Asynchronous communication: Strategies for equitable e-learning

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This paper reflects on research carried out at the University of Wollongong to examine equity issues in asynchronous communication. The focus was on mature-aged rural women and their experiences in online learning using ICTs. Results of the literature review and research analysis point to a number of practical strategies for developing more equitable asynchronous communication in higher education.

Keywords: asynchronous communication; communication; e-learning; e-moderation; equity; gender; women; rural; higher education; information and communications technologies (ICTs); distributed learning.

Introduction

Online learning opens up a realm of communication possibilities, many never fully realised within traditional face-to-face environments. Higher education has moved beyond the content download model towards one that maximises the potential for student collaboration and authentic learning that simulates real life situations. However, new possibilities present new problems or, as some would say, reignite the old.

The communication tools available in the online environment are, in part, responsible for opening up innovations in interactive learning in higher education. Asynchronous communication, in particular, is one of the most versatile tools we have at our disposal. Students may be unable to attend lessons in real time, as in a synchronous face-to-face environment, for a multitude of reasons involving work and family commitments as well as geographical and physical barriers. The online environment affords these students the opportunity to access education beyond the traditional distance education model of learning packages completed in their own homes. Students are now able to operate within a socially constructive learning environment (Jonassen et al. 1995) augmented by information and communication technologies (ICTs).

Those charged with designing innovative learning environments need to be aware that these environments are not infallible. Recent research that explores asynchronous communication in the online learning environment in higher education has highlighted a number of issues that must be considered if we are to design communication environments that offer a fair and equitable arena for all participants (Barraket et al. 2000; Blum 1999; Herring 1999).

This paper draws on knowledge gained from research being undertaken through the University of Wollongong as well as practical experience that involves designing and teaching in online learning environments.
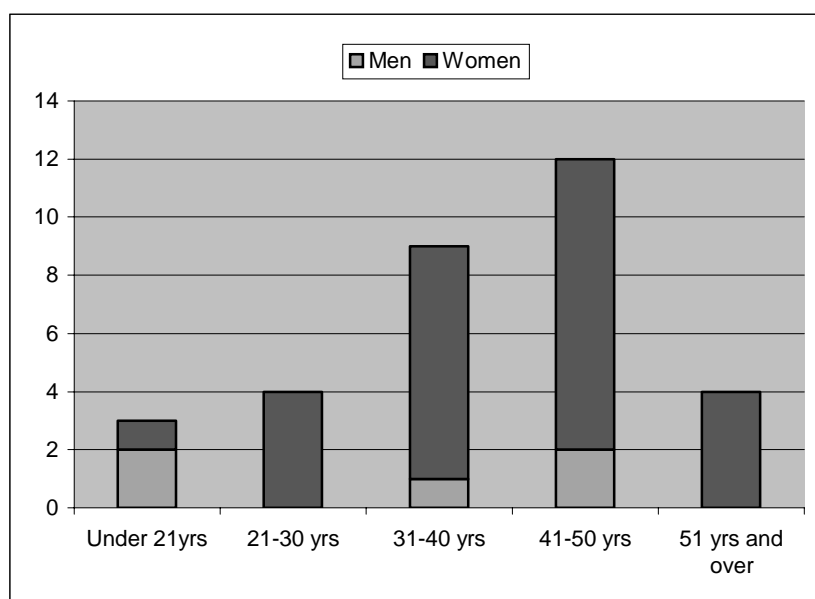
Research context and design

The University of Wollongong (UOW) has a number of smaller education centres located throughout the far south coast of New South Wales. The centres provide a number of courses for their students that are supported via ICTs, small tutorial groups and visiting lecturers. Communication opportunities facilitated by technology include videoconferencing as well as synchronous and asynchronous communication between lecturers, fellow students and study groups (Lefoe, Gunn & Hedberg 2002).

Enrolments in the UOW's Bachelor of Arts program at the Bega Access Centre (BAC) indicate that this mode of delivery is particularly attractive to female students, the number of women far outweighing that of men (Figure 1). These women are predominantly mature-aged students who balance study with work

and family responsibilities and who are located outside major rural centres in southern New South Wales. Kramarae (2001) describes these women as logging on for a 'third shift', after the demands of work and family have been met. The challenges they face are compounded for those who live a significant distance from the Centre or who may lack computer access at home.

The gender and age composition of the student group is significant. Whilst the B.A. Community and Environment (BA) was developed primarily for students in the UOW South Coast Network of Education Access Centres and the course as a whole is only available from those centres, many of the subjects are on offer to internal students at Wollongong. The total students' enrolment (1st, 2nd and 3rd year) for the BA in 2002 was 132, comprising 22% male and 78% female students (A Mitchell 2003, pers. comm.).The proportion of mature age students studying for their BA at the Bega Access Centre is another significant component of the student group composition. 91 % of the students are mature age (over 21 years) whilst students over 31 years comprise 78% of the total number studying their BA. This large proportion of mature age female students, does impact the learning environment (Figure 1).

Figure 1: Number of BA students by age and gender in 2002

This study examined the experiences of students using these ICT tools to communicate with fellow students and teachers in a distributed network. The research investigated factors that influence women's use of ICT's, how asynchronous communication tools (bulletin board, for example) relate to the way the students prefer to learn, and the manner in which gender differences are perceived by participants in this communication modality.

A qualitative case study approach was chosen. Three methods were employed to collect the data: focus groups, semi-structured interviews, and an email questionnaire. The participants were sixteen (16) mature-aged rural women aged twenty-one to fifty-five, the majority of whom combine study with family responsibilities and part-time employment. The study commenced with a focus group, initially through a face-to-face meeting and then moving into in a WebCT discussion forum. The students were all regular users of the discussion forum since it was a requirement of their studies, this made the online focus group a viable option.

Whilst the research study does not claim to be generalisable across the whole field of education, it does make a valid contribution by providing a detailed exploration of a single case, of which many other educators are able to draw from and enhance their own professional development. The research study provides a detailed description of the time, place, context, culture and the participants involved in the study. It is from this information that it makes a contribution to the field of education, providing enough

detail to allow the each reader to determine the degree of similarity between the situations outlined in the study and their own professional context.

The study took part over one academic semester, reflecting a substantial engagement in the field. This provided a good context from which the participants, via personal reflections and dialogue with their peers, could reflect on the issues as they directly affected them. The researcher felt confident that this period of time was sufficient, the evidence becoming obvious as various themes and examples began to repeat themselves, thus indicating the time to leave the field.

Research Questions

The study was guided by a broad research question: What is the experience of mature rural women utilising the online learning environment in order to study for the degree? The research was particularly concerned with the on-line communication tools. From this central question, sub-questions were developed (Table 1, 2, 3, 4) and incorporated into various data collection methods. The primary research questions, listed below, probe different facets of the learners experience.

- What are the factors that influence women's use of ICT (Information & Communication Technologies) (e.g. chat, forum, email etc.) in higher education?
- How can online asynchronous communication (e.g. forums or discussion boards) support women's preferred learning styles?
- How do women perceive gender differences in online asynchronous communication?

Table 1: Semi-structured interview questions

Q1 How long have you been involved in online learning?
Q2 Can you tell me about your experience so far?
Q3 Think about some really positive experiences you have had in the past whilst learning. Why were they so positive for you?
Q4 How do you think using asynchronous communication tools relate to your preferred learning style?
Q5 Can you tell me about your experiences of using the online communication tools?
Q6 Have you noticed any differences in how men and women communicate using these tools? What have you noticed?

Table 2: One hour focus group questions

Q1 Can you tell me about your experience of using online communication tools for your course?
Q2 What issues has using online learning raised for you?
Q3 How do you prefer to learn?
Q4 Has the online communication supported the way you like to learn?
Q5 What have you noticed about how others use the discussion boards?
Q6 Can you identify any gender differences in the discussion boards?

Preliminary analysis and early findings

Analysis of the data aimed at building an explanation of the students' experiences. The researcher constructed a detailed description of the case and the settings in order to interpret the data in a meaningful way, revealing common experiences and patterns that could be expressed as 'naturalistic generalisations' (Creswell 1998). In line with the work of Yin (1994), analysis began with theoretical propositions derived from the literature which enabled attention to focus on particular relationships and influences. This was then combined with fresh insights generated from the data. The researcher's journal was used for reflection and to develop questions and explanations about the case. Emerging themes enabled detailed coding of data. Throughout the analysis, explanation of the case moved from identifying issues to developing detailed themes and rationalisation, which were refined into a set of ideas that explain the phenomena in question. Qualitative data analysis software (NVivo) was used to assist data collation and analysis.

Whilst the research examined women's experiences, we acknowledge that the binary analysis of gendered experience in education is problematic with gender being merely one of the perspectives available to

illuminate equity issues in education. The field must be informed by the intersection of other aspects such as age, race and socio-economic status, for example. It is from examining these diverse perspectives that the developing field of ICT in e-learning will most benefit. The complexity inherent in these dimensions, however, is beyond the scope of this research. Nevertheless, there appear to be some general trends emerging that are supported by the literature. That said, the study adopts the position that a gender-specific experience, commonly shared by members of one group, does not exclude or make less significant the experiences of others.

Table 3: Online focus group questions

Week One
Q1. Online Learning: What issues has online learning raised for you?
Q2. Learning style: How do you prefer to learn, and has online communication supported this?
Q3. Discussion boards: What have you noticed about how others use the discussion board?

Week Two
Let's talk about technology skills!: A number of you brought up issues that I'd broadly classify as related to 'technology skills. (Student) said "...if 'Online Learning' did not also have to mean learning how to use online learning tools, we would all be a lot happier and have more time to spend working on our assessable stuff." This got me thinking about a few questions:
- What do you think is the basic level of skill a student should have before starting to study your course?
- How confident were you with computers when you started and where are you now, on a scale of 1 to 10 (1 being totally unconfident, 10 being an expert)
- What was the learning curve like for you?? I mean in your first semester of study, how long was it before you felt competent with the online learning tools?

Week Three
Q1. Juggling roles: Can you tell me a bit about juggling your roles as student with family and/or work commitments?
Q2. Access to it all...: Can you tell us about when and where you access the online learning? You might like to consider: the time of the day or week; if you access it from home/work/or centre; where you access and anything that might influence your pattern of access etc.
Q3. Accessing the computer at home: When we talked about access to the online learning some said; "I also don't have to fight for it like at home 'chat' reigns supreme." "...I have to negotiate internet access with other house member." Would someone like to start a discussion about negotiated access to computer space/time at home??

Week Four
Q1. Communication: Lets talk about the Bulletin Boards (asynchronous communication tool). Think about when you are communicating well! What is good communication to you? Do you see the Bulletin Boards as facilitating good communication?
Q2. Making it better: How do you think they can be used more effectively for communication (between you, other students and lecturers), in order to get deep discussion happening about the content of the course?
Q3. How they relate to you: By now most of you have a good idea about what style/type of learning works for you. Do you think that the discussion boards (asynchronous communication) work for you? How useful are they for your style of learning, why?

Week Five
Is gender an issue in online communication?: In this final week, I want to examine gender issues in online communication. During the interviews, most of you commented that the BA course is made up of a majority of women, however, some said they still noticed a few differences in how men and women used the online communication tools. I want you to talk about anything you might have noticed; no matter how insignificant or complex it might see. Please feel free to make any comments about the question, Is gender an issue in online communication?
Examples you might like to consider:
- Have you witnessed inappropriate use of the bulletin board discussion space? If so, can you tell us a little about this?
- Have you noticed supportive, patronising and/ or insulting (etc.), transactions between people? If so can you tell me what took place? (The gender of the author and how others, by gender responded.) Was it majority men or women?
Have you had any negative reactions to postings? If so can you tell me what took place. (The gender of the author and how others, by gender responded.) Was it majority men or women? Did this effect your posting/ participation in the site?

Table 4: The email questionnaire

Travel
- How long does it take you to get from your front door to the access centre (in your usual mode of transport)?
- Briefly describe the journey.

Family
- Do you consider you have a family to look after?
- How many dependents do you have?

Computer access
- Which days dare you most likely to use a computer for your studies?
- What time/s of day do you usually use a computer for your studies?
- Which days dare you most likely to access your studies online?
- What time/s of day do you usually work on your studies online?
- Do you wait till the family are finished with the computer before you use it for study?

Study
- What was your last year of formal education before beginning this B.A.?

Age
- In 2002 what was your age?

Early analysis of the data highlights a range of gender-related issues and perceived differences in asynchronous communication through the WebCT discussion forum that have implications for the design and moderation of such discussions. To protect the identity of the participants, pseudonyms have been used to attribute the illustrative quotes used in the following section.

Differences in asynchronous communication patterns

Gender-based differences in the use of the online learning environment were identified by the majority of participants. The following discussion centres on two particular issues of importance: styles of communication and negative behaviours. The significance of these issues reinforces the work of Blum (1999) and Herring (1999).

Styles of communication
Within the research, many of the women noticed that styles of posting were often different, noting variance in confidence, length and reactivity, whilst identifying patronising tones in some postings. The quote by Nell illustrates what some people identified as differences in confidence levels between women and men: "…I think they're more the - how do I describe them? – they're pretty confidently academic. They [men] speak academically and they're confident about what they know".

Differences in length and verbosity of postings were also identified. The following statement by Rita illustrates this point: "The men using WebCT made a lot of postings…They made a lot of long complicated postings that were really quite hard to read and follow and quite esoteric, and it seemed to me they were fairly scantily related to what the particular discussion topic was. They, in a sense, dominated the airwaves because it was so noticeable". Maryanne identified differences in how some men communicated between themselves compared with their approaches towards women: "…This person actually commented to me, 'Hey, look how this guy speaks to women and look how he responds to me [male comment]…I viewed it as how he changed his tenor, his whole approach…with a man he would respond like 'Yeah, good comment…' and there would be one sentence. And with a woman he would respond, 'Great story Suzie, you did well'…just inflating what she had said but really slimy, really sleazy".

Negative behaviours
The participants commented that behaviours displayed by male students were not conducive to a harmonious communication environment. Participants identified a range of inappropriate behaviours which included spamming, personal attacks and sexism. Meg identified spamming on the discussion board as an issue: "…At one stage a bloke was basically 'spamming' every day sending unsolicited advertising material". Susan spoke for a number of the women when she identified the use of inappropriate and sexist comments: "I've never seen anything really controversial written by a woman on it. The men tend to write more controversial things…whereas this chap last year was really stirring the pot saying really sexist [things]". It appears that lecturers may also be guilty of inappropriate online

behaviour. Prue said, "I really felt what we got on WebCT was this testosterone-charged interaction between two males and also a testosterone-charged response from the lecturer".

Reacting to uncomfortable behaviour

Whilst displays of inappropriate behaviour in themselves may not be of a critical in nature, once we draw into the equation the impact such behaviour has on the participation of other students, it no longer becomes a matter that we can ignore. For those entrusted with the design of online learning environments the consequence of the behaviour of one student, a group of students, a lecturer or even tutors, becomes significant when it impacts on the participation of the others in the group.

Three main strategies were employed by the participants to deal with inappropriate behaviour on a bulletin board discussion forum. These strategies varied from a benign ignoring of the behaviour, to posting responses in an attempt to curb the behaviour, or for others leading to withdrawal from any further participation in a site. Vera reflected on the initial strategy of ignoring the posting employed by many, "One of the guys was going on with something I thought was a bit painful so I just didn't respond." As the semester and discussions continued a secondary strategy mentioned by Rita was employed: "A couple of times I replied with a two-liner…After that, I just decided that any time I saw anything they'd put up, I wouldn't even bother opening it". Maryanne discussed the final strategy, with most dire consequences for the development of an effective e-learning community when she stated, "I ended up doing a posting at one stage saying, 'I'm boycotting, I'm not coming back into the site any more'…"

Design and teaching issues

The research undertaken highlighted a number of issues, both in the primary data and the review of the literature, a number of issues which impact on the design of equitable online learning environments. McMechan, from the Commonwealth of Learning, has argued that the biggest single educational issue throughout the world is access and equity (Cunningham et al. 1998, p. 160). Computer-supported learning was initially seen as offering a democratic and equal opportunity alternative to the types of traditional face-to-face learning environments shown to disadvantage female students. However, some educators now argue that electronic communication loses none of the gender dynamics of existing learning environments (Blum, 1999; Gunn et al. 2002; Herring 1997). In some cases the disadvantage increases (Barraket et al. 2000; Blum 1999; Conlon 2000; Herring 1996, 1999; Richardson & French 2000; Silverstone & Haddon 1998).

The participants in this study reported that inappropriate behaviour on a bulletin board discussion forum prompted some students to exercise their right to speak, whilst silencing others. Some students commented on the need for a good moderator. When faced with postings they found unsuitable for a university bulletin board, some contacted their lecturers. Pru stated: "I actually emailed the lecturer and he didn't see that it was his place [to intervene] which was even more damning". This inaction significantly impacted on the use of the discussion space. Many of the participants agreed with Vera in her call for good e-moderation in online communication: "As others have pointed out, the boards per se don't necessarily generate good communication, but if a good facilitator is moderating, they can be an excellent communication tool". They discussed the need for lecturers and subject coordinators to possess and use excellent online moderation skills to both curtail inappropriate behaviour and generate vibrant discussion on the bulletin board.

Practical strategies

Research such as this helps designers to understand the issues, but what we do with this knowledge is the most important step. Having outlined the issues, we will now draw from practical experience, and the experience of other professionals in the field, to present some strategies that can be used in the design of equitable e-learning environments regardless of the make-up of the client group. These strategies draw on both personal experience and the work of Gunawardena, Lowe and Anderson (1998), Salmon (2000), DeBono (1986) and Kirschner, Strijbos and Kreijns (2004).

Understanding the clients

Identify barriers to participation:

- What is their level of general computer competence?
- Are they able to gain access to efficient computer equipment?
- Are they experienced in ICTs such as email, chat rooms or bulletin boards?
- Do we anticipate a dominant sub-group, for example, women or overseas students?

These are just a few of the many questions we need to ask in order to develop a profile of our student group. Once this is understood we are then able to design an environment that is not likely to exclude or hamper the participation of all of our students.

Developing collaborative e-learning

- Provide opportunities that humanise the environment and develop online socialisation.
- Decide how the online collaboration will relate to assessment.
- Consider, with regard to assessable activities, how you are going to determine that participants have contributed equally.
- Develop a safe collaborative online learning experience by employing best practices in e-moderation.
- Design relevant authentic learning experiences.
- Encourage students to develop collaborative networks for group work; these may be initiated by the use of tools such as email, telephone or chat rooms.

E-activity ideas

- Assign roles that define the participation, requirements and outcomes for each member of the group utilising Edward DeBono's *Six thinking hats*.
- Create an opportunity for authentic debate or online conference.
- Provide opportunities for guest experts to participate in debates, forums or virtual field trips.
- Develop a simulation that utilises the ICTs to augment the process.
- Create scenarios in which students critically reflect with peers, before developing and presenting responses.

E-moderation

Provide moderation that encompasses a number of stages:
- Initially, provide a strong presence in the online mode like a host at a party welcoming, drawing out reluctant participants, encouraging less confident participants, and redirecting those who are dominating.
- As the semester progresses, slowly reduce your presence allowing room for the group to develop its own natural level of discussion and social cohesion.
- Model strategies of synthesis, linking and weaving of ideas for students.
- Identify a range of strategies that can be employed to actively and effectively deal with *flaming*.
- Lurking can be problematic in a collaborative learning environment: identify this early and contact the student privately to identify problems or try to actively draw the student into the discussion.
- Develop specific netiquette guidelines if your institution has none, drawing these to the attention of students early in the semester.

Conclusion

Through an examination of the experience of the mature-age rural women in Bega using ICT, the study has implications for higher education. Findings highlight some of the issues that must be considered in the development of an equitable e-learning environment. If these issues are ignored, students may be disadvantaged. The experiences of the participants in this study illustrate that despite the potential for asynchronous communication to enhance learning away from face-to-face full-time education, without appropriate design and skilful moderation it can become frustrating and de-motivating. This has

implications for all universities implementing on-line programs that attract an increasingly broad range of students.

References

Barraket, J., Payne, A., Scott, G. & Cameron, L. (2000). *Equity and the use of communications technology in higher education: A UTS case study.* Department of Education, Science and Training, Canberra.

Blum, K. (1999). Providing equitable adult education. *Feminista!,* 2(8) [viewed 30 August 2003, verified 6 Oct 2004] http://www.feminista.com/archives/v2n8/blum.html

Conlon, T. (2000). Visions of change: information technology, education and postmodernism. *British Journal of Educational Technology,* 31(2), 109-16.

Creswell, J.W. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* Sage Publications, Thousand Oaks, CA.

Cunningham, S., Tapsall, S., Ryan, Y., Stedman, L., Bagdon, K. & Flew, T. (1998). *New media and borderless education: A review of the convergence between global media networks and higher education provision,* Department of Employment, Education, Training and Youth Affairs, Canberra. http://www.dest.gov.au/archive/highered/eippubs/eip97-22/eip9722.pdf

DeBono, E. (1986). *Six thinking hats.* Viking, Harmondsworth, Middlesex, England.

Gunawardena, C.N., Lowe, C.A. & Anderson, T. (1998). Transcript analysis of computer-mediated conferences as a tool for testing constructivist and social constructivist learning theories. *Proceedings of the annual conference on Distance Teaching and Learning, Distance Learning '98,* Madison, WI.

Gunn, D.C., French, S., Macleod, H., McSporran., M & Conole, G. (2002). *Gender issues in computer supported learning,* University of Auckland, Auckland, NZ.

Herring, S.C. (1996). Gender and democracy in computer-mediated communication. In R. Kling (Ed), *Computerization and controversy: Value conflicts and social choices,* 2nd edn. Academic Press, San Diego, pp. 476-89.

Herring, S. (1999). The rhetorical dynamics of gender harassment on-line. *The Information Society,* 15, 151-67.

Jonassen, D., Davidson, M., Collins, M., Campbell, J. & Haag, B. (1995). Constructivism and computer-mediated communication in distance education. *The American Journal of Distance Education,* 9(2), 7-26.

Kirschner, P.A., Strijbos, J-W. & Kreijns, K. (2004). Designing integrated collaborative e-learning. In J.J.G. v. Merrienboer, W. Jochems & R. Koper (Eds), *Integrated e-learning: Implications for pedagogy, technology, and organization.* Routledge Falmer, London, pp. 24-38.

Kramarae, C. (2001). *The third shift: Women learning online.* American Association of University Women Educational Foundation, Washington, DC.

Lefoe, G., Gunn, C. & Hedberg, J. (2002). Recommendations for teaching in a distributed learning environment: the students' perspective. *Australian Journal of Educational Technology,* 18(1), 40-56. http://www.ascilite.org.au/ajet/ajet18/lefoe.html

Richardson, H.J. & French, S. (2000). Education on-line: What's in it for women? In E. Balka & R. Smith (Eds), *Women, work and computerization: Charting a course to the future. Proceedings of the seventh international conference on Woman, Work and Computerization.* 8-11 June, Vancouver, BC, Kluwer Academic Publishers, Canada.

Salmon, G. (2000). *E-moderating: The key to teaching and learning online.* Kogan Page, London.

Silverstone, R. & Haddon, L. (1998). *New dimension of social exclusion in a telematic society.* Working paper no. 45, ACTS-FAIR, University of Sussex. [viewed 30 August 2003 at http://www.databank.it/abc/fair/download/savedata.asp, not found 6 Oct 2004]

Style manual for authors, editors and printers (2002). 6th edn, rev. Snooks & Co., John Wiley & Sons Australia, Milton, Qld.

Yin, R.K. (1994). *Case study research: Design and methods.* 2nd edn, Sage, Thousand Oaks, CA.