration on global networks:** Curriculum areas will be affected by the diversity of opinions from different locations in the world. The best approach is to be open to changes and accepts new views on various topics.

Three of the four lessons learned during the course of this study also need to be added to this list.

- **Training:** People who intend to use this technology should be adequately trained in the software to be used. Some people may benefit from additional training in keyboard skills.
- **Hardware suitability:** It is important that participants confirm ahead of time that their hardware has sufficient capacity to operate these resource hungry packages and is compatible with the software to be used.
- **IT support:** IT support should be available immediately. Facilitators need to work closely with their support staff to ensure that support is available if the server or other network problems arise.

Internet teaching applications, such as WebCT, are increasingly being seen by educators, information technologists and administrators as a way of reducing the cost of external education that also improves the performance of distance students and expands the potential market size. However, the adoption of these applications requires significant investment by both students and universities in hardware and skills. These caveats need to be fully explored before any decision to teach across the Internet is made.

CONCLUSION

In a sense, undergraduate students can be thought of as belong to a variety of different cultural groups of tribes (Beasley 1987; 29) because they have yet to be acculturated into the value systems and norms of the university. The cultural differences that exist between the university and its students can create barriers to communication, leading to the angry exchanges that have been identified in the literature. However, as noted above, even though the participants in the cyber colloquium were drawn from a wide variety of backgrounds, they were all drawn for the same discourse community (Kokkinn, Head, Feast, and Barrett 1998). Hence, they understand the norms and values of the university. Moreover, they understand the rules of engagement during an academic argument. In particular, it is vital that socio-emotional space be created between students and their postings. Or to use a football metaphor, you play the ball not the man. Consequently, criticisms of a piece of work are unlikely to be taken personally, so angry exchanges are unlikely to take place.

These observations point to the need for commencing university students to adapt to the distinctive ways of university behaviour and its values (Drury and Webb 1991). This adaptation, or more correctly acculturation, can be described as a period of apprenticeship, in which students adapt to the specific disciplinary discourse and knowledge (Cope and Kalantzis 1993). However, the apprenticeship is not a formal or structured process. Rather it is an unstructured process in which university students respond to the explicit, but much more commonly the implicitly, cues from their lecturers and fellow students. Unfortunately, distance education students often have little if any contact with their lecturers and fellow students. Hence, this process of acculturation is unlikely to occur. It is however, vital that

this process does occur if communication across the Internet is to be effective. There are probably two approaches that can be used to facilitate the acculturation process. The first is for distance education courses to include a residential component that focuses on this process of acculturation. The second is for activities that facilitate this process to be embedded into distance education materials. Whatever approach is used, the key point for students to appreciate is that a certain amount of socio-emotional distance needs to be created between students and their work and that the focus of any debate about the work of students should be directed solely at the work and not be personalised.

REFERENCES

- Beasley, V. (1987) *Eureka! Or How to be a Successful Students*, Flinders University, Adelaide.
- Caladine, R. (1993) *Overseas experience in non-traditional modes of delivery in higher education using state-of-the-art technologies: A literature review*. Canberra: Department of Employment, Education and Training, Occasional Paper Series.
- Cope, B. and Kalantzis, M. (eds.) (1993). *The Powers of Literacy*. London: The Falmer Press.
- Department of Education, Training and Employment (1998) *Community Partnerships in Education 1998, Volume 1*. Adelaide: Department of Education, Training and Employment.
- Drury, H. & Webb, C. (1991). Literacy at Tertiary Level: Making explicit the writing requirements of a new culture. In F. Christie (Ed) *Literacy in Social Processes: Papers from the Inaugural Systemic Linguistics Conference*. Darwin: Centre for Studies of Language Education, Northern Territory University, 214-227.
- Gengler, B. (2002) That :-) whimsical aside turns 20, *The Australian IT*, 24 September 2002, 3.
- Harasim, L. (ed.) (1995) *Global Networks: computers and International Communication*. Cambridge. Massachusetts: The MIT Press.
- Harasim, L., Hiltz, S.R., Teles, L. and Turoff, M. (1995) *Learning Networks: A Field Guide to Teaching and Learning Online*. Cambridge. Massachusetts: The MIT Press.
- Jones, D. (1996) Computing by distance education: Problems and solutions. Proceedings of the ACM SIGCSE/SIGCUE Conference on Integrating Technology into Computer Science Education, Barcelona
- Kokkinn, B. Head, M., Feast, V. and Barrett, S.R.F (1998) Transforming the Teaching of Economics: Embedding Tertiary Literacy. Paper presented at the HERDSA Conference98, Auckland University , July 1998.
- Lai, K-W. (1998) Social interaction and communication a web-based tertiary course: Some observations, *Proceedings of the Sixth International Conference on Computers in Education*. Beijing, China, Volume 1, 79-85.