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Reflections on Student Support in Open and Distance Learning

Alan Tait, Guest Editor

Faculty of Education and Language Studies
Open University UK

This is a very interesting moment to reflect on Student Support in Open and Distance Learning (ODL). After some 10 years of the radical intrusion of a range of technologies, principally those grouped around what has been broadly termed ICT, we have the chance to see if and how the world of ODL has qualitatively changed. I suggest that those of us who began our careers more than a decade ago are like those survivors in a landscape painting of a battle, peering about the field while some wisps of smoke still hang in the air from earlier cannon barrage. But the battle that the picture represents is over. There are new authorities in place, and of course there are losers: those who have lost power if not their lives. We look to see who has died, which amongst the wounded can be given help, while those who walk away wonder if the world has really changed. Have we just substituted one set of powerful rulers for another? Or has the way we live our lives been altered forever?

To begin with a historical perspective on the European context, as is well known correspondence education is said to have begun in England in 1844 with Isaac Pitman's shorthand course delivered by correspondence, using the new postal system, enabled in its turn by the rail system that was beginning to make travel and communication across England quicker than ever before (Shrestha, 1997). The crucial dimension of Pitman's system was that he corrected students' work and sent it back to them. Thus although separated from the teacher, students received feedback, together we can at least imagine with encouragement from their tutor. Parallel developments were taking place in Germany at a similar period, facilitated also by postal systems and the railway. Thus a crucial aspect was initiated of what was to remain constant through changes of technology and terminology from correspondence to distance education, to open and distance learning, and on to flexible, Web-based and e-learning. This was the provision of an integrated system which provided learning materials or direct teaching to students and gave them feedback in a timely way on the work they undertook, thus helping the learner and the institution to assess their understanding.

The next crucial step in historical development was the opening up by the University of London in 1858 of a range of programmes for external study: that is to say that students could follow the University of London curriculum for a range of degrees and sit the examinations without ever setting foot in London. This was extraordinary: it meant that the link between study and place was broken, a link that continues for older fashioned universities such as the University of Cambridge to this day, where undergraduates have to live within a certain number of miles of the University Church in order to be deemed to be 'at' the university at all. The University of London

has been termed the first 'Open University' because of this move (Bell and Tight, 1993), and students all round the world, but principally within the British Empire and its dominions, were soon looking for tutorial support to supplement the bare syllabus they received on registration wherever they lived. The history of the University Correspondence College and its founder William Briggs provides an insight into the pioneering work, which began in 1887 in providing support to those studying with the University of London at a distance. Briggs' college provided a correspondence tuition scheme by post, along with face to face day and evening teaching in London and Cambridge, short residential schools, and the production and sale of specially written texts to help students (De Salvo, 2002). Briggs thus prefigured the range of services taken up in modern distance education from say 1870-1995, and his system was very effective. It provided, first of all, support for a crucial opening for women to study for degrees wherever they lived, at a time when they were still excluded from the ancient universities in England. At a more general level, between 1887 and 1931, 39,326 external students are recorded as passing University of London examinations, with some 10,000 gaining Bachelors or even Masters Degrees (De Salvo, 2002, p. 39). While the number of London External students in the UK has decreased due to the wider availability of opportunity to study, support for such students is still mounted from a small number of colleges.

The story now moves on to 1946 in South Africa and the establishment of the world's first exclusively distance teaching university, the University of South Africa (UNISA). UNISA, based in the country's capital Pretoria, recruited large numbers of students, and remarkably during the apartheid period remained a university not classified by the ethnic or racial group it was allowed to teach, as were almost all other Higher Education institutions. UNISA, however, offered opportunity to large numbers of black and so-called coloured students significantly excluded from educational opportunity as well as political rights, along with whites who were in a minority in the country. However, major weaknesses in the UNISA system identified after apartheid was ended included very importantly:

- Low success in terms of completion and throughput rates
- The correspondence nature of programmes in comparison with well-functioning distance education
- Inadequate learner support which is exacerbated by the lack of a co-ordinated regional network of learning centres

(SAIDE as cited in Nonyongo, 2002, p.128)

While it is very difficult to isolate the variables in an educational system and identify a simple causal relationship of learner support with student success, the UNISA example before reform provides the clearest case for the importance of learner support in a distance education institution. For many students, especially from the majority population who were excluded from the best universities in South Africa, the opportunity offered by distance education was not a real one. UNISA provides us with the best-documented case hitherto of the dangers of developing distance education without adequate learner support.

It was not until the establishment of the Open University UK in 1969 that modern distance education was formed by the development of a range of learning and teaching media along with an integrated student support system. The University succeeded in a radically different task from that which had been asked of Higher Education in the UK up till that time. It was asked to recruit post-experience adult students who had not hitherto considered Higher Education, as opposed to the usual intake for universities of a small well-qualified cohort of school leavers. In other words,

the OU UK was asked to change the educational expectations of sectors of the population who had been excluded by the very limited opportunities for university education up to that time. It was also asked to do this at scale, in other words to make a radical intervention in terms of the numbers as well as the kinds of people. Lastly it was to do something which remains unique, to offer places for undergraduate study without barrier of former qualification. That is to say students chose the university and not the other way around. There were a number of key elements in the OU system which drew on the work of the correspondence colleges for the University of London External Student scheme, and were influenced by the thinking of Michael Young and the then fledgling institution he created out of their wake, the National Extension College. The characteristics of the learner support system for the OU UK included:

- Each student had a personal tutor, in a group with no more than 25 or so other students in order to allow personal knowledge, support and understanding to grow up through the lifetime of a course
- The tutor gave teaching feedback and the mark for work completed during the course, thus having a pivotal role in supporting student learning and progress (and which gave rise to the serious development of the teaching skill known now as correspondence teaching)
- All students were offered the opportunity but not the obligation to take part in face to face tutorials, and more recently computer-mediated tutorials, managed by their own tutor (online courses still only remain a tiny minority within the overall provision of the OU UK)
- A network of some 260 study centres were established throughout the UK in order to provide such tutorial opportunities, supported by 13 Regional Centres, thus ensuring that the student felt 'nearer' the university whose headquarters are in central England
- A limited amount of residential school experience on a conventional campus was essential, at a minimum one week
- From 1971 -1997 all undergraduate students – i.e., the great majority, had access to a personal tutor-counsellor who offered them support and advice throughout their career with the university whatever course they were on, providing for what was called 'continuity of counselling' (Tait, 1998).

While there has been substantial revision of the OU UK system since the original blueprint, the core role of the tutor who works with a group of students of no more than 25 in number, and who teaches and grades their work, continues to be seen as at the heart of learner support.

What then are the main reasons for having student support integrated in an ODL system?

Students want Support

The first of these is that students want it. While this might be said to be pedagogically weak in the theoretical sense, it is important for the best of reasons. The first is that students are more and more in a position of being able to choose with whom they study: thus competition makes it imperative that institutions can offer what students say they want. While students look for the

flexibility that ODL offers, especially freedom from time and place that is restricted by conventional part-time study, this is not the same for the great majority as saying that they do not want support. In the OU UK student feedback tells us that some 10 per cent of students do not want interaction with other students, having perhaps a personality type that has led them to choose a study mode that reduces or removes the need for interaction with others. However, for the other 90 per cent, this is looked for, albeit not always taken up because of the demands on time and place that are so prevalent in the lives of adult learners.

The Reduction of Drop-out

Student support, especially student guidance and counselling, tutor support, and effective information and administrative systems all provide a range of activity that impacts not only in terms of teaching but also affectively, that is to say reinforcing the student sense of confidence, self-esteem and progress. Further, intervention when students have not contributed work on time can make a timely and effective contribution to the reduction of drop-out. The extent to which student support creates a learning environment that is congenial, attractive and therefore supportive of learner persistence is always difficult to estimate, but the wider affective dimensions of the learning environment which revolve around what I have elsewhere termed 'conversation and community' seem to be important in most educational contexts and there is therefore no reason to assume that for most learners they will not be important in ODL, even though delivering them is more difficult (Tait, 1996). This mode of explanation can be seen as related to that developed in terms of the community of practice in ODL that contains learners and their teachers, especially within Web-supported learning environments (Thorpe, 2002).

The Nature of Learning

A further mode of explanation for student support, especially for tutoring in group work in study centres or online and in the teaching given through the return of assignments, lies in the impact this makes on the learning process. Essentially this has been termed 'mediation,' that is the role that the tutor performs in relating the teaching content to the student as an individual in her or his situation, including the social, economic, geographic and cultural dimensions. In other words, the tutor in coming alongside the student and the teaching material adds a voice that helps the student to relate concepts, values, and lines of enquiry to the particular situation. Over the last ten or so years this has come increasingly to be related to constructivist modes of explanation about the creation of knowledge by the learner, and supported by the wider possibility for exploratory learning and teaching methods through the use of the Web which has expanded the potential for learning outside or independently of teaching materials provided. Earlier influential theoretical frameworks included that of 'didactic conversation' developed by Holmberg, and Moore's 'transactional distance' and 'instructional dialogue,' both of which elaborated the ways in which learning took place in contexts where distance between the teacher and the learner was significant (see Tait, 1996, pp. 61-63). Thorpe has more recently argued that Web-based learning has the potential to elide the conceptual distinction between learning materials and learner support which has governed this field: this surely is an issue of theory that need further development and represents the best articulated account yet of change of a radical nature in student support in ODL with the advent of ICT (Thorpe, 2002).

Drawing on this range of explanatory work we can summarise the rationale for student support as being:

- Cognitive (supporting and developing learning)

- Affective (that is related to the emotions that support learning and success)
- Systemic (helping students to manage rules and systems of the institution in ways that that support persistence)

Tait (2000. p. 289)

This schematic explanation separates out for heuristic purposes what is usually and at its best integrated and mutually reinforcing. Student support in ODL has as its primary aim that of assisting students to learn successfully, and in doing so it recognises that in learning and teaching systems characterised by distance and part-time study helping students with their feelings of confidence and self-esteem will energise them in ways that support persistence and success. At the same time what are often institutional or social barriers can be addressed in problem solving and facilitative ways, reinforcing learning and the affective dimension. Innovation with ICT-based systems can deliver these goals very effectively.

But is any of this, in essence, changed by the revolution in media we have undergone over the last decade? I suggest yes and no, an answer representing perhaps no more in some readers' minds than the incapacity of the English to state their minds (our particular contribution to world culture!). But, in fact, I hope a nuanced and helpful answer can be developed by those reading the articles in this issue of IRRODL themselves. It seems to me to be the core task for those working and researching in the field of student support in ODL at this juncture. It is certainly time to move away from the exuberant and exaggerated claims of the pioneers of e-learning, whose work appears to assume that effective teaching and learning has not ever taken place until their own Web supported programme was created, or that large scale opportunity for adult learners was never conceived until the year 2000. There is enough evidence to show that along with success it is possible to waste as much money and time with Web-supported learning as it was with any other kind of educational programme. There are as many empty student e-conferences as there were empty study centres in second generation distance learning. Most importantly there are as many disappointed and dispirited learners who have dropped out of e-learning programmes as there were in second generation distance education. And yet, this is not the same as saying nothing has changed.

My own approach firstly would be to return to Moore's theory of transactional distance, and use that to evaluate what is happening in terms of learning and teaching in any e-learning programme (Moore 1993). The question of distance is of course now a fascinating one. While distance education was conceived at least in part to manage geographical distance – to mitigate its tyranny – in the empire that once was Canada and Australia, it was also the case through the 1970s and 1980s that distance education had globally more students in cities than in the countryside. We begin to understand that distance was a social as much if not more than a geographical phenomenon. However, the notion of place is more fundamentally challenged by e-learning than ever before. Commentators such as Giddens (1991) have explored how the ways in which we exist in our physical world are being reshaped by ICT. The question 'Does place matter?' has become much more complex to answer even than from the period of second generation distance education. Asynchronicity has done the same to time, although some of the rhetoric around it has masked the reality of time needed for study.

Thus the core notion of distance in Moore's theory – that the space between the learner and the structure of teaching must be mediated by dialogue, offering the learner the opportunity to be an active participant – remains valid, but needs to be challenged as all theory does by the application of new cases. The activities in e-conferencing and the new challenges for learners in searching

and evaluating materials in the Web seem to me to be developments from where we were, not radically new activities in themselves. However the ways in which e-learning re-conceives these as even more core to teaching and learning strategy than in second generation distance education does represent to me the opportunity to organise teaching and learning in qualitatively improved albeit not qualitatively different ways: greater ease of access at least for those in the world with technological infrastructures and money to support them; greater opportunities for student-student and student-tutor interaction; and greater opportunities to move away from the behaviouristically influenced conceptions of a course and more towards the constructivism that is ever more influential. In terms of learning skills, the term 'connectivity' might cover not only the technical access, but the development of the broader range of literacies that are necessary to function effectively within the communities of e-learners, in order not to become a member of what is surely a new category of marginalised people that open and distance learning in this recent period of e-enthusiasm has at times been in peril of both creating and forgetting.

The fact that Moore's theory remains, in my view, the crucial framework of ideas against which such assertions as represented here can be tested gives weight to my initial thesis that there is a deal of continuity in e-learning from second generation distance education that is not acknowledged: perhaps inevitable when a radical interruption by a technology occurs. Now, however, is the time to stand back and reflect on what has changed and what in terms of learning theory remains broadly speaking the same.

Secondly I offer a summary of the account by Roger Mills and myself of the major change issues for learner support in ODL at present. Our proposed change issues included:

- The impact of ICT on what is wanted by learners today, what can be provided by institutions, and what restructuring of organisations has to follow
- The change of status from student to that of customer
- The pressure of educational policy to recruit participants from wider and wider social segments of society, in particular from those which have not traditionally taken part in education
- The pressures on costs for institutions in competitive environments
- The need to work in more complex ways with work related programmes that make the workplace a site of learning, and demand assessment methods of greater complexity

Tait and Mills (2002, pp.1-2)

This more pragmatic account of change describes a complex environment, and one where the temptation to 'do the easy things' in terms of curriculum and recruitment areas becomes too great for some institutions to refuse. The challenges do not drive conveniently towards obvious policy and organisational solutions, but indeed work in tension with each other. The key managerial achievement is to conclude the optimum resolution between them in a given situation.

I now go on to give readers a taste of what this issue on student support in ODL offers them. In my view it offers an important collection of articles in their own right as well as a very valuable set of resources to do just what I suggest is the core task at present in this field: does ICT change in essence how learners are supported in ODL, and if so how?

The contribution from Bernath and colleagues at the University of Oldenburg provides just such an evaluation in its account of how a study centre that was established nearly 30 years ago to be 'near' students has reconceived itself in an electronic age. While in some ways specific to the German context and the ways in particular that Higher Education is organised in that country, the article more importantly demonstrates how energetic and creative professionals can think their way through a technological revolution, ensuring that they enhance their service to learners rather than disappearing as the solution to yesterday's problem. Dearnley in her analysis of the ways in which students need support in the Nursing Programme at the University of Bradford, UK, grounds her work in a persuasive analysis of what students need. The analysis is of students and their learning: it starts where those of us working in this field need to base our reflection, rather than in the technology. However, Dearnley offers us this insightful comment in conclusion "as open and distance e-learning expands to permeate into the realm of e-learning, the findings of this study suggest that a major challenge will be to develop electronic forms of 'connected knowing groups' in order to support students and sustain their motivation for learning and development". We can see here too how there is continuity in the analysis of learner support rather than a radical divide between second and third generation ODL. This is also borne out in the work of Ludwig-Hardman and Dunlap at Western Governors University, USA, where the authors describe their efforts in providing learner support to diminish attrition through the use of 'scaffolding,' borrowing from the now familiar vocabulary of Vygotsky, but also drawing on long established thinkers in the field of adult learning like Knowles. The fact that this takes place in an online environment represents the context, not the centre piece of the analysis. Bird and Morgan too from Southern Cross University, Australia, analyse the barriers to study for adult learners: they demonstrate the complex mix of affective and organisational issues that adult learners have to manage in making choices about study, and also the difficulty of their acting effectively as customers in choosing programmes and modes such as part-time, distance, on or off-campus, when they have initially so little to guide them. Finally in the Main Section, Fahy of Athabasca University, Canada, uses analysis of online student behaviour to deliver a most interesting and persuasive analysis of what students are doing when they relate to each other online. He finds that students learn to model the sorts of support they need in online asynchronous mode, and citing Moore writes "there is no simple association between distance and the perception of separation or isolation. Indeed face to face interaction may also suffer from various 'distances' (psychological, interpersonal, cultural, linguistic, environmental etc.), while anyone who has ever had a pen pal, or been caught up in an on-line relationship, knows the power of 'mere' asynchronous text to create and sustain interpersonal engagement." Readers both of *Les Liaisons Dangereuses* and successful online conferences will bear witness to that!

The section for shorter pieces entitled 'Research Notes' bears out a similar story: that of continuity after the shock of rapid technological change. From Brazil's University of Santa Catarina, de Moraes and her colleagues give an account of how they have come to reflect on the need for student support in an online environment. From the University of Sydney, Australia, Morgan and McKenzie refers to transactional distance in their analysis of how the humanity of human beings must be recognised and supported in technologically sophisticated environments, and means by this the tutor on whom heavy demands are made as well as the student. And finally from India's Indira Gandhi Open University Chandar and Sharma provide a glimpse of how radio contributes to the lives of their students, a technology that has been in use for over 30 years in distance education.

All in all this is a fascinating issue to have worked on and I thank the Editorial Team at IRRODL for the opportunity to reflect myself through this Editorial on where we are in the field of student support in open and distance learning, as well as to have the privilege to stand at the head of an issue with such valuable contributions. The central place I have given to Moore's theory of

transactional distance provides the opportunity to recognise the career of its originator, Prof Michael Moore, formerly of the OU UK, but for the most significant phase of his professional life at The Pennsylvania State University, USA. I would not want to miss this chance to recognise his contribution over so many years to our field, and to me personally as one of the most thoughtful, energetic and generous colleagues I have ever had the benefit of working with. I know the Editor of this journal, Dr. Peter Cookson, also shares these sentiments.

In conclusion, I believe the authors published here demonstrate that the clouds of smoke have more or less cleared after the violent revolution that has occurred with the impact of ICT into ODL over the last decade, and that the issues of learning, teaching and student support have reappeared as the heart of the matter. That is how it should be!

Alan Tait
Faculty of Education and Language Studies,
Open University UK
a.w.tait@open.ac.uk

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Challenges for Study Centers in an Electronic Age: A case study of the Center for Distance Education at Carl von Ossietzky University of Oldenburg in Germany

**Ulrich Bernath, Axel Kleinschmidt, Christine Walti,
Olaf Zawacki**
Carl von Ossietzky University of Oldenburg
Germany

Abstract

This paper reports on developments in study centers in Germany and in particular the experience of the Center for Distance Education at Carl von Ossietzky University of Oldenburg. Emphasis in this paper has been placed on the challenges faced by German universities in the electronic age, which in its early stages began in 1995. The purpose of this paper is to ground the establishment of open and distance study centres vis-à-vis the unique cultural and institutional circumstances characteristic of Germany and its institutions of higher education.

Development of Distance Education in Germany

This paper reports on developments in study centers in Germany and in particular the experience of the Center for Distance Education at Carl von Ossietzky University of Oldenburg, with emphasis on the challenges faced in the electronic age – which in its early stages began for us in 1995. Our practice necessarily refers to specific cultural and institutional circumstances characteristic of Germany and its institutions of higher education (Kappel, Lehmann, and Loeper, 2002).

Distance education at the university level in Germany has, for many years, been the province of the FernUniversität in Hagen, a specialized distance teaching university founded in 1975. The FernUniversität became a large scale provider of courses in economics and business administration, social sciences, humanities, law, computer science, and electrical engineering taught at a distance. Today, the FernUniversität offers a total of about 1,500 courses to more than 59,000 students. Each course varies from 20 to 180 learning hours, which are completed within a semester measuring 15 weeks long. The majority of students – around 85 percent in the year 2001 – were degree-seeking (FernUniversität, 2001). The system is open to students who enroll in individual courses for continuing education; although they cannot earn a degree, they study under the same conditions as degree-seeking students.

The FernUniversität does not follow the Open University UK (OU UK) model of decentralized student support, with study centers scattered nationwide, and tutors as core staff members for all enrolled students (Groten, 1992; Tait, 2002). Instead, as a state run university of North-Rhine Westfalia, the FernUniversität may only operate within the borders of North-Rhine Westfalia. To provide equal opportunities for the more than 60 percent of their students living in other German states, regional student support services are provided in fifteen other German states.

In 1978, the respective ministry in the state of Lower Saxony institutionalized its own statewide support system for its students attending the FernUniversität, establishing central academic units for distance education within three conventional universities in the cities of Hildesheim, Lüneburg, and Oldenburg. These partner institutions became responsible for providing support to the students of the FernUniversität as a regional study center, and for developing and delivering their own distance teaching programs in cooperation with the faculty of the respective home universities.

Thus, with establishment of its Center for Distance Education, Carl von Ossietzky University of Oldenburg found itself responsible not only for serving its own university faculty and students in the area of distance education, but also students of other distance teaching universities (mainly those of the FernUniversität). This multifunctional structure of central university units for distance education in Lower Saxony represents a “special case” (Wissenschaftsrat, 1992, p. 36) in German higher distance education. This concept was unusual even by international standards, representing a new challenge for conventional universities within their centers for distance education (i.e., Mills’ taxonomy of study centers, 1996).

In order to provide stronger regional distance education delivery centers, in 1992 the Wissenschaftsrat (German Science Council, <http://www.wissenschaftsrat.de/>) proposed the establishment of centers for distance education in various universities. In addition, the German Science Council recommended establishment of cooperative models between central distance teaching institutions and local/ regional universities. Endorsing the visionary policies adopted in the 1970s by the German states of Lower Saxony, Bremen, and Hesse, in 1993 the same council promoted formation of a national network of distance learning centers at both university sites and elsewhere (Wissenschaftsrat, 1992; 1993). In 1995, eleven representatives from centers for distance education as well as from centers for distance and continuing education at the universities in Berlin, Frankfurt, Hamburg, Hildesheim, Kaiserslautern, Karlsruhe, Koblenz-Landau, Lüneburg, Oldenburg, and Saarbrücken, founded the Arbeitsgemeinschaft für das Fernstudium an Hochschulen (AG-F), or in English, the German university association for distance education and open learning. To date the AG-F has attracted more than 50 member institutions that collectively offer a wide range of open and distance learning programs for more than 10,000 undergraduate students, as well as an array of non-degree programs for continuing education and professional development (<http://www.ag-fernstudium.de>).

This multifunctional orientation to distance education and open learning, declared almost 25 years ago as the mission of the three Lower Saxony centers for distance education, appears to have resulted in central units for distance education at conventional universities that meet all of the fundamental functions of study centers mentioned by Mills (1996). Services for advising and supporting students in general, and providing tutorials for students of the FernUniversität in particular, have gained a reputation for high quality as evidenced in projects, experiments, and evaluations. With respect to the Oldenburg Center for Distance Education, development of its own and joint programs, mainly in continuing education and professional development, has been remarkably successful and sustainable (Bernath, 1993; 1994a; 1994b; 1996; 2001; Bernath and

Rubin, 2001). Continuing education programs for professionals in healthcare delivery (<http://www.gesundheitspartnerschaft.de/>), teacher training programs in economic education (Feeken, Kleinschmidt and Zawacki, 2002), and the Master of Distance Education program, a joint venture with the University of Maryland University College (Bernath and Rubin, 2002) are just some examples of developmental accomplishment.

Organizational Aspects of the Center for Distance Education in Oldenburg

Within the framework of agreements on cooperation between the two universities, the Center for Distance Education at the University of Oldenburg is autonomously responsible for providing student support services for students of the FernUniversität. However, counseling and tutoring are more aligned within the concepts and organizational structures for student support services provided by regional offices of the OU UK, than that of the FernUniversität's study centers in North-Rhine Westphalia (Bernath, 1992).

By 2002, the Center for Distance Education at Oldenburg University had established more than 50 positions on three levels of operation:

- Six academic area managers and program coordinators
- Approximately 50 part time mentors/ tutors and temporary project employees
- Five part time administrative positions to manage – i.e., more than 3,000 tutorial hours for students of the FernUniversität, contract faculty, teachers, moderators, and facilitators for the various programs oversee the budget and to run the everyday administration of the center.

Related to mentoring/ tutoring and advising, one of the main responsibilities of academic area managers and program coordinators is to recruit part time mentors and direct them in their subject areas. They may also advise and mentor distance students themselves and participate in the development of programs and projects within the university. The main difference between the German and the OU UK distance education systems is that in Germany tutors do not participate in course development and student assessment, and for this reason tutors are called “mentors.” Nevertheless, these positions require participation in the development and management of distance teaching and open learning programs within the home university. This means academic area managers and program coordinators in the Center for Distance Education must develop appropriate responses to the:

- Changing roles of the mentors, tutors, and teachers
- Increasing number of students who expect instruction outside ordinary classes and schedules
- Growing importance of new communication and information technologies
- Development of new programs and the redesign of curricula
- New networks for delivery and communication
- Further development of adequate student support services (Bernath, 1996)

Tutorials for Students of the FernUniversität provided by Mentors at the Center for Distance Education at Oldenburg University

Until 1995, mentors supported their students exclusively in face-to-face meetings at study centers. Professional support provided by the mentors goes beyond answering of questions about the subject matter and content. Mentors set course-related focuses, describe relationships from their particular point of view, reveal common themes in the materials, initiate discussions, and give additional examples (i.e., The roles of the tutor in Thorpe, 1992). Characteristic of the mentor's role is the formation of special bonds of trust between mentors and students, which is facilitated by the fact that mentors do not assess their students. Perhaps even more important is the opportunity for students to meet in groups, which encourages the exchange of ideas and learning experiences.

Mentors offer face-to-face meetings in Oldenburg through a mix of evening, Saturday, and weekend classes, as well as weekly residential schools. This mix is the result of various factors, such as the specific requirements of the subject areas, students' needs, availability of resources, and the overall features of the study center's program for face-to-face meetings. Few other study centers connected to the FernUniversität offer such combinations of face-to-face events.

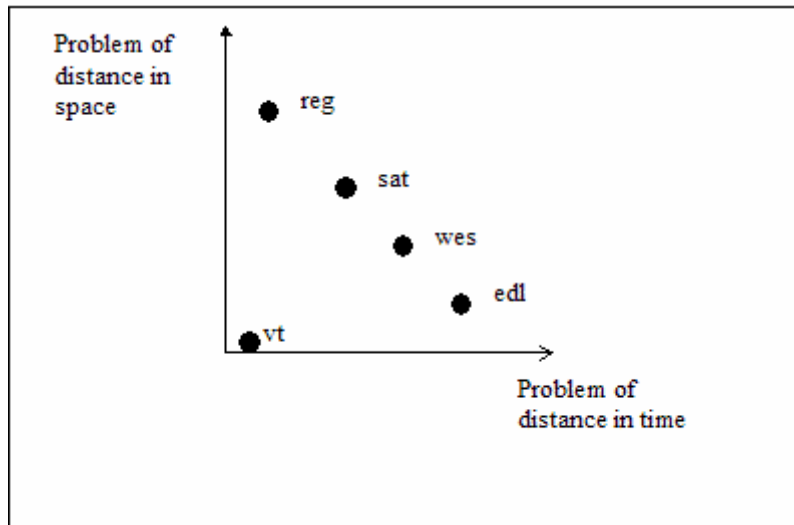
Evening classes attract students living within the vicinity of a study center, and are regular events that follow the pace of the courses. Empirical evidence shows that 30 minutes of travel time to the meeting point with the mentor is the upper limit for the vast majority of students living in the North Western German region (Bernath and Hohlfeld, 1993). Day schools and, even more so, residential schools conducted over a weekend or an entire week, attract students from further a field and thus distance is perceived to be less of a problem. However, residential schools are singular events, a limited resource, and are not suited to accompany self-directed study. Due to the limited resources available at each of the Lower Saxony Centers for Distance Education in Hildesheim, Lüneburg, and Oldenburg, a satisfactory mix of opportunities could not be provided by one study center alone. But by cooperating together, these centers have been able to pool resources and capacity to make coordinated weekend and educational leave events available to students.

This mix of events delivered in face-to-face meetings between mentors and students, offers those studying at a distance an opportunity to make choices in terms of their participation. These various events are intended to allow as many students as possible to take part in meetings with mentors, especially prior to assignments and examinations.

Results from a 1997 survey based on a questionnaire distributed to 292 students, showed a high level of satisfaction in terms of the student support services offered by the Center for Distance Education (Mean=3.34 on a 4-level scale). The success of tutorials in weekend-seminars at residential schools was particularly marked (Mesenholl, 1998), suggesting the stabilizing effects on students of student support services.

In the mid 1990s, when the Internet became more ubiquitous in students' homes, the FernUniversität was suddenly confronted with radical questions regarding face-to-face tutorial components. We realized that mentoring students through the Internet would help overcome existing and limiting factors inherent in face-to-face meetings, specifically the geographical distance between students and the study center, and the distance in time between the process of self study and fixed and paced tutorial event. New possibilities emerged with the Internet – students could now overcome geographical distances, while at the same time stay current with paced courses.

Figure 1. The Impact of Distance in Space and Time in Various Tutorial Events



(Legend: reg = evening class; sat = day school on Saturdays; Wes = residential school at weekends; edl = educational leave during a week in residential schools; vt = virtual tutoring/online tutorials)

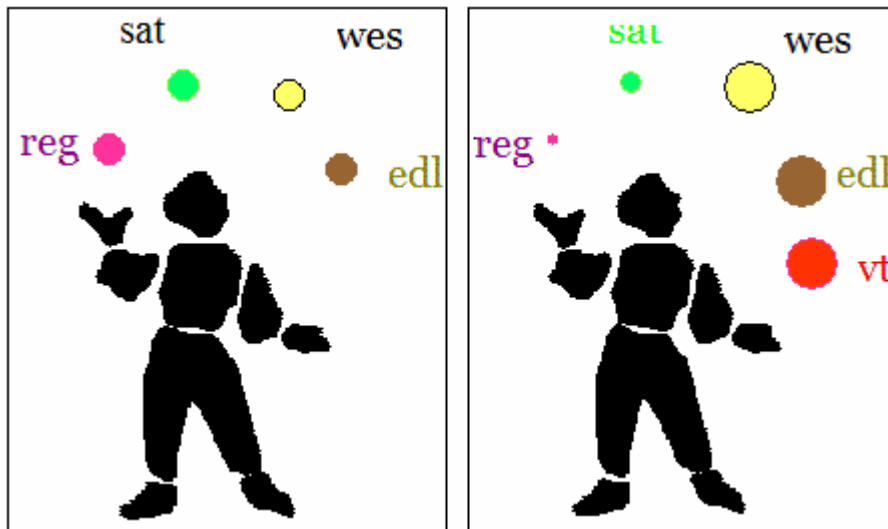
With the goal of improving tutorial services, in 1996 mentors offered their services via the Internet for the first time. Experiments with virtual tutorials in mathematics, business administration and economics, macroeconomics, psychology, and quantitative methods in social sciences took place. These experiments led to a change in emphasis in the mix of offered events.

New Perspectives with Online Tutorials

At that time we could foresee that this new form would require several changes, and hence, a reallocation of limited resources was necessary. We recognized that online tutorials were structurally different from face-to-face tutorials. By introducing online tutorials that were structurally different, but at the same time complementary to face-to-face tutorials, we ran into a “juggling game.” We discovered that online tutorials and face-to-face tutorials at residential schools matched perfectly, and thus they became the major “playing balls” in our juggling game. New organizational measures were undertaken to integrate online tutorials into an already established mix of face-to-face tutorials.

Experienced in conducting face-to-face meetings with students, mentors were considered to be the backbone of such a strategy. Mentors were regarded as privileged content experts, while at the same time they were expected to apply the new media and to facilitate different interaction and communication processes when conducting virtual tutorials. In a change process with such high expectations, mentors clearly needed support and professional development in order to increase their skills and to make full use of the new media’s potential. Furthermore, the complexity of the change process required formative evaluation to allow reflection and revision for further development.

Figure 2. The “Juggling Game” with various tutorial events



(Legend: reg = evening class; sat = day school on Saturdays; Wes = residential school at weekends; edl = educational leave during a week in residential schools; vt = virtual tutoring/online tutorials).

In order to go beyond the traditional scope of face-to-face-tutorials, apply virtual tutoring and steer the change process successfully, we became aware that significant investments would be required in infrastructure and personnel, as well as leadership and management. Based on these perspectives about the new online component in the mix of tutorials, we decided on our first conceptual and strategic criteria:

- Low cost and easy access for students
- Preferably asynchronous communication
- Password protection for study groups/ platform neutral
- Service to all academic disciplines
- Combination of online and face-to-face tutorials
- Reallocation of resources for online tutorials
- Increased division of labor (managing a more complex system)
- Promotion of new models of cooperation
- Urgent need for professional training

Preliminary Findings with Online Tutorials

One of the most important findings was that online tutorials could not – as far as we could see – substitute for all face-to-face tutorials. Online tutorials compete first of all with evening classes. However, with integration of online tutorials the attractiveness to students of compact weekend residential schools and weekend seminars has increased. We also became aware that new pedagogical considerations needed to be taken into account.

We learned that restructuring and redesigning the format of tutorials requires collaboration and that the complexity of managing online tutorials required large-scale organization. A

collaborative approach to sustain investments in a technical platform and a program of online tutorials was required. Fortunately, the Lower Saxony central university units in Lüneburg, Hildesheim, and Oldenburg, were able to build on their already existing collaborative efforts, and a new dimension of shared ownership for the online learning environment emerged to fill this need.

With a common teaching platform, the networked design of tutorials had to be reconsidered in order to integrate online tutorials into the existing mix. As analyzed and phrased by Thorpe (2001, p.16), the approach to this new practice can be characterized as “CMC-added-on.” Under these circumstances, serious constraints had to be tackled. Because the majority of mentors are employed on a part time basis, they had limited availability for extensive and experimental online commitments, just as their availability for weekend and even weekly residential schools had also been limited. Likewise, just as inter-institutional cooperation had been crucial for the establishment of a network of mentors in cooperating university centers for distance education for compacted face-to-face tutorials, it was also essential for new online tutorials. The emerging online format forced us to increase and further develop the levels of collaboration in two directions. First was the establishment of the technical infrastructure, and second was a joint effort to provide online mentoring through the compilation of sparse resources from collaborating centers. In the first case, a new type of inter-institutional ownership came into place. In the second case, a new model of virtual study center emerged.

Strategic planning incorporated first-hand experiences from our online experiments in virtual tutoring and from the virtual seminar for professional development in distance education (Bernath, 1997; Bernath, U. and Kleinschmidt, A., 1998; Bernath, U. and Rubin, E., 1998; 1999a; 1999b). We found that the pattern of activity among participants engaged in online tutorials was markedly different from the well-known patterns found in face-to-face events. In an asynchronous online environment, many more participants could raise their issues at the same time and they felt less inhibited to raise questions and post half-finished thoughts. This caused a significant increase of visible activities, which forced us to think about the “critical mass” of participants, as well as the flow of information. As a general rule, we consider 15 to be the minimum and 25 to be the maximum number of participants to optimally conduct a conversational approach and active dialogue model in online tutorials. This compares to other findings about class and community sizes in online learning (Boettcher, 1999; Allen, 2001; Rovai, 2002).

The sheer volume of online activity could be overwhelming for both the tutor and the student. There was no doubt that the workload for online tutors would be significantly higher than in face-to-face teaching, as has often been reported (Goodfellow, 1999; Daniel, 2000; Bernath and Rubin, 2001).

We favored the asynchronous mode of computer conferencing. Our experience showed that the asynchronous mode allows students to think over the postings for a while, re-think them later, or even sleep over a message before responding. It seemed to be much like throwing a stone into the water (the incoming message) and seeing the ripples expanding outward (the pondering on the content of the message). Spontaneity in asynchronous communication is no doubt lost, but one “works” on the answer to be given. Such pondering allows students to go in-depth, a process which enables new ideas and notions to surface. Furthermore, written contributions to the discussion remain, which thus has an affect on later discussions. With the “ripple effect” in asynchronous dialogues, as Bernath (Bernath and Rubin 1999a) coined it, we gain the power of reflection, which may substitute for the lack of spontaneity.

While online teaching and learning was becoming an increasingly important issue, an urgent need for new classroom settings that supported the development of computer-based collaborative learning in face-to-face events arose at the same time. In 1997/ 98, the Center for Distance Education became a partner in a joint venture, whose goal was to design a physical setting that enhanced computer-supported collaborative learning. A round table with six networked computers and fold-away monitors was developed as a base model that allowed up to 18 (and in its advanced version with eight workstations up to 24) participants to meet in a seminar room setting rather than a computer lab. This model combines computer supported group interaction with traditional face-to-face meetings. It also allows the combination of both “real” and “virtual” learning spaces. This new seminar setting (see <http://www.uni-oldenburg.de/zef/silva/index-e.htm> and <http://www.uni-oldenburg.de/zef/cebit/ceho-ine.htm>) has made possible radical changes in the pedagogy of tutorials and seminars. The availability of a learner-friendly physical environment in combination with a new online learning infrastructure, retains the commitment to the idea that “the student comes first” in face- to-face as well as in online learning.

New Pedagogical Concepts

Because online tutorials represented a new approach, we did not discover its full potential immediately. Indeed, we were too attached to the notion of the traditional face-to-face paradigm of tutorials to see the full potential of the new online media. Distance teaching universities and study centers faced new pedagogical questions and organizational changes. In 1997, the key points of a new pedagogical concept were formulated for online tutorials (Bernath and Kleinschmidt, 1998):

- Mentoring services via the Internet should not be limited to solely answering questions. Mentors must work to stimulate and structure discussions through the use of both continuous and strategically placed course subject content. Such tactics are particularly important if the course is not paced by deadlines primarily because participants are unlikely to be working on the same topics at the same time. What these inputs should consist of depends greatly on the subject and the topical emphasis of the mentors.
- Communication should be asynchronous, structured, and paced to support study groups and learning in a community.
- Online mentors should also be experienced in the face-to-face tutoring environment, which has provided an indispensable input to increase the quality of online mentoring and vice versa.
- Social relationships and emotional aspects play an important role for learning behaviors in the online environment. Measures should be undertaken give participants the opportunity to form groups and to contact each other directly and individually.
- In the online environment, group size must be limited. To deal with the volume of interaction between mentors and participants and for group members still identify themselves as such, it may be necessary to divide the group, especially if its size goes beyond a specified number.

- Activities of participants engaged in an online seminar is different than those engaged in a face-to-face event. In a virtual seminar false impressions can arise that only a small part of the group is active. However, the reality may be that others are working actively, but simply do not see the need to make a contribution. This misperception can be mitigated through appropriate group moderation. Answering an individual learner's contribution can be made comprehensible to all by preparing a newsgroup and thus creating the impression of "one-to-many" communication.
- The high workload typical of initiating online tutorials – in particular for mentors/ tutors – can gradually be decreased by re-using generic contributions. However, such tactic requires certain technical conditions and faculty support services, both of which must be created and sustained.

Strategic Concepts

At the center of our strategy to sustain online tutorials and their economic operation, stands the reality that the effective operation of a well functioning online tutoring system cannot be lead by a single center for distance education or institution. This reality has led us to seek increased cooperation with several institutions so as to pool resources and to focus on the following areas:

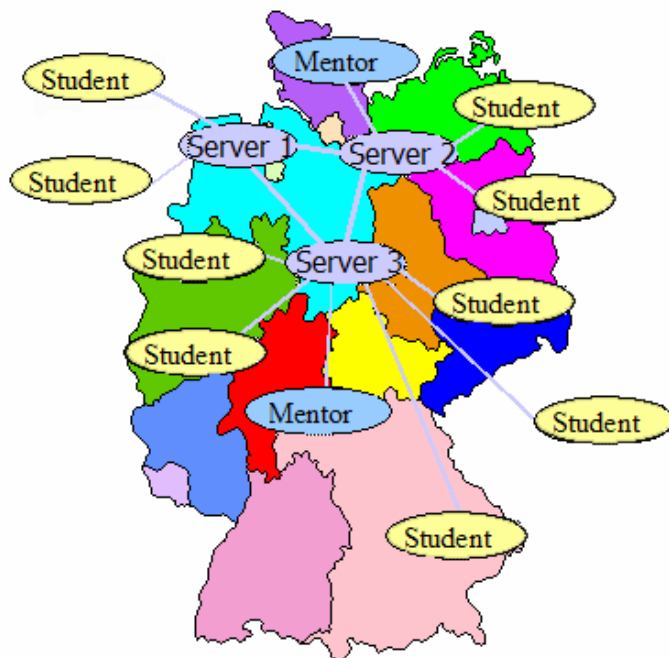
- **Selection and operation of a joint technical infrastructure:** In the first few semesters, classical Internet tools (www, news groups, E-mail, FTP) were used. Existing restrictions, especially in terms students' ability to generate interactive options such as, for example, the creation of graphs with formulas, made formulation of alternative procedures necessary.
- **Necessity to regulate labor legislation:** Mentors should be able to provide online tutorials from their homes and independent of fixed times. New procedures for compensation and cost reimbursement were needed.
- **Training and counseling of mentors:** The training and counseling of mentors – not only technically, but also didactically – became a complex task, for which individual and group measures for professional development needed to be linked. Concerns about cost-effectiveness of group tutoring versus training of individuals also needed to be resolved.
- **Technical introduction and counseling for Learners:** Learners also require an introduction to technology, and hence technical questions must be addressed from the outset.
- **Joint support of courses:** A team-teaching approach was used to lessen each mentor's workload, shorten response time to learners, and to obtain its didactical advantages.
- **Evaluation:** Formative evaluation should support the development of online tutorials and strengthen quality management.

Online Tutorials through ‘Virtual Study Centers’

In 1999, after thorough consideration of various alternatives, Lotus Learning Space was chosen as the learning platform and online learning management system. The State of Lower Saxony made the technical infrastructure possible within the framework of a grant project (Virtual learning spaces in higher education: <http://wwwfz.uni-luene-burg.de/FERN/3-STU-PRO/Projekte/viles.htm>) with the expressly stated goal of making it available for other online learning offerings at Lower Saxony universities.

In 2002, distance learners could enroll in 19 online courses from the various subject areas. Each year between 350 and 400 students make use of this service. Students purchase a license for the software (Lotus Notes Client and Lotus Smart Suite) and are provided a CD on which, besides the programs, are pre-prepared contributions by their mentors. Students install the software at home. Configurations are performed automatically and students only need to choose their courses, students then briefly log-on to the Internet to download any updates or newer versions. Because only new or changed documents are transmitted online, the time necessary for such housekeeping is minimal. Students then proceed to learn their course material off-line without a connection to the Internet. When they have completed an assignment, they upload their assignments and contributions, thus making their work available to others. With appropriate software, students may also copy or work with formulas, graphs, or work sheets provided by mentors. If a server fails, students are automatically switched to another server. Participants rarely encounter a down server. Students who do not wish to install the software may participate via a www browser, but they must be online to do so. However, their online participation is limited strictly to newsgroups. Access to contributions made by mentors and other students is possible without any restrictions. Because students use a seamless system, they do not need to be aware of the complex structure that supports their learning environment.

Figure 3. Technical infrastructure of the “Virtual Study Center”



Nine servers hosting online learning software (i.e., Lotus LearningSpace) and three backup servers at the universities in Hildesheim, Lüneburg, and Oldenburg form the technical backbone of this interactive online delivery system. In order for courses and materials to remain current, servers must be updated regularly. Mentors and students only need a short time to connect to the servers for downloading purposes. The twenty-one mentors who serve the student population live in different locations and are employed at the various universities' study centers. For courses, mentors from different centers jointly support a given course. For students, however, local connections and references to their study center have become blurred; they use the coordinated, networked online tutorials and student support system as an offering from a single virtual distance learning center.

With regards to the changing role of local and regional study centers, similar developments have been described by Tait (2002). A joint staff development project with tutors from the OU UK regional office in Cambridge also shows similarities, but also differences in comparisons across boarders and institutions (Gaskell and Mill, 2002).

Challenges and Outlooks

One of the major challenges was – not surprisingly – the qualification of the mentors necessary for online student support. The importance of professional development for mentors or “e-moderators” should not be underestimated. Our experience stands in close concordance to Salmon who said: “Any significant initiative aimed at changing teaching methods or the introduction of technology into teaching and learning should include effective e-moderator support and training, otherwise its outcomes are likely to be meager and unsuccessful” (2000, p. 55). Therefore, a training program with introductory and developmental elements was designed; it was both well received and sufficient, which enabled mentors to become comfortable with system. In terms of technical skills, however, mentors were found to be heterogeneous, especially with regard to their course specific needs. This reality led to high demand for individual support during the training period, which could only be met in personal discussions. In the future, qualitative aspects of such training will have priority over quantitative development in order to enable mentors to fully utilize the system's features and thus increase student success. This is especially true in Oldenburg, where the number of online tutorials has increased dramatically and hence, can no longer be viewed as a mere addition to face-to-face events. Online tutorials over the Internet have developed their own dynamics.

There was a strong expectation of re-using once compiled content and thus lowering the amount of required work for tutorials. Like building a house, developing and delivering a course involves an extraordinary effort in the beginning, after which a databank can be developed that over time can continuously be expanded and improved with new information. In some cases, the workload can be reduced, while in other cases, especially where the content must be continuously updated or revised, the workload is significantly heavier. Because the online learning environment favors the reuse and redesign of content and continuous updates, the workload usually remains higher than expected.

The experiences of all mentors are the subject of evaluation and exchanges. In Fall 2000, follow-up telephone interviews showed that for most mentors the online environment involved additional and unexpected efforts. The adaptation was more of a challenge than expected. Although this finding was troublesome, the mentors appreciated the support and training they received, and eventually all but one mastered the new teaching situation. A small group of mentors reported

that they had no problems in the new environment and mastered it easily. Because all mentors had previously taught in face-to-face settings, they experienced and appreciated the advantages of the online environment. Nonetheless, they still complained about the lack of visible participation and feedback in groups of 8 to 15 participants.

A survey showed that most students enrolled in the online and face-to-face study modes, viewed the online tutorials as an important supplement. Only a few students mentioned encountering technical problems.

Participating institutions discovered that the complex nature of cross border cooperative relationships relied upon the successful operation virtual distance study centers. With respect to the basic conditions, it was difficult to align education policies and developmental politics at each institution that still revolve around issues of physical area and space. Conventional territorial structures continue to be in opposition to the non-spatial world of this new and worthwhile process of teaching and learning via the Internet. Viewed in this manner, it is not so much a matter of putting a “new ball” into play and adjusting weights (See Figure 2, The “juggling game”), but about introducing profound qualitative changes in the educational field and the organizations involved in such an endeavor.

New and promising developments are on the horizon for distance learning and training. Time and space are already loosing their constraining effects. Online tutorials have already proven their worth in terms of facilitating highly effective interaction and communication between mentors and students engaged in distanced education studies. Daily, we are faced with challenges to find new ways and means along a technological continuum of more or less complex solutions, in what is proving to be a never-ending process of development. However, technology is not self-supporting and content is not self-explanatory. Nor is technology the new teacher – teachers and mentors remains the focus of all teaching and learning. However, teachers and mentors require new skills to be effective online educators (Salmon, 2000). Providing access to technology through study centers is necessary, but not enough. Online learning only works well when it creates enthusiasm. Students, teachers, and mentors alike must be comfortable with the technology before they can successfully master online learning. However, when taking into account that online learning participants are “technologically favored” in that they possess access to technology and the requisite skills to participate, it is clear that online distance education delivery may systematically disadvantage those who lack the tools and skills, and will likely not participate without help and encouragement. This issue not only a local matter, but rather a global one which is now becoming evident as the gap between the information-rich and the information-poor grows. Unfortunately, the digital divide is a significant problem for which we still lack the appropriate answers.

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Student Support in Open Learning: Sustaining the process

Christine Dearnley
University of Bradford
School of Health Studies
UK

Abstract

This paper discusses the aspect of student support that emerged as a key component of a longitudinal study into the experiences of nurses studying through open learning in the UK. Students engaged in this study were mature learners who were practicing nurses and predominantly, but not exclusively, women. Participants perceived entering higher education as a considerable challenge.

Keywords: longitudinal research; constant comparative analysis; social, professional and academic networks

Student Support in Open Learning: Sustaining the Process

During the two year nursing course, programme participants in this study were found to engage a range of strategies in order to access the support that they determined was necessary to sustain their academic undertakings. They adopted strategies within their social relationships to ease the practicalities of domestic requirements, and as a result, often re-evaluated such requirements in the light of new perspectives as the course progressed. For example, students developed strategies at work for sharing information, and for giving and receiving reassurance from colleagues and friends. They also turned to peers and tutors from their tutorial groups. This paper explores the strategies learners deployed and how these strategies help to sustain them in facing the challenges of change.

This paper aims to report the findings, in terms of student support, of a longitudinal study of the experiences of a group of enrolled nurses (ENs) studying on a two year open learning (OL) conversion course. This nursing programme was designed to “upgrade” original professional training and help nurses meet the increasing technological and academic demands of their profession.

Students enrolled in the course are placed within a tutor group of approximately fifteen students. Students may study a range of clinical specialities and have the option of attending group tutorials, two hours in duration each week during the term (thirty weeks a year). Course content is

provided through paper based learning materials. Students are also entitled to individual tuition from the group tutor. To be eligible for enrolment in the programme, students must be working in clinical practice for at least twenty hours a week. Participants engaged in this study were predominantly women between the age of 37 and 50 years, and had between seven and 29 years experience in clinical practice prior to commencing the course. Generally, students' prior academic qualifications did not exceed General Certificate of Secondary Education (GCSE) level of study. They therefore represented a non-traditional student intake. As a result, students' prior experiences can inform the current agenda for widening participation in Higher Education (Kennedy 1997).

Study participants entered the programme demonstrating an array of emotions ranging from the fear that they might lack ability to "do the work," to excitement and delight at "being given an opportunity." Upon completion of the programme, participants engaged in this study were found to epitomize the ideals of lifelong learning: they experienced a range of personal and professional development characterized by changing ways of knowing (Belenky et al., 1986) and increased motivation for living and learning (Dearnley, 2002). As it is the aim of widening access to participation in higher education, the development of individuals with the skills of lifelong learning is a high priority on many current agendas in the UK and elsewhere (ENB 1994; Dearing 1998, DfEE 1998; DoH 1997; 1998; 1999; 2000a; 2000b; 2001; UNESCO 2000). This article aims to discuss the relationship between student support within the context of open learning, as well as the achievement of these aims.

Background

The history of the enrolled nurses (EN) and the requirement for them to convert professional qualifications from second to first level registration created the larger contextual conditions of the study. Previously registered nurses (RNs) trained for three years and are empowered to deliver nursing care within statutory limits (Brown, 1994). As such, RNs became known as "first level" registered nurses. By comparison, enrolled nurses (ENs) trained two years and hence their role, by statute, was to *assist* RNs. As a result, ENs became known as "second level" registered nurses. Despite the fact that they often performed similar duties when compared to RNs, who could become ward sisters, nursing managers, or enter specialties such as midwifery or health visiting, ENs, on the other hand, traditionally had few career options and even fewer opportunities for "topping up" their qualification to become RNs. The 1980s, however, saw a number of changes to the Health Service and nursing management, which resulted in ENs becoming an "oppressed" group of individuals. ENs were often de-valued on a professional level, and as a result, demotivated.

As has occurred in other countries, in 1987 the Project 2000 proposals (UKCC, 1987) were published in the UK announcing that EN training was to cease and there was to be a single level of registered nurse. It was at this juncture that ENs was offered the opportunity to convert to first level registration if they wished. This created considerable unrest and uncertainty among ENs, a group who at the time accounted for approximately one third of all nursing staff employed by the National Health Service (Dowswell et al., 1998). The demand for *conversion* courses, as they became known, was perhaps higher than had been anticipated and the open learning route provided the only feasible way for so many individuals to upgrade.

Participants in this open learning course were practicing as nurses and most had family and home commitments when they commenced the course. Few had any substantial academic qualifications or educational opportunities other than their original EN training and subsequent statutory

updates. The need to respond to the demands of becoming an open learning student were thus to be in addition to their existing life responsibilities and events. Learners situated within this context thus required forms of support that were perhaps different from “traditional” students. Participants in this study demonstrated a range of strategies in which they engaged to access this support.

Nursing practice draws upon several ways of knowing (Berragan, 1998). Carper (1978) defined four *patterns* of knowing in nursing: empirical, ethical, aesthetic, and personal. Belenky et al. (1986) described different *ways* of knowing specifically related to women, and Perry (1970) constructed a scheme of knowledge development in college students, most of whom were men. The study drew upon these earlier works to explore the changing ways of knowing and nursing experienced by the participants. Belenky et al., (1986) identified several ways of knowing and implied that an individual moved from one position to another as a result of various experiences. Perry (1970) identified sequential positions, although he acknowledged, as did Belenky et al., (1986) that some individuals would choose to halt the process if the challenge of change became too great and that regression was possible. This paper elucidates the role of different support mechanisms in sustaining the challenge of change as the participants traversed from a professional epistemology of silence to one constructed through their own experience of caring.

Methodology

The study was undertaken within a phenomenological paradigm and was underpinned by a philosophy of participation and collaboration (Carr and Kemmis, 1986; McNiff, 1988; Hall 2001), reflecting ideals of post-modern feminist enquiry (Harding, 1987; Stanley and Wise, 1993; Maynard, 1994; Stanley, 1997; McGuire 2001). Data were collected through a total of 58 semi-structured interviews, obtained from a bounded sample of eighteen participants, at five stages over the two year period of study. Supporting data were obtained from study skill inventories (Entwistle, 1983), distributed to a sample of 160 students studying the same programme at a number of higher education institutions at three stages throughout a two year period, as well as from researcher observations and reflections based on professional practice as an open learning tutor.

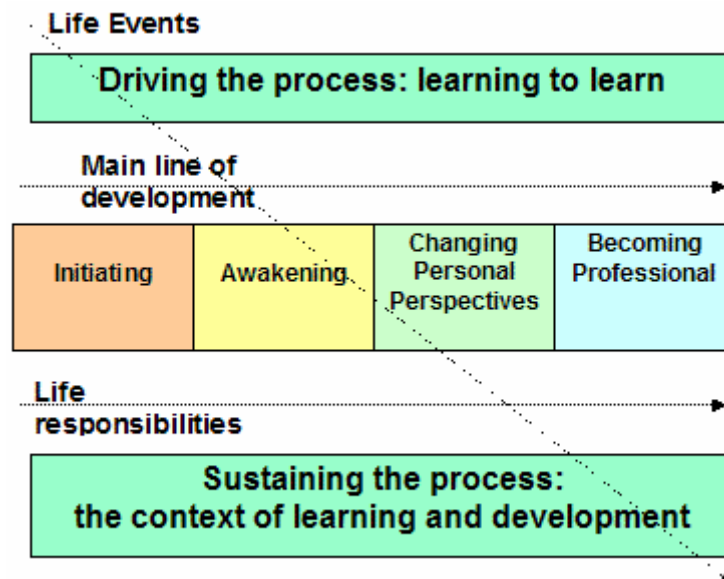
Analysis was undertaken through the processes of open, axial, and selective coding to identify the properties, conditions, and relationships between the emerging concepts and categories at each stage of data collection. In this manner, dense category formation and refinement were possible. This constant comparative method of data analysis was consistent with that suggested by Strauss and Corbin (1998).

Key concepts, along with their properties and dimensions, were identified and conceptually developed by the use of researcher memos and diagrams. Axial coding, whereby the analyst begins to fit the pieces of data together, was conducted conceptually and then in diagrammatic format. This method of analysis facilitated the development of “core categories” at each of the data collection stages. Categories that emerged in previous stages of the study were developed along various dimensions and along a six-month trajectory. Subsequently, core categories for each stage of the student experience emerged, whilst others, such as those entitled “*the context of learning and development*” and “*learning to learn,*” were constant categories to which depth and vitality was added at each stage of the data collection and analysis process. In this manner, an over all model evolved (see Figure 1), dense category development was generated, and category relationships were explored.

Check coding, (Miles and Huberman, 1994) whereby open coding was repeated on a number of transcripts and then categorized by means of conceptual axial coding, was repeated at each stage of the study. Another analytic strategy employed as a form of *check coding* was to discuss findings with the participants. This strategy was employed at the third and fifth stages of data collection and analysis and served to check assumptions and the emerging hypotheses by explaining to the respondents what the researcher was finding in the data. This strategy also provided an opportunity to ask participants whether the researcher's interpretation matched their experiences, and if not, then to identify the ways in which they were different (Strauss and Corbin, 1998; Maynard and Purvis, 1994; Badger, 2000). In this manner, the ethos of participation and collaboration within the study was increased. McNiff (1988) suggests that participants' reactions may be a researcher's strongest support in their claim to knowledge, whilst Maynard and Purvis (1994) discuss the problem of interpretation and how we know that we have interpreted the data as the participant would have wished. Returning to the participants, allowing them to read transcripts of their interviews and sharing the interpretations with them, enabled the researcher to check that the data had been interpreted in agreement with the participants, thus increasing the validity of the study.

The category entitled "*context of learning and development*," which emerged and was developed in terms of its properties and dimensions at each stage of the study, encompassed the important role of support in an open learning provision will now be discussed.

Figure 1. The Process of Development



The Context of Learning and Development: Sustaining the Process

This was a major category in the study and was made up of three sub-categories: 1) *professional roles and relationships*; 2) *social roles and relationships*; and 3) *academic roles and relationships*. These sub-categories emerged at each stage of the data collection and analysis process. The objective was to identify any changes in these roles and relationships that impacted or were derived from the student experience and subsequent developments. In the final process of

analysis and evaluation, the function of the category was identified as primarily that of sustaining the developmental process by the integration of three clearly defined supporting networks. These supporting networks were: 1) *academic*, consisting of tutors and peers; 2) *professional*, consisting of colleagues, managers and mentors; and 3) *social*, consisting of partners, children, extended families and friends.

Two key concepts permeating the study were “*life responsibilities*” and “*life events*.” *Life responsibilities* represented all those social and professional roles and responsibilities likely to be ongoing throughout the duration of the course; they were felt to be constant and generally predictable. *Life events*, however, encompassed any number of unpredictable traumas and stressors that accompany adulthood, for example: bereavement, divorce, pregnancy, and new relationships. Whilst life responsibilities can be considered and catered for when planning adult learning curricula, life events may be expected and processes to accommodate such events as they occur, should be built into curriculum design. This is easier, to some extent, with open learning courses than with face-to-face courses, because students can break from their studies and return when they feel ready, rather than being governed by the availability of lectures that may have been missed. However, it is also acknowledged that student support is an important element in sustaining students through life events, whatever the mode of delivery.

Appropriate student support was seen to make the difference between student success and failure. Carnwell (2000) identified the importance of support in her study of nurses undertaking open learning programmes. She noted that this fell into three domains: 1) practical; 2) academic; and 3) emotional; these were mirrored in the current study. Students in this study identified the need for the following types of support:

- Practical support, for example with child care or domestic arrangements
- Technical support, for example how to word process
- Academic support in terms of writing skills, referencing, literature searching, etc.
- Emotional support, which was often just someone students could talk to about the pressures of being an adult learner

As mentioned previously, three main sources for this support were identified in the study as “*social networks*,” “*professional networks*” and “*academic networks*.” A further exploration of the three support systems will demonstrate the interplay between them, how when one system fails, another needs to be activated. *Academic networks* must be responsive to student needs. In order to achieve this, an awareness of *social* and *professional networks* and how they interact with *academic networks*, is required.

Social Networks

Daloz (1986) suggests that tutors of mature learners must recognise the social context in which learning takes place. In open and distance learning, this is of particular importance as it is in this context that most of the learning takes place. *Social networks* obviously vary in the form that they take, but interestingly, they seem to form the foundation of all support networks. Dearnley and Matthew (2000), Scott et al. (1998), and Asbee and Simpson (1998) each reported that “domestic harmony” is an essential ingredient in sustaining the motivation and ability for mature learners to continue studying. In the current study, it was noted that if all was not well at home, students found it difficult, if not impossible, to continue with their studies. Social networks generally provided the practical help that was required to enable students to set-aside the time necessary for effective study, and in many cases were the source of emotional support too.

The causal conditions of this category of social networks relate to participants as adults with *life responsibilities* and commitments that required programme participants to adapt to a new role of student. Whilst there was pressure from within the profession for students to enroll in the programme for some time, there was an overarching theme: when they began the course, “the time was right” for this to happen, indicating that there was, in fact, an element of personal choice in the decision to commence the course at a particular time. This choice was supported by such claims as: children were now old enough to be more independent and therefore less demanding on parental time, etc.

Pascall and Cox (1993) stated that the decision to return to education for women was frequently dependent upon “a complex web of circumstance being right,” a finding that was mirrored in the first stage of the current study. Students chose to start the course at a particular time for a number of reasons, nearly all of which were based on social circumstances.

At early stages of the study, students discussed changes to their roles at home and how their families were coping. For example:

“Because I’ve got to get this work done. And I think, I think they’ve still got to get used to the idea that I’m not always gonna be there to do the washing and the ironing because I’ve got my head in a book and so there have changes been made . . .”

Some students discussed how their children had responded to them becoming a student. This varied from youngsters wanting to share the dining room table to do their “homework,” to teenagers assuming responsibility for domestic chores. One student expressed her surprise that this support was forthcoming:

“[My] son does more, he does. (laughs) . . . He does . . . He’ll Hoover now, he [wouldn’t] Hoover before . . . He’ll dust and oh, he’ll iron, he never used to iron and he will.”

When asked what she thought had brought about these changes, she laughed again, and replied: *“Because I haven’t been able to do [them].”*

It appeared, however, that in many cases, whilst support from various family members was offered initially, such support was often short lived. Later stages of the study revealed that most students either adopted Clouder’s (1997) “must work harder” strategy, in that they added studying to their usual domestic responsibilities, or they re-evaluated the importance of domestic chores and relegated them in terms of their overall importance in life. For example, as one student said:

“Before, it used to worry me if I didn’t do the ironing . . . there could be a pile of ironing and I’d think, “I’ve got to get that ironing done before I can do anything else”, but now it doesn’t bother me, I can just, I can be quite blasé about it, cos there’s more things to life than ironing or housework. And I feel that I try to fit in enjoying life more . . . I think it’s about prioritising my life and I know that . . . I know that I’ve got to make time for studying now.”

Whilst this student had successfully changed her domestic priorities and learnt to integrate studying with the rest of her life, supported by significant others, it must be noted that this was not an easy task and for some students, in that such changes in outlook created turbulence in their

social roles and relationships. For these students, support was often needed from outside the domestic arena and many turned to their professional relationships for this support.

Professional Networks

Professional relationships and support had a strong effect on the students engaged in the study. In the early stages of the programme, support might have been as basic as being “allowed” to do the course, being funded, or being allocated time to study. Practical and emotional support was central to the part played by *professional networks*. If students worked in an environment that was not supportive, where they did not feel valued as learners, where study leave was withdrawn or reduced, they reported a negative impact in their approach to the programme and that their motivation for learning was severely jeopardised. Students who were less well supported at work, traversed through the process of development more slowly than did those who were well supported at work.

In terms of professional education, there is further evidence here to support the essential links between the practice area and the academic institution. In nurse education in the UK, links between the practice area and the academic institution are provided in a number of formal ways, such as link lecturers, who work between the academic institution and the clinical area, as well as mentor preparation workshops which were provided by the academic institution. However, this study has demonstrated that students rely most often on *informal* professional networks for vital practical and emotional support. One student explained how practical support at work made a difference to her:

“I’ve found, even four weeks into the course, that if you ask somebody something, they’ll say, ‘I’ve got one of those. Or I’ll find you one of those. I’m sure I’ve got one of those, I’ll photocopy it for you.’”

However, there was also a place at work for *emotional support*, as she continued:

“At work everybody’s been asking me how I’m getting on and, you know, all that sort of thing, that gives you a boost as well, you know.”

Whilst *formal* systems frequently broke down, for example, when designated mentors or students moved practice areas, *informal* networks, which were frequently based on friendship or shared experiences, were stronger:

“Professionally, at work . . . they’re just behind me all the way, but they all do courses, they’re all doing them, so they all understand a bit, you know.”

Students relied on a complex web of emotional and practical support from within their social and professional networks. They sometimes turned to these networks for academic support too, such as retrieving materials, developing study skills, and technical support when using computers to search for resources or word-process their studies. For other aspects of study skills, such as interpreting learning materials, learning to become reflective and applying theory to practice, they turned to the academic networks, which will now be discussed.

Academic Networks

Most participants in this study had no choice with respect to the method of course delivery. It was the only suitable course available locally and they were often “sent” on the course by their employers. Some had chosen to study by open learning modalities because of the flexibility it offered in terms of its delivery. However, whilst the flexibility often provides the opportunity to study, it may also prove problematic for some students. Many participants entered the course with preconceived ideas about their “needs” as learners. These “needs” were often based on earlier, sometimes negative schooling experiences. Such students frequently felt a need to be “told what to do and when to do it,” behaviours which stem from earlier experiences that had encouraged dependency rather than autonomy in learning and an epistemology of received knowing (Belenky et al., 1986).

Earlier negative schooling experiences may also have contributed to participants’ low levels of self-confidence in their ability to learn. Thus when tasked with identifying “their own learning needs” and planning “their own study time” around existing *life responsibilities*, the challenge for some individuals seemed insurmountable. For those who took up this challenge more comfortably, nonetheless tend to be defeated by the challenges of life itself, when *life events* intervened in the learning process.

Students in the study were returning to education after a period of many years and for most it was their first experience of higher education. Moreover, for most, it was their first open learning experience. Therefore, it is important to understand the emotional impact of returning to study as a mature learner. One student, just coming to terms with returning to study, explained that “the magnitude” was “beginning to dawn,” whilst another described the experience as “soul lifting.”

Many respondents reported having returned to studies in the epistemological position of received knowledge (Belenky et al., 1986). In this position, individuals tend to think of “authorities” as sources of truth. They depend on “authorities” to tell them what is right or wrong and believe that “authorities” hear words from even higher “authorities.” Some participants began the course with this orientation. They believed that almost everybody in the professional hierarchy was “above them” in terms of “authority,” and that professional knowledge passed down through that hierarchy to them. It is therefore likely that it was from this professional epistemology that students’ anxiety and lack of confidence in their ability to learn evolved. It is also likely that other groups of mature learners will be returning to study with this epistemological orientation and will experience similar anxieties and emotions.

As learners, individuals with the orientation of received knowledge (Belenky et al., 1984) have distinct characteristics worthy of exploration within the context and demands of open learning. Students with this orientation tend to be intolerant of ambiguity, and to collect facts rather than to develop an opinion. In other words, such students either “get it” right away or don’t “get it” at all. They usually make no attempt to understand or evaluate ideas. Thus these individuals tend to be surface learners, where material is to be stored in their heads and application of knowledge is difficult. Given that there was no “teacher” to tell these students what to do or what they needed “to get,” the task faced by these learners to take responsibility for their own learning can be understood as enormous. No “authority” was going to tell them what to think, or when to think; they had to think for themselves. As they came to grips with open learning, the epistemological positions in which they had functioned for many years, in both their professional and social roles, was immediately challenged.

These findings are supported by the results of the approaches to study inventories (Entwistle, 1983), which were distributed at the start of the course. Based on the analysis of 2208 students from a range of arts and science backgrounds, Entwistle (1983) offers mean scores and standard deviations as provisional norms. His mean score for reproducing orientations to study – i.e., surface learning, is 13.51 and the standard deviation is 4.40. Analysis of the returned questionnaires at the start of the current study indicated that the incidence of surface approaches to learning were high, with a mean score of 16.5 and a standard deviation of 4.09.

Responsive and flexible academic support was therefore required as students battled with the practicalities of returning to study, coming to grips with open learning, and issues such as “getting it down on paper,” “references” and using the library. Crawford and Gorman (1995) found that using modern libraries was a concern for many adults returning to study, and this certainly seemed to be the case here as the students settled into the course. One student described the enormity of her experience in “cracking the library system:”

“But there’s just something about this library downstairs, that it took me ages to walk through the door, and the first time I wanted to photocopy an article in a journal I went with me purse, and you know, me money, and that was another sort of, erm, erm . . . to, to, a step to actually get me card and to understand that. And I remember going home and telling my thirteen year old, nearly fourteen, saying, “Do you know what I did today.” And she sort of looked at me as though, you know, “Wow, let’s get giddy, Mum.” You know . . .”

Academic networks were divided into two distinct sets: 1) peers from the tutorial groups; and 2) personal tutors. The former were found to provide strong links from early in the course, and support from within these groups fell into the academic, practical, and emotional domains. Attending tutorials seemed to add to the academic experience, helping increase awareness of current thinking and, in so doing, motivating students to continue. This supports the findings of Gordon (1996), Stevenson and Sander (1998), and Bird (1999), who each found in their studies that group discussion was a popular teaching method that helped clarify issues and create opportunities for group interaction. Friendship, support, and trust were gained through group meetings and attendance at these, whilst not compulsory, was valued. Tutorial groups in the current study resembled Belenky et al.’s, (1986, p.118) “*connected knowing groups*,” which aided the transition to connected ways of knowing (Belenky et al., 1986).

One year into the course, one student noted that the group was “*in fact, getting more, you know, interconnected at the moment.*” For almost all students, the tutorial groups were a fundamental aspect of support, and for many, provided a rich learning environment. The passage below demonstrates this:

“Our small group is really diverse and when we get together for the tutorials I think we cover an awful lot, and we get a lot from each other’s personal experiences, or somebody else’s view of a topic that we’re covering out of the workbook . . . Somebody else will come with a completely different view of what they’ve been reading and I think, “This is wonderful,” “I get a lot out of that.”

Participants in the study discussed the role of the personal tutor at length. Good tutors were seen to provide support in any of the four domains: 1) academic; 2) emotional; 3) practical; and 4) technical. Primarily, tutors had to be approachable and accessible. In open learning, this is likely to have a variety of dimensions, particularly as email and Internet accessibility increasingly

complement telephone or fax machine technology. But the type of access seemed less important to students in this study than actually knowing that support was available. In terms of emotional support, participants appeared to appreciate those tutors who encouraged and promoted confidence in their abilities to do the required work. In discussing the anxiety and stress that can be induced in learning situations generally, Newell (1992) suggested that whilst few teachers will have extensive training in cognitive-behavioural anxiety-reduction techniques, many nurse teachers already have transferable skills in stress reduction which can be called upon. These same skills are called upon frequently when working with adult learners who are returning to education after a considerable break and coping with life responsibilities and events simultaneously with their studies. One student summed up the supportive skills of her tutor in the following way

“I spoke to [my tutor] a few times who patiently listened and sort of, well, good counselling really.”

Clearly, not all tutors will have “good counselling skills.” However, the findings of this study indicate that there is a need, at minimum, to understand the issues, the context of learning, and a humanistic approach to student support.

Reflection and Discussion

Whilst it appears at face value that *academic networks* might be all that concerns those responsible for the delivery of open and distance learning, the study demonstrated that there is a considerable interplay between the three domains. Not all students will access all three systems; indeed, not all students will have access to all three. However, it appears important for each student to access at least one of these support systems.

Sound management of open learning delivery should aim to exploit the former virtues whilst minimizing the effects of the latter. This was of particular importance in the current study and the development of the academic and professional networks seems to have been successful in overcoming this issue.

The interplay between the systems was exemplified in the study by the case of one student who, just months into the course, was widowed and left with two young children. *Professional networks* came into play as working hours were offered that would enable this student to work whilst the children were at school. The academic network was activated and this student was supported by her peers in the tutorial group, not only emotionally, but also practically. Assignment submission dates were flexible and the open learning modality allowed the student to spend time away with her extended family. As one support system was lost, others took on more crucial roles and she was thus able to successfully complete the course.

Rogers (1996) highlights the growing awareness that “transfer of knowledge” models of adult education are ineffective, and act to encourage dependency and are thus inappropriate for the development of critical thinking. This study demonstrated how the processes of an open learning model of adult education proved effective in challenging existing ways of knowing, nursing, and being. Within the context of existing *life responsibilities* and with the intervention of *life events*, participants engaged, to varying degrees, with the learning process, took up the challenge of “doing their own thing,” became reflective practitioners and developed the skills required for the delivery of evidence based care. In so doing, they changed the positions of both epistemology and motivation, from which they practiced as nurses. As they made this transition, each passed

through recognisable stages (Figure 1). Participants, however, negotiated their own way through these stages and did so in their own time supported in their own unique ways.

Daloz (1986) suggests that when students receive an appropriate mix of challenge and support, development can occur. He asserts that when both support and challenge are low, little is likely to happen in terms of personal development. However, when support is enhanced, the potential for some form of personal growth is increased. On the other hand, too much challenge in the absence of appropriate support, can drive a student into “retreat, forcing a rigid epistemology to replace the promise of a more fluid and complex world” (Daloz, 1986, p. 215). It appears that in the current study, the open learning modality allowed students to assess the availability of support from social, professional and academic networks and, in most cases, create an environment that provided an appropriate mix of both challenge and support.

Implications for the Delivery of Open and Distance Learning

A number of key issues emerged in this study that have implications for the successful provision of open and distance learning. These will now be discussed.

The initial lack of confidence in their ability to develop learning skills that was reported by participants is likely to be found in other groups of mature open learners. Indeed, it is reported by Pascall and Cox (1993), Crawford and Gorman (1995), Gordon (1996) and Bird (1999), that student support is a key role in any learning environment. However, the findings of this study indicate that the role of the open learning tutor is perhaps as multifaceted as open learning itself. Tutors’ skills in offering student support are not only vital, but also unique. This is largely because open learning tutors are usually supportive, and adult learners have a wide range of needs that are different to the average school leaver entering higher education (Knowles 1990; Rogers, 1993). It is also because the flexibility that attracts adults to open learning may also contribute to their downfall. Many new skills have to be learnt by adults returning to higher education via the open learning modality, these include time management and technological skills in addition to the expected academic attainment. Learning new skills can be daunting and traumatic if experienced alone. Regular contact, therefore, becomes imperative and contact agreements should be arranged early in the student/ tutor relationship. Conflict can occur if tutors expect student autonomy too early in the course trajectory; failure to make contact does not necessarily mean that all is well with the student; it may simply mean that they haven yet to develop sufficient confidence to accept responsibility for initiating that contact.

It is in the recognition of these unique needs, and the ability to respond appropriately, that the foundations of a high quality open learning provision lie. Students must be recognised as adults with *life responsibilities* who are prone to *life events*. Support structures to facilitate personal and professional development within this context need to be in place and attention must be given to the provision of effective learner support. There must liaison between *academic, professional* and *social* networks. Stevenson and Sander (1998) suggest that given their importance for positive student outcomes, efforts to capitalise on students’ relationships with family and friends must be made. With this in mind, the University of Bradford developed an introductory leaflet for families to be distributed to new open and distance learning students. Similarly, Paul (1990) suggests that in recognition of the essential support that is inherent in peer relationships, institutions offering open and distance learning have a responsibility to do whatever they can to put students in contact with each other. Tutors play a central role in orchestrating these various elements in order to provide a supportive learning environment that will enable students either to pursue their studies to a successful outcome, or to make an informed decision to defer or discontinue registration.

Finally, as open and distance learning expands to permeate into the realm of e-learning, the findings of this study suggest that a major challenge will be to develop electronic forms of “connected knowing groups” in order to support students and sustain their motivation for learning and development.

This paper has discussed the findings of a recent investigation into open learning and their impact on personal and professional development. Primarily, the paper has elucidated the aspect of student support and the crucial role that it played, in its varying forms, in sustaining the process of learning and development among the participants of the investigation. Although open learning is a multifaceted concept, the essential element of student support is likely to be a constant necessity to be integrated in all open learning curricula, regardless of delivery system. There is a current drive to increase the quality of higher education provision, coupled with increasingly flexible modes of delivery and the nurturing of lifelong learners (ENB, 1994; Dearing, 1998; DfEE 1998; DoH, 1997; 1998; 1999; 2000a; 2000b; 2001; UNESCO, 2000). Increased understanding and awareness of the relationship between student support and learning and development can play a crucial role in achieving these objectives.

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Learner Support Services for Online Students: Scaffolding for success

Stacey Ludwig-Hardman

Western Governors University, USA

Joanna C. Dunlap

University of Colorado at Denver, USA

Abstract

A critical component of an effective retention program for online students is a learner support services program. While many factors contribute to attrition, at the top of the list are level of interaction and support. To this end, some students in distance learning programs and courses report feelings of isolation, lack of self-direction and management, and eventual decrease in motivation levels. This article describes the types of learner support services strategies that can effectively address these retention challenges. Examples from Western Governors University (WGU) are provided to describe these strategies in action.

Keywords: learner support; online learning; scaffolding; self-directed learning; isolation; learning community; advising

Introduction

Distance learning opportunities for students have skyrocketed in popularity. Every year, more universities are starting online programs. Much of this increase is due to the demands of the learner audience who are intrigued by distance education, mostly because they face a number of obstacles that make conventional, brick-and-mortar educational options unviable:

- They live in remote geographic areas
- Conveniently located institutions offer limited program options
- Their work schedules conflict with campus-bound course schedules. This includes people who work shifts, travel frequently on business, work long hours, and/ or are in the armed forces
- Personal and family commitments conflict with campus-bound course schedules. This includes having children at home and taking care of aging parents

These obstacles make online learning opportunities attractive – in fact, the obstacles create a built-in audience for online education providers. However, drop out rates associated with distance learning typically range from 20 to 50 percent (Brawer, 1996; Carr, 2000; ERIC, 1984; Kerka, 1995; Parker, 1999). More often than not, distance learning programs report greater attrition rates than traditional on-campus programs. The challenge for online education providers therefore, is

not so much how to recruit students, but how to retain them once they have begun. Learner support services are thus a critical component of an effective retention program.

A Challenge for Online Education Providers

While many factors contribute to online student attrition, at the top of the list are level of interaction and support (Moore and Kearsley, 1996). According to Abrami and Bures (1996) some students in distance learning programs and courses report feelings of isolation, lack of self-direction and management, and eventual decreases in motivation levels. These factors are supported by Tinto's (1997) model of institutional departure with its central notion that student persistence is strongly predicted by their degree of academic integration (e.g., performance, academic self esteem, identity as a student, etc.) and social integration (e.g., personal interaction, connection to academic community, etc.).

One of the most consistent problems associated with distance learning environments is a sense of isolation due to lack of interaction (Bennett, Priest and Macpherson, 1999; Harasim, Hiltz, Teles and Turoff, 1995). This sense of isolation is linked with attrition, instructional ineffectiveness, failing academic achievement (Booher and Seiler, 1982), and negative attitudes and overall dissatisfaction with the learning experience (Thompson, 1990). Online learners can easily feel isolated if they do not feel connected to both the greater (university-level) and local (program- and course-level) social context (Abrahamson, 1998; Besser and Donahue, 1996; Brown, 1996; Rahm and Reed, 1998). This can negatively affect retention – students may drop out of a program or course because they do not feel part of a community (DeVries and Wheeler, 1996).

Closely associated with retention is student satisfaction with distance delivered courses. While some studies have reported high satisfaction from learners in online courses (i.e., Hill, 1999; Hill, Rezabek and Murry, 1998; Wayland, Swift and Wilson, 1994), others have indicated that students often experience frustration with distance delivered courses because they do not possess the skills needed to be successful (Ritchie and Newby, 1989; Swift, Wilson and Wayland, 1997). In fact, students' feelings of isolation can be compounded if they are ill equipped to deal with the demands of studying at a distance. Some students do not possess is the self-directed skill set, specifically: self-discipline, the ability to work alone, time management, learning independence, the ability to develop a plan for completing work, and so on (Burak, 1993; Dunlap and Grabinger, 2003; Hancock, 1993; Piskurich, 2002). Although often described as a hallmark of adulthood, some people are not self-directed learners (Kerka, 1994). In specifying "successful online learner" guidelines and assessment tools, online education providers list self-direction as a primary quality of successful online learners (e.g., <http://www.Colorado.edu/cewww/Fac101/success4.htm>, <http://ace.coe.wayne.edu/guidelines.html> and <http://www.ion.Illinois.edu/IONresources/onlineLearning/StudentProfile.html>). Compounding the challenge faced by students who feel isolated and disconnected is that self-directed learning skills are developed in a social context (Dunlap and Grabinger, 2003; Kerka, 1999; Long, 1994) through a variety of human-oriented interactions with peers and colleagues, teams, informal social networks, and communities of practice (Kerka, 1994).

Clearly, there is an expectation in distance and online learning programs that learners take on a high level of responsibility and initiative for their own learning (McLoughlin and Marshall, 2000). As Knowles described in his text on self-directed learning (Knowles, 1975, p. 15), "students entering these programs without having learned the skills of self-directed inquiry will experience anxiety, frustration, and often failure . . ." To be successful, learners need the skills required for effective online learning, and those skills need to be explicitly taught and supported

in the online learning environment. These challenges to the retention of distance learners, interestingly enough, have something in common: they seem to hinge on learners' need for significant support in the distance learning environment through interaction with others (e.g., peers, instructors, and learner support services personnel).

Scaffolding as a Conceptual Framework for Learner Support Services

Tait (2000) describes the central functions of learner support services for students in distance education settings as cognitive, affective, and systemic. Most descriptions of learner support services focus on systemic characteristics – access to the administrative processes and procedures of the educational provider in a timely and accurate manner (e.g., how to register for courses, tracking individual progress on a degree plan, etc.). What is often ignored, however, is the cognitive function of learner support services, such as guidance, counseling, assessment, coaching, etc. A focus on cognitive outcomes – in particular that learners have various needs, including the need to belong, to interact with each other, and to be a part of a community (Maslow, 1987; Stacey, 1999; Vygotsky, 1978) – leads to creating a learner support services program “where students feel at home, where they feel valued, and which they find manageable” (Tait, 2000, p. 289). Providing this type of support requires more than a technical infrastructure to serve up Web pages on demand – it requires three interrelated elements (Thorpe, 2001):

- **Identity.** The learner has the opportunity to interact with learner support services personnel on a one-to-one basis
- **Individualization.** The interaction that the learner has with learner support services personnel is individualized, based on the specific needs and goals of the learner
- **Interpersonal interaction.** The interaction is mutual and reciprocal, with learning and performance as goals rather than simply information delivery

In a learner support services environment, these elements can be realized through the practice of scaffolding.

The concept, or metaphor, of scaffolding (Wood, Bruner and Ross, 1976) is grounded in the developmental theories of Vygotsky (1978), specifically his concept of assisted learning as described by the “zone of proximal development” (ZPD). The ZPD is:

. . . the difference between the child's developmental level as determined by the independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, p. 86)

Although the concept of ZPD and the scaffolding metaphor were originally used to describe child development, the current view of the ZPD has extended beyond child-adult and novice-expert interaction to include a view that describes the ZPD as “an opportunity for learning with and from others that applies potentially to all participants, and not simply to the less skillful or knowledgeable” (Wells as cited in Anton, 1999). As such, the notions of the ZPD and scaffolding are helpful in considering the support services needs of learners in distance learning settings. Learner support services, if focused on the cognitive features that Tait (2000) describes, can serve

to assist performance through the ZPD by promoting a potential for success in a distance learning setting founded on interaction between learners and support services personnel.

Scaffolding involves providing learners with more structure during the early stages of a learning activity and gradually turning responsibility over to them as they internalize and master the skills needed to engage in higher cognitive functioning (Palincsar, 1986; Rosenshine and Meister, 1992). Scaffolding has a number of important characteristics (Greenfield, 1984; McLoughlin and Mitchell, 2000; Wood et al., 1976) to consider when determining the types of learner support services distance students may need:

- Provides structure
- Functions as a tool
- Extends the range of the learner
- Allows the learner to accomplish a task that would otherwise not be possible
- Helps to ensure the learner's success
- Motivates the learner
- Reduces learner frustration
- Is used, when needed, to help the learner, and can be removed when the learner can take on more responsibility

Looking at this list it is clear that the practice of scaffolding is an inherently social process in which the interaction takes place in a collaborative context. The remainder of this article describes how the Western Governors University's learner support services program uses a collaborative context (such as learning communities, advising, and other interactions) to achieve the level of scaffolding needed to address the retention challenges of isolation and lack of needed self-directed learning skills.

Learner Support Services Designed to Support Learners' Self-Direction and Interaction

In order to provide learner support services that help students successfully participate in online learning courses and programs, Western Governors University (WGU) has employed strategies that reflect the collaborative context needed for effective scaffolding. These interactive strategies, which provide the scaffolding needed to enhance students' self-directed learning skills and reduce their feelings of isolation, are summarized in Table 1.

Table 1. Learner Support Services Strategies for Self-direction and Interaction

<p>The Recruitment and Admissions Process: Diagnosing Fit Between Learner and Education Provider</p> <ul style="list-style-type: none"> ■ Intake interview to discuss learning outcomes expected from courses and programs, and their relationship to personal/professional goals. ■ Self-assessment tools to assist the learner in evaluating eligibility and preparedness for courses and programs of interest. ■ Diagnostic pre-assessment to identify the learner's strengths and areas for improvement. ■ Learning Orientation Questionnaire to determine a learner's readiness for online learning.
<p>Orientation to the Online Learning Experience: To prepare learners for the responsibilities and expectations of participating in an online course or program in a low-stakes, less-threatening environment.</p>
<p>One-on-one Advising: To have a relationship of support with educational provider staff.</p>
<p>Access to a Community of Learners: To have a sense of connection with the education provider and a sense of community with other learners who have similar learning plans.</p>

The Recruitment and Admissions Process: Diagnosing fit between learner and education provider

Learner support services start with making sure that there is an appropriate fit between the students' learning and professional goals and current capabilities with the offerings and structure of the education provider's online programs. This interaction with potential students not only helps them feel immediately connected with the learning community, but the diagnostic activities help them reflect on their learning goals and strategies, a process important to self-directed learning. Recruitment practices can have a big impact on a student's ability to self-assess whether there is a fit, and for the education provider to do the same. For example, WGU, a unique, competency-based institution, recognizes that learners in their distance delivered degree programs need to possess a high level of self-direction and interest in connecting with other learners if they are to be successful. WGU uses specific tools in the recruitment process – such as an intake interview, self-assessment, diagnostic pre-assessment, and Learning Orientation Questionnaire – to determine a learner's fit with the institution.

Intake Interview

Enrollment counselors and other learner support services personnel must be trained to help learners identify their learning needs by asking them questions that require reflection on their current competencies and their desired goals in order to better identify the knowledge gap and plan for instructional opportunities that will address the gap. All new WGU students are required to complete an intake interview with an enrollment counselor. During the intake interview, an enrollment counselor contacts the student via phone to discuss the program in greater detail, help the student assess fit with the institution, and clarify expectations regarding the personal and

professional commitment needed to succeed. The enrollment counselors ask the following types of questions:

- Why is the learner pursuing higher education? Is it for personal enrichment, advancement in the job market, retooling, retraining, or changing careers?
- Is the learner technology literate? Does the learner have the necessary prerequisite skills to successfully use communication tools such as email, threaded discussions, and chat?
- How many hours per week is the learner willing to commit to studies? Does the learner have the time management skills necessary to block out time to study?
- What is the learner's preferred method of learning? Is the learner comfortable with independent study or does the learner require the structure of instructor-facilitated courses?
- What support structures does the learner have at home or in the workplace?
- What challenges or distractions will the learner encounter (family, work, etc.)? Is the learner willing to treat education as a top priority?
- Has the learner taken distance learning courses in the past? If so, what were the learner's experiences?

The intake interview questions are structured to encourage the learner to articulate their individual needs and goals and, with the help of the enrollment counselor, assess whether WGU is a good fit.

Self Assessment

WGU requires all learners to complete a self-assessment of their competencies gained through prior work and educational experiences. Using a Web-enabled survey, (<http://www.wgu.edu/wgu/student/questionnaire.asp>), learners are asked to rank their level of competence from zero (no competence) to three (expert competence) against the competency statements or learning objectives for the degree program. The self-assessment also asks the learner to identify short- and long-term goals, strengths, areas for improvement, and preferred methods of communication.

Diagnostic Pre-Assessment

All newly admitted WGU students are required to complete a Web-delivered diagnostic pre-assessment of their competencies in relation to the program requirements. The pre-assessment is used as an advising tool to identify the learner's strengths and areas for improvement.

Learning Orientation Questionnaire

The Learning Orientation Questionnaire (LOQ), developed by The Training Place (<http://www.trainingplace.com>), is an online survey that identifies a learner's orientation to learn

by looking at three psychological factors that influence learning and performance. These factors consider 1) the learner's emotional investment in learning and performance; 2) strategic self-directedness; and 3) independence or autonomy – all of which are important to effective self-directed learning. These three factors are successful learning attributes and describe how learners generally want or intend to approach learning situationally (The Training Place, 2001).

Learning *orientations* are different from learning *styles* because orientations emphasize the dominant power of emotions and intentions in learning. “Learning orientations . . . characterize how individuals differ in the ways they choose to plan, set, perform, and attain goals, intend to commit and expend effort, and subsequently experience learning and achievement” (Martinez, 2000, p. 285). The four learning orientations that the LOQ describes are:

- **Transforming.** WGU learner support services personnel typically recommend independent learning resources for transforming learners because they are highly self-motivated and self-directed and assume responsibility for their learning progress and goals.
- **Performing.** WGU learner support services personnel recommend a mix of independent learning resources and instructor-facilitated courses for performing learners because they typically respond better to short-term goals and semi-structured learning environments.
- **Conforming.** WGU learner support services personnel recommend instructor-facilitated courses to conforming learners because they typically lack the self-motivation and direction to learn independently and prefer structured environments.
- **Resistant.** WGU has not encountered a resistant learner at this time, but would probably counsel a resistant learner out of a distance-delivered program. Resistant learners frequently fail to meet formal learning requirements and expectations.

By providing higher levels of scaffolding through structure and frequent feedback early in the learners' programs, WGU learner support services personnel demonstrate their commitment to help learners move from conforming to performing and from performing to transforming learner orientations. Learner support services personnel assist learners in the development of their self-directed learning skills by encouraging long term goal setting, development of time management skills, self-assessment of learning progress, and greater learning autonomy.

WGU learner support services personnel utilize the outcomes of the intake interview, self-assessment, diagnostic pre-assessment, and Learning Orientation Questionnaire to predict the extent to which a learner will be successful in WGU programs and to develop the learner's personal learning plan. There are times when learner support services personnel recognize that a student is not a good fit for WGU's distance delivered, competency-based programs and those learners may be counseled to consider other educational options. When there is a disconnect between the learner's goals and priorities and the level of commitment required to be successful in a program, a learner is apt to be dissatisfied and may quit the program or discourage others from considering the institution.

Orientation to the Online Learning Experience

Many universities are taking a proactive approach to improving retention, and research bears out the value of a mandatory orientation program (Brawer, 1996; Noel and Levitz, 2000). An orientation program is an education provider's first opportunity to build a community with learners who have actually committed to pursuing their educational goals with the institution.

To be effective, an orientation program needs to provide direction and support for new learners who may be uncomfortable in the distance learning environment. For example, during the early stages of WGU's four week long orientation course, learners are provided with a high level of structure as they become oriented to the community, communication tools, and learning skills needed to work in an online learning environment. As learners begin to show a higher level of comfort with, and interaction in, the environment, the orientation facilitator then encourages learners to take greater responsibility for course content by leading discussions and providing peer feedback. Krauth and Carbajal (1999) further suggest that an orientation should: (a) give students a sense of what it is like to be a distance or online learner; (b) offer tips for being successful in an online learning environment; (c) define technical requirements and prerequisite skills; and (d) describe the steps to access online courses – preferably providing opportunities to practice accessing and navigating through a course. Finding these suggestions to be useful, WGU provides additional information in its orientation courses: (a) suggestions on how learners can create a learning space, develop a study routine, and manage their time assuming a minimum of 10-15 hours per week for their studies; (b) an introduction to research at a distance and how to access the institution's learning resources and e-library; and (c) an introduction to communication tools and skills that will be necessary for students to actively participate in learning communities beyond the orientation course.

WGU's orientation course is an intense introduction to distance learning and WGU's competency-based model of education. By the end of the course, learners are acclimated to the learning community and have practiced applying the self-directed learning skills necessary to be successful in a distance learning environment.

One-On-One Advising

. . . I just received your note with my degree completion; "Alleluia and Amen" is right! It's finally finished and I need for you to know that without your help and encouragement, it would not have happened! I don't know how to thank you. It was one of the best days of my life and I shall never forget the hours you spent with me on the phone as you poured over [my degree plan] trying to keep me on track. I was overwhelmed trying to figure out the classes I needed. During difficult classes I would say, "I can't do this; I'm not going to make it." But you kept the faith in me. Because my position within the company I work for required a degree, I felt that I was merely complying with that requirement. However, a few days ago I received a 10% pay increase as a result of obtaining my degree...Thank you for everything you've done for me.

Excerpt of a letter from a distance learner to her advisor

The positive influence advising can have on distance learners' ability to successfully fulfill their educational goals has been well documented (Feasley, 1983; Hezel and Dirr, 1991; Paulet, 1988; Thompson, 1989), and no more eloquently stated than by the learner who wrote the excerpt

above. Therefore, a critical learner support service is provision of one-on-one access to advisors (Krauth and Carbajal, 1999). Advisors support learners by helping them identify human and material resources for learning, choose and implement learning strategies, and evaluate learning outcomes. Learners may receive ongoing assistance in such areas as planning academic programs, solving instructional problems, coping with the distance education process, and building skills for career advancement and job hunting. These interactions help students feel connected to the institution while scaffolding self-directness.

WGU's advisors – who are members of the WGU faculty – are called *mentors* and they work one-on-one with students. Mentors provide individualized guidance to learners in dealing with concerns that influence a) their pursuit of personal and learning goals at a distance; and b) their ability to be more self-directed in their learning. Mentors scaffold student learning by providing the highest level of structure at the beginning of a learner's program through the development of an individualized, detailed Academic Action Plan. Mentors utilize the items gathered during the admissions process – data from the intake interview, self-assessment, diagnostic pre-assessment, and Learning Orientation Questionnaire – to develop the Academic Action Plan that provides a roadmap for the learner's academic program including information about learning resources and assessment dates. Depending on individual learner's needs, mentors provide various levels of scaffolding by:

- Encouraging learners to articulate their learning goals and plans. In the beginning learners need help developing their learning plan and establishing short-term goals so that they gain the skills necessary to manage their goals and plans later in their programs.
- Helping learners understand their learning orientations, strengths, and areas for improvement early in their programs so that they can use this information to develop their plans, goals, and assessment of their learning progress.
- Advising learners on the exploration and selection of learning opportunities that will meet their needs during the initial development of their learning plans. Later, learners will take greater responsibility for identifying their learning resources.
- Guiding learners as they progress toward established goals and encouraging them to evaluate their own progress.

As the mentoring relationship evolves, learners take greater responsibility for their learning goals and strategies. When less support is required, mentors find that they scaffold learners by offering acknowledgment, positive feedback, and encouragement; being an early warning system for unnoted obstacles or potential problems; providing assistance in clarifying and validating learning plans; and by functioning as a responsive problem-solver/ trouble-shooter to assist when academic or administrative issues arise.

Access to a Community of Learners

Learning is a function of the activity, context, and culture in which it occurs – i.e., it is situated (Wenger, 1998). Successful completion of and satisfaction with an academic experience is directly related to students' sense of belonging and connection to the program and courses (Tinto, 1975). Tinto's (1997) model of institutional departure is one of the most widely recognized student retention models which posits that, "other things being equal, the lower the degree of

one's social and intellectual integration into the academic and social communities of the college, the greater the likelihood of departure. Conversely, the greater one's integration, the greater the likelihood of persistence" (p. 116). Many of the same motivational effects are evident in contemporary distance education environments, including the same tendency for students to drop out if they lack social interaction with the program (Moore and Kearsley, 1996). Social learning experiences, such as peer teaching, group projects, debates, discussion, and other activities that promote knowledge construction in a social context, allow learners to observe and subsequently emulate other students' models of successful learning. "Successful self-directed learners appear to be highly aware of context in the sense of placing their learning within a social setting in which advice, information, and the skill modeling provided by other learners are crucial conditions for self-directed learning" (Brookfield, 1986, p. 44).

WGU has found that social interaction is a critical component of successful programs and therefore encourages the development of online learning communities. A learning community can be defined as a group of people, connected via technology mediated communication, who actively engage one another in collaborative learner-centered activities to intentionally foster the creation of knowledge, while sharing a number of values and practices, including diversity, mutual appropriation, and progressive discourse. Simply requiring learner interaction in asynchronous environments does not promote a sense of community (Lowell and Persichitte, 2000). WGU has recognized that it cannot force a sense of community through the quantity of interaction, so it strives to support community development by focusing on the nature and quality of interactions.

All of WGU's students have access to a learning community based on the program in which they are enrolled. The learners were introduced to the tools and skills required to actively participate in the community during the orientation course, so most are comfortable with the technology and primarily need support accessing the community itself. Again, WGU mentors provide the greatest scaffolding when new learners are introduced to the community. Mentors invite the learners to join the community and provide detailed instructions on how to access resources, navigate the community, and communicate with other learners via threaded discussions and online chats that are organized by mentors around specific topic areas. As learners move from the periphery of the community to its center, they become more active and engaged with the culture and hence assume the role of expert or 'old-timer.' This process is referred to as *legitimate peripheral participation* (Lave and Wenger, 1991) and it is an important step in the development of learning community because the expert learners then scaffold new learners as they get acquainted with the community. Expert learners host their own chats and threaded discussions, and provide feedback to mentors about how to improve the resources and tools in the community.

Connection to a learning community provides the social context needed to help learners feel less isolated. Through authentic sharing between learners and instructors, students have opportunities to interact not only on the content and skills being learned (through collaborative projects, team activities, debates, discussions, role-plays, interviews, etc.), but also on topics such as: a) different learning and management approaches and strategies to use; b) resources and references particularly helpful; c) professional and career goals and opportunities; and d) personal interests. This type of interaction – which keeps learners actively connected to the learning environment and education provider – can foster learner competencies, such as self-directed learning skills, because it creates a positive psychological climate built upon trusting human relationships (Knowles, 1990).

Conclusion

“The success of distance education, to a greater degree, will depend on the ability of educational institutions to personalize the teaching and learning process” (Saba, 1998, p. 1). Through the use of high-touch, high-interaction learner support services strategies – such as connection to a community of learners and the other scaffolding techniques described in the previous section – online students feel less isolated and are immersed in an environment that supports them as they develop or enhance their self-directed learning skills. These types of learner support services proactively address the challenges of online student retention by acknowledging that: “learning is a very human activity. The more people feel they are being treated as human beings – that their human needs are being taken into account – the more they are likely to learn and learn to learn” (Knowles, 1990, p. 129). Although scaffolding to enhance self-direction and reduce isolation should also occur at the course level (see McLoughlin and Marshall, 2000), individual course instructors may be ill prepared to provide the level of scaffolding needed for individual students or may not attend to scaffolding consistently across learning experiences. Learner support services personnel can provide the consistency and individualized attention learners need to be successful in an online learning environment because they are involved with learners throughout their educational experience with the institution. In this way, regardless of the quality or quantity of scaffolding provided by individual instructors, online learners have specific people to work with that know their particular goals, needs, and strengths. WGU has discovered that learner support services can improve the quality of students’ academic experiences, connect them to the university, and help them develop the self-directed learning skills that are necessary to succeed in an online learning environment and thus empower them to achieve their learning goals and change their lives. In this way, learner support services can provide scaffolding for success.

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Adults Contemplating University Study at a Distance: Issues, themes and concerns

Jenny Bird and Chris Morgan
Southern Cross University
Australia

Abstract

This study identifies and explores a range of themes, issues and questions that commonly confront adults contemplating enrolment in university, and why they persist. The study focuses particularly on issues facing prospective adult distance education learners. From a range of interviews, six themes were identified including fears, motivation, support from home, academic preparedness, suitability of programs, and identity change.

It is argued that the more effective we become at information provision, guidance and preparation of adult pre-entry open and distance learners, the more likely students will experience a smooth transition to study, thus improving both student satisfaction and retention rates. Successful intervention with prospective distance education learners at this early point should aim to assist the process of informed decision making, which could result equally in an individual deciding not to pursue university study. The findings in this study should be particularly useful for those academics, course advisors, student counsellors, teachers in preparatory programs, and university information and support officers, and others who provide adult distance students, with pre-enrolment information and advice.

Background

With the continued expansion of open, distance and flexible learning, opportunities for mature-aged students to pursue higher education continue to rise. In Australia approximately only half of those students entering university have come directly from high school, and mature aged entry has consistently been the largest sector of growth in many universities. A substantial proportion of adult distance education students are women who often enter higher education after long absences from any formal education and balance a variety of complex commitments in their lives. What prompts them to create such upheaval in their lives, and those of their families, when they already inhabit such busy worlds? What do we know of their needs during the decision-making process of returning to study? Do they have access to appropriate guidance or counselling? Do they have reasonable expectations about what a university education at a distance may offer? Do they understand what will be expected of them as distance learners? Have they any appreciation of how study will affect their lives and families?

To obtain information on issues and concerns of adults considering entry to higher education at a distance, it is the literature of student attrition that is most helpful. In a sense, this is unfortunate

in that it suggests we must wait until a student drops out before exploring their needs. In open and distance education, a number of studies have explored reasons for student discontinuance (e.g., Garland, 1993; Brown, 1996; Parr et al., 1996; Grace and Smith, 2001) and which also speak to the kinds of interventions that open and distance educators may apply to be more proactive in supporting learners. There seems to be wide agreement that success of adults enrolled in distance education is influenced by the interplay of a variety of factors. Some of the more commonly cited issues in discontinuance include:

- **Conflicting work and family commitments:** As most adult distance learners study part-time and need to balance a range of responsibilities, conflicting commitments is a frequently cited problem. In many instances, study will necessarily assume a lower priority than family and work commitments, particularly when unforeseen events intervene (Thorpe, 1987; Evans, 1994).
- **Financial strain:** Full or significant part-time study will often necessitate acceptance of reduced income, combined with the additional burden of course fees and expenses. For single parent families and lower income workers, this may not be sustainable over long periods of time.
- **Predisposition and readiness for independent learning:** The solo study arrangements that distance education most commonly affords are clearly not suited to everyone. Students are often required to find far greater reserves of self-discipline and time management skills than in prior educational experiences (Calder and McCollum, 1998; Candy, 1991).
- **Availability and timeliness of appropriate learning support:** Learning support is usually offered in a variety of forms, including preparatory programs and semester-based support. Yet the level of learning support available to distance students is highly variable and often non-existent. Students are commonly left to develop academic skills such as essay writing by trial-and-error. Those who fail to develop them quickly enough may become dispirited, perhaps confirming their suspicions that they do not have the ability to succeed (Morgan et al., 1998).
- **Accessibility and user-friendliness of administrative systems and staff:** Admissions and enrolment centres usually provide a first point of contact for many prospective students. The accuracy and timeliness of information provided to students is critical to their future. Evans (1994) describes the difficulty that adults studying at a distance experience when seeking advice from educational institutions. Prospective students are often unfamiliar with the culture of higher education and how to formulate the right questions.
- **Ease of contact and approachability of academic staff:** For external students, establishing satisfactory contact with academic staff is one of the major afflictions of life as an external student. Distance learners typically must study at night and on weekends when academic staff tend not to be available. Inability to obtain timely, practical input or feedback may be dispiriting and is a commonly cited reason for discontinuance (e.g., Parr et al., 1996; Brown, 1996).
- **Suitability of program content or its design and delivery methods:** Inevitably many students will discover that their selected program of study does not meet their needs, career goals, or leaning preferences. However, questions arise

regarding how adequately the program is described and promoted to prospective students in terms of detailed information on curricula, workload, career opportunities, and academic expectations.

- **Ability to comprehend and deal with assessment requirements:** Assessment is the engine that drives learning; it is also a focal point around which students' concerns and fears coalesce. For adult students with fears regarding their abilities to succeed, assessment tasks become major 'hot spots' in their progress. Assessment schemes that fail to communicate a rationale or clear expectations, or fail to give adequate feedback, or require students to undertake tasks that have little personal meaning or relevance, may provoke considerable anxiety and discourage students. Rather than being a tool to build skills and confidence, assessment may become a means of confirming feelings of inadequacy (Morgan and O'Reilly, 1999).
- **Level of motivation and commitment to study:** Individual student motivation and commitment are not static. Over the span of a three to five year program of study, distance learners' motivations may change enormously, due to the nature of their incremental achievements, shifting perspectives, and family and financial circumstances. For some, once the initial curiosity and desire to prove something to themselves is extinguished, they may need to seek out more practical or tangible outcomes, such as improved career prospects, in order to persevere to completion (Thorpe, 1987).
- **Access to and confidence with computers and other necessary technology:** Adults entering university without pre-requisite information technology skills are at considerable disadvantage initially, which may compound their sense of being overwhelmed or not 'belonging.' Their ability to overcome these initial hurdles will be closely related to the level of understanding and practical support offered by the university.
- **Language, literacy or learning disability issues:** It is accepted that many students gaining entry to higher education will have a learning disability or a first language other than English. Such students face particular and ongoing hurdles that will often leave them vulnerable and prone to discontinuance through the sheer weight of their struggles. The level of support available to students, both within and outside the university, will be a critical factor in their success.
- **Impact of previous educational encounters:** Expectations of students entering university may be largely formed by previous educational experiences and study approaches. Negative prior experiences will affect students' confidence and self-concept, as well their ability to form new teaching and learning relationships, and develop more appropriate approaches to study. For some, a lifetime of responses to highly teacher controlled, teacher-centered education may be difficult to cast off, in favour of independent and lifelong learning strategies.
- **Problems regarding isolation and not 'belonging' in an academic community:** The potential for isolation in distance learning is a well-documented phenomenon, and may be both a geographical and psychological construct. The ability of today's distance learner to become part of a learning community depends on one's technological proficiency and ability to engage in certain kinds

of academic and social discourse offered through online learning. Some older adult learners, whether they study on campus or at a distance, may encounter the generational problem of insufficient peer support and simply ‘not belonging’ in a younger person’s world.

- **Support from partners:** One’s success as a distance learner is often predicated on the support of a partner who is prepared to take a greater share of domestic and/ or financial responsibility during the often long period of study. Evidence suggests that support is more likely to be forthcoming to males within the partnership than to females, which highlights the particular plight of women returning to study while maintaining a heavy domestic burden (Evans, 1994).

When viewing this list, one cannot help but wonder whether many of these issues could have been anticipated by students through provision of timely and appropriate information and guidance counselling during the pre-enrolment time. Of course, study plans may change radically through, say, the illness of a child, the sudden loss of work, or a change in career directions. Yet there are other significant issues in discontinuance, such as a student’s predisposition, motivation, level of literacy, past learning experience, and ambitions for the future which are less temporal and for which the implications for study might be anticipated. The difficulty for most prospective distance education students is to anticipate and articulate these issues at pre-enrolment time, in order to be prepared for entry.

Methodology

Overall Approach

The overall research approach taken in this study was phenomenological. The research question focused on the range of themes, issues, and questions that commonly confront adults contemplating enrolment in university, with particular attention given to issues experienced by for distance education students. The phenomenographic method is useful for “mapping the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of phenomena in the world around them” (Marton, 1986, p. 31). As such, phenomenological research concerns itself with the phenomena under study as they are understood and construed by the participants, rather than an attempt to describe the phenomena as they are.

Sample

A first round purposive sample of 20 mature aged university students was chosen for the study. Although the sample included both on-campus and distance education students, there was a strong focus on the sometimes overlooked issues facing distance learners. The sample was chosen with the aim of meeting both requirements identified by Polkinghorne (1991, p. 11) for an adequate database – “intense descriptions of the phenomenon under investigation and enough variation in the data to develop a comprehensive structural description.” The sample was therefore chosen for maximum variation across a wide range of variables:

- **Age** – participants age ranged from 21 to 56
- **Gender**

- **Ethnicity** – one participant had recently migrated to Australia and spoke English as a second language. One indigenous Australian student agreed to be involved in the study, but withdrew due to family reasons
- **Disciplinary area** – participants had enrolled in a cross section of undergraduate programs available at Southern Cross University
- **Flexible enrolment pattern** – participants reflected a wide range of enrolment patterns: fully internal, fully external, flexible combinations of both, part time students, fulltime students, combinations of both
- **Attrition/ retention** – some participants were currently enrolled in undergraduate programs, some had completed degrees, one had left, one had withdrawn from one program left and subsequently re enrolled in another
- **Articulateness** – all participants were chosen on recommendations of their ability to ‘tell their story’
- **Special needs** – one participant was severely dyslexic
- **Family commitments** – participants were either single, married with children, married without children, single parents, or divorced with adult families
- **Work commitments** – some participants worked part time, others worked fulltime, and others were not in employment
- **Financial status** – some participants were financially independent, others were on a government-funded programme, *Austudy*, and supplemented by student loans, some were financially dependent on spouses or partners

All participants had enrolled in university at some time: some were currently studying, some had left prior to completion, and some had gone on to complete further degrees.

The second round of sampling occurred after the first group interviews. This sample consisted of seven people. Whilst this second group was also chosen for maximum variation on the variables described above, an additional factor was the degree to which participants could reflect upon and articulate the details of the decision making process which led them to enrol in university and the relationship between this process, type of preparation they undertook, type of support they sought, and their subsequent success or otherwise at university.

Data Collection and Analysis

First Round of Interviews

Participants were invited to attend one of two group interviews, each three hours in duration. The sessions were informal and conducted in a relaxed and friendly setting with wine and food. All sessions were filmed and recorded with a fixed position digital video camera and sound recording equipment placed in an unobtrusive place in the room. It was anticipated that this informal narrative approach would engender rich, in-depth, reflective data of participants’ experiences in deciding to attend university. Questions and comments made by the researchers were informed by

both tacit knowledge of what the issues are for mature aged students generally, and more specifically, a framework of issues developed by Evans (1994). Two researchers and one audio-visual technician were present at all times during the interviews. The researchers are both educational designers with long histories working in open and distance education, and with mature aged students. All efforts were made by the researchers to build trust between themselves and each participant on an individual level, and within the participant group as a whole.

Interviewers asked one open-ended question of each participant: “Can you tell us the story of how you came to decide to attend university?” Each participant then proceeded to tell their own story to the researchers, without interruption. Dialogue between participants occurred naturally at the completion of each story. Non-directive interviewing such as this is common in phenomenological research, with each interview/ narrative taking a different path. According to Inglis (1996, p. 271): “This non-directive interview technique therefore relies on the researcher having a detailed knowledge of the specific subject matter which forms the focus of the investigation so as to be able to generate questions which adequately probe subjects’ understanding while the interview is in progress.”

Researchers engaged in a process of data analysis common to phenomenographic research and described by Lincoln and Guba (1985), Glaser and Strauss (1967) and Marton, Hounsell and Entwistle (1997). The two researchers viewed the videotaped group interviews, took notes, and broke each participant’s story into units. The units contained both of Lincoln and Guber’s (1985) characteristics – they were ‘heuristic,’ in that they added to an understanding of the issue, and they were ‘stand alone’ in that each unit was a discrete part of the participant’s overall story. Using a process of ‘constant comparison,’ each unit was compared to a previous unit, enabling the researchers to develop a set of categories into which all the units loosely fit. The final category sets, and the categories themselves, were then reviewed both for overlap and relationship. As the list of categories stabilised and reduced, each category became saturated with data, and the scope of the theoretical boundaries of the study began to emerge. Some categories were eliminated, some merged, and others were identified as needing more data.

This process of analysis allows for what Marton et al., (1997) describe as a three stage process of abstraction whereby the focus of analysis moves from the content of the individual interviews to a ‘pool of meanings’ (p. 42) divorced from the interviews and delimited by the categories, to the establishment of a hierarchy of similarities and differences. From this process, categories emerged which were representative of all interviewees’ experiences, whether they be on-campus or distance learners, whilst others were unique to on-campus and distance learners respectively.

Second Round of Interviews

A further purposive sample of six participants was chosen for a second phase of data collection. Participants were chosen because their stories suggested to the researchers the potential for further rich data in some categories, and for their ability to articulate their stories. Interviews were conducted with individual participants by both researchers. Interviews were much more structured and directed by the interviewer, with questions designed to probe deeper into aspects of the participant’s story that required more data. Interviews were also useful in checking the researchers’ understandings from the first round of data analysis. Questions such as the following were posed to participants: “We would like to revisit the part of your story where you told us about your fears of being too old to fit in to a young person’s culture. Can you tell us some more about that?”

Results

Six themes were identified in this study. Each theme is described and illustrated with a selection of excerpts from the participant interviews. All themes were not necessarily articulated by every participant, so should not be viewed as representative. They did, however, emerge from the data analysis of both rounds of interviews as dominant themes. As Marton et al., (1997) points out that it is difficult to fully represent such data collected in research. Not all data (i.e., quotations) can be included. What has been included is a selection of typical comments from the full body of data within each category/ theme. Pseudonyms have been used to protect the identities of the participants.

Theme 1: Fears

All respondents in this study expressed a range of fears and doubts about studying at university, irrespective of their status as on-campus or distance learners. In fact, for prospective students at this early stage of enquiry, fears and doubts loom large, unfettered by any experience with the realities of contemporary Australian universities, and fed by deeply held negative beliefs about their ability to achieve in an educational environment. Participants approached university studies with a sense of awe, and with a set of expectations against which they had already, to some degree, judged themselves inadequate. Respondents identified the objectives of overcoming these fears and building confidence as key to their success.

Some respondents carried expectations and images of university as a place for an elite intelligentsia, to which they perceived they did not belong.

Kym: “When I first came, I felt quite intimidated. I thought that everyone was going to be highly intelligent and that I was going to be like a duck out of water. I didn’t know what sort of conversation I’d be able to have with people there, and I thought there was going to be all these demi-gods running around with degrees and doctorates and things like that and that I would somehow be inferior.

“Then the next big fear I had was ‘well how do I deal with this, how do I study, how do I prepare papers, am I being productive with what I’m doing or was I having myself on?’ And over a couple of weeks I found that I could deal with the work, not easily at first, but then it came easily, once I got my confidence.”

One respondent, the first in her family to ever attend university, came from an isolated rural background; her story highlighted just how removed her experience had been from university life:

Judy: “I was conscious of the fact that I came from a background that was not academic. I’m really lucky that I have my husband’s family who realise what university life is about, which is excellent.”

Others imagined universities as places for young people, places where mature aged people would be too old and would not be accepted:

Phyllis: “The major concern I had was that I was coming into a young person’s world. Even though I was connected with my children, I was coming into a young person’s society and you worry that you won’t be accepted.”

Others recalled negative experiences at school and the establishment of a set of negative beliefs about their abilities and intelligence:

Brett: *“Pretty soon I learned that if the teachers think you’re dumb, if the other students think you’re dumb, if you’re no good at sport, you were hammered by the kids at school and the teachers didn’t give you the time of day. So I was put in all the dumb classes and by the time I got to 14, I had such a negative belief cycle.”*

Interestingly, respondents in this study suggest that it is a student’s motivation, not their fears, which will predicate success at university. Whilst acknowledging fears and doubts as a significant theme in their journey, both on-campus and distance education respondents advised that once they faced their fears, their confidence and skills grew. It seems that prospective students who have little or no real experience or contact with university, project their fears and doubts into this vacuum. When they have had prior negative experiences with educational institutions, such students are particularly vulnerable. Whilst the fears experienced by prospective on-campus and distance learners may be similar, the opportunities to diminish those fears through benchmarking, socialising, and weekly contact with academic staff cannot be assumed or looked forward to by prospective distance students with the same certainty as prospective students who choose to study on-campus. Prospective distance students face an uncertain and varied future in this regard, with differing degrees of support available to them.

Prospective distance education students need to be apprised of the potential for fears to grow out of proportion in the isolated learning space in which they may find themselves. Common fears need to be heard, affirmed, and normalised. Detailed explanations of the types of academic and student support provided by the particular university need to be provided so that prospective distance students can feel confident that support is not only close at hand, but that it is also something to which they are entitled.

Theme 2: Motivation to Succeed

Most participants in this study saw returning to university as a life changing event, and something that was going to cause considerable upheaval to their existing circumstances. This upheaval was typified by Phyllis’s comment:

Phyllis: *“All of a sudden you are doing things to yourself that you just think ‘Oh my goodness, why oh why? I could go home and live quite happily. I don’t need this.’”*

The question of ‘Why do it to myself?’ had a variety of responses, reflecting the diversity of mature-aged students’ lives and interests:

Sharon: *“I’d been thinking about it for a long time to do some kind of course and Jackson my youngest had just gone to pre-school for two days a week and I felt that it was time then to start doing something for myself.”*

Frank: *“I recognized the need for advancement, promotion with the service. I needed to improve my communication skills and be more aware of the public need.”*

Phyllis: "I was married for 25 years and my husband and I agreed to separate and I guess after that time I was looking to reconnect myself with the world. My daughter was very keen for me to go back to nursing. I really felt that nursing had moved along so much that it would be impossible for me to just walk back into it."

In these comments we find a variety of motivations and educational orientations including vocational, academic, and personal, each with its own accompanying interests, aims, and concerns. Gibbs, Morgan and Taylor (1984) distinguish between those individuals who are intrinsically motivated (the inherent value to the person) or extrinsically motivated (external validation or recognition). For those involved in the support and counselling of prospective distance students, these may be useful indicators or predictors of potential issues and needs. For example, 'doing something for myself' or 'reconnecting with the world' may be valid reasons for considering tertiary study, but will it be sufficient to sustain one over a whole program? What other motivations and stimuli are needed to sustain one through many years of part-time study? Motivation, of course, is not static and may vary considerably during a program of study. Moreover, one's motivation may never fall neatly into one or another category, but may be a combination of a variety of interests and needs, including new social opportunities, satisfaction of continued academic success, public recognition of achievements, enhanced career prospects, new recreational outlets, new ways of thinking and seeing the world, and so forth.

With the benefit of hindsight, discontinued students may often reflect on the inadequacy of their original motivations. For example:

Kym: "I was talked into coming to university by a boyfriend who thought that it was extremely important to have a degree in something. It wasn't relevant whether you were interested in that something, or whether you enjoyed that something, as long as you had a degree."

It is unlikely that Kym would have explained her motivation this way upon entering university. Yet with some robust pre-enrolment guidance, she may have spared herself the ordeal of a 'boring' and fruitless encounter, and thus avoid becoming another attrition statistic.

The challenge for prospective distance education students is to be sufficiently self-reflective regarding their own needs and to seek guidance – or reality check – as to whether those needs can be realistically met and how they may evolve over time within an academic community. Many prospective distance learners will be considering part time study and will be looking at studying over extended periods of time. Sustaining motivation over what might be a six or eight year period poses particular challenges which need to be discussed, as do the challenges to motivation that ever changing demands of work, family and financial commitments may bring. The degrees of flexibility offered by particular programs, and time limits on completion, need to be weighed against the risks of losing motivation over sustained periods of time.

Theme 3: Support from Home

One of the more difficult issues for prospective distance education students and their families is to envisage the impact of study will have upon family life. Recognizing the additional financial burden and decreased availability for family life due to study commitments, most adult learners need the support of their partners or loved ones. Although partners may be supportive in principle, the full impact of this transition has yet to be understood or experienced. Experiences

such as those of Frank are a good example of the kind of sacrifice that is often made by supporting partners:

Frank: *“Being a married man, three kids, all at school, a wife that’s working, studying for a degree is an extremely selfish act. You’re denying, although you don’t see it at the time, your access or availability to your kids, to your wife. You’re doing your study, and the wife’s keeping the kids quiet, she’s out in the garden so you can study. It’s not my degree; it’s our degree.”*

In open and distance education, men are more likely to be involved in study as part of their employment or career path and are sometimes provided with support from their employers to be able to complete their study (Evans, 1994). Often, men’s study goals are seen as more legitimate or of greater priority regarding the long-term financial security of the family. Whilst these comments, to some degree, are stereotypical of traditional family arrangements, it is nevertheless important to acknowledge the often quite markedly different experiences of men and women returning to study. Contrast Frank’s experience with that of Judy:

Judy: *“I’ve got really good kids and a supportive husband, but they’re also wanting my love and my time and wondering why I’m sitting with my head buried in books in the afternoon and then in the evening. It was hard for me to find a measure because I wanted to do my uni thing which was new and important to me, the kids wanted me and Peter wanted me and I still had to go to work and keep the income as well. So the first six months was a bit ordinary. We all thought: ‘This is awful!’ I can remember coming home one night and saying to Peter, my husband, ‘I must be really stupid. How can anybody do this?’ “*

In his study of distance learners, Evans (1994, p 64) found that there is still considerable inequality in the support offered by partners, relative to one’s gender. “It is much more usual” he argues, “to find men learners who assume their partner’s support and then take it for granted throughout their courses. In contrast, women do not take it for granted; they are often extremely grateful, even though for the most part, these supportive men are often doing little more than could reasonably be expected in a fair, egalitarian world.”

Judy’s dilemma was founded on her inability to do everything to her normal exacting standards, while her family maintained largely unaltered expectations regarding her domestic role. Judy certainly is not ‘stupid’ as she asserts, but was experiencing a painful lesson regarding the necessity to prioritise her commitments, lower some expectations of herself, and negotiate more fruitfully with her family to achieve the necessary space she required in these difficult early stages of her study. It highlights Evans’ (1994) concern regarding the fragility of women learners who are unfamiliar with giving higher priority to their own needs. Judy and her family made a successful transition and embraced her university commitments. However, not all women are so fortunate. Evans (1994, p. 63) says: “It is hard to underestimate the immense difficulties some women will face with their partners.”

For any part-time distance learner with work and family responsibilities, there are clearly significant changes required of the family routine. Failure to anticipate at least some of these changes, and most importantly to involve the family and gain informed support for this transition, may create family discord and impair one’s ability to proceed with study. These issues need to be canvassed thoroughly with prospective distance education students, particularly women, so that the process of negotiation with family members can occur prior to commencing study. However,

prospective students also need to know what assistance they can access if they find themselves, like Judy, under considerable stress in the first six months of study.

Theme 4: Academic Preparedness

Mature aged students enter university through a myriad of entry schemes, many without the necessary level of educational qualifications demanded of school leavers. Many mature aged students enter university after long periods away from study without the requisite skills to ensure their success. Not all participants in this study took initiatives to prepare for returning to university. Of those who did, all spoke of the value of seeking out and engaging in a variety of preparatory activities prior to commencing study, and of the value of consulting and seeking out information about their programs of study. Each of the following students accessed on-campus preparatory courses, irrespective of their enrolment status:

Judy: *“I think preparatory courses are really important to know what you’re in for because your first essays at university are a really big deal and if you’ve had some experience of what to expect, that’s going to make it easy for you.”*

Sharon: *“They [preparatory courses] gave me the confidence to know that I could do it and also enabled me to gain skills towards my degree.”*

Brett: *“I went and did the tertiary preparation certificate at TAFE for one year and that was a real learning curve for me . . . It basically separated my spelling from my intelligence.” [This participant was diagnosed with severe dyslexia during his first year at university.]*

Frank’s story, however, is a good example of what often happens to distance education students in relation to student support. Frank was a distance student who completed six units of study, and was in the second year of his degree, before he was ‘picked up’ by a lecturer who recommended that he complete an academic skills development program designed specifically for distance students. Frank was unaware of this resource, and despite his obvious need for academic skills development, had not been referred to it until well into his studies. In fact, Frank might be considered lucky that he was picked up at all:

Frank: *“I was just finishing second year and one of the lecturers said ‘I’m going to give you a pass on the proviso that you go to the Learning Assistance Centre and do a course next year called Success in Tertiary Education.’ He said, ‘It will teach you how to write, research, investigate.’ I enrolled and the veil lifted.”*

Most Australian universities offer enabling programs and other preparatory courses on campus for students seeking enrolment. Less common are print or flexibly delivered, enabling or preparatory courses to distance students. Distance education students are less likely to attend on campus Open Days and Orientation Days where preparatory courses are advertised. Print based promotional material for preparatory courses may arrive embedded in copious amounts of other material, overwhelming a new student, and thus often left unread.

Prospective distance education students need encouragement to explore preparation courses that are available in their local area, as well as those offered by the university in which they are interested. Whilst it may appear unattractive to extend the period of study by an extra six to

twelve months, the results of this study suggest that the investment in preparation will be well worth it.

Theme 5: Suitability of Programs

Often the most difficult and confusing task confronting any prospective student is to make appropriate decisions regarding the suitability of particular programs. Not only does this task relate to the content and learning outcomes of programs, but also to the range of choices available to many students nowadays regarding mode of study (distance, online, on-campus, flexi-mode); speed of progression (part-time, full-time, flexible progression); and pathways through programs (core and specialist strands, flexible pathways). For those unfamiliar with the landscape of higher education, these are often difficult decisions to make alone. Added to this, is the difficulty of knowing what to ask of whom. To the outsider, universities are labyrinthine places with multiple contact points for different issues.

Most participants in this study adopted an approach of plunging in first and sorting things out later. This was possible because they were enrolled in relatively flexible programs:

Sharon: “When I started university, I felt that I needed the internal experience and I also felt that I’d be more motivated if I was studying internally with the lectures. After a year or so I started to do external units and I was a bit ‘not too sure,’ not feeling really confident about doing them, but I found external study to be really, really good.”

Frank: “The degree, by studying external, was portable. I could take my unit study books away with me on army camps, if I was instructing I had free time and I’d be reading so I could take those things with me even with cubbing. It gave me the flexibility to study when I had spare time.”

These are students who have found that distance learning suited their needs, and they were able to succeed in independent learning environments. In Sharon’s case, it took some experience and development of confidence before she was able to move into distance education. Because they had little understanding of the implications or their preferences at the point of entry, it is interesting to question what may have become of these students had they not had the flexibility to move between internal and external study within their programs.

Although criticism could be levelled at the lack of depth and quality of information made available to students in the pre-enrolment stage in many universities, it is also important to acknowledge the relatively unformed and multi-dimensional nature of student inquiries at this point. As they embark upon the journey that will begin to test their interest and motivation, they will inevitably have multiple points of enquiry. Three participants in this study cited the importance of thorough research as a precursor to making sound, informed decisions about where and what they would study:

Frank: “Consult widely, that’s the advice I would give people. Go the student union, go to the course co-ordinators, speak to them, get as much information as you can about the subject or degree that you want to do.”

An associated issue is the ease and approachability of academic and administrative staff. Pre-enrolment students are clearly vulnerable and may be plagued with fears regarding their ability to

succeed. They also may carry with them a stereotype of the academic as the lofty, all-powerful sage. Add to this the difficulty for potential distance learners to make contact by phone during office hours, and we start to get a picture of how straining this task can become, particularly if one's questions are still unformed. Evans (1994, p. 73) comments, "If the student is relatively powerless, then arguably, the potential student is even more so." In comparison to enrolled students, who develop their own networks of information, Evans adds, "Potential students have to rely on personal knowledge, strategies and skills to ensure that they obtain the best information they can and take the best decision on their course as a consequence."

An important aim of any pre-entry guidance and support offered, is to eliminate the 'chance factor' from prospective students' inquiries, ensuring that, wherever possible, information is sought from the correct sources, appropriate questions are asked, and responses understood. While it is unlikely that all issues can be anticipated and resolved at this time, there will always be a certain degree of 'plunging in' necessary, as reported by the respondents in this study.

For adults contemplating distance education 'getting it right' the first time is particularly important. Distance education learners may be more vulnerable to the effects of an incorrect or inappropriate decision about a program, a mode of study, or even a first unit of study. If things go wrong at the beginning, fears of inadequacy may be exacerbated and, in isolation, the student may choose to quietly discontinue their studies. Again, prospective students need to be alerted to this possibility and provided with information about sources of assistance and guidance in the event of an error. Prospective distance students need to be alerted to the early dangers of self-blame and the internalising of beliefs about failure, and reassured that in many instances a change of unit or mode of study may be all that is required to ensure success.

Theme 6: Identity Change

In the adult and distance education literature, identity change and self-transformation are most commonly framed as processes that occur during the course of study. Mezirow's (1977; 1981; 1991) theory of 'perspective transformation' is cited often, whereby an individual's assumed and unrecognised cultural and psychological assumptions are challenged, allowing the potential for critical awareness and reappraisal and subsequent changes in values and behaviours.

However, Finnane (1991) and Britton and Baxter (1999) suggest that the process of identity change has, in fact, already begun by the time people decide to apply for university. They argue that, for a variety of reasons, such people have begun to re-conceptualise a 'new self' as part of their decision making process. "Becoming a mature student can therefore be understood as part of the continuous process of identity construction which is seen to be central to modern life," (Giddens, 1991; Beck, 1992; in Britton and Baxter, 1999, p. 180. Similarly, Finnane (1991, p. 158) comments: "The first uncertain thoughts about undertaking study that so many of us can recall, thoughts which led to our making an enquiry to one or other institution, clearly come at a point in our lives that is critical, however dimly we might perceive it, and from that point on it is changed and changing persons who embark upon courses of study."

The theme of 'identity change' emerged from the data as a theme linked closely too, but separate from, the theme of fears. Issues touched on by participants fell into two distinct categories:

First there were positive identity changes, which acted as motivators towards choosing and remaining committed to study: increasing confidence, learning how to think, learning about one's self, learning about the world.

Judy: *“I thought if I get nothing else out of it, I’m more confident and I can think more broadly.”*

Phyllis: *“One of the difficulties with being a mature aged student is that as you move along, you realise that you had a life . . . and all of a sudden you are doing things to yourself that you just think, ‘Oh my goodness, why, oh why, oh why? I could go home and live quite happily. I don’t need this.’ Yet once you break through that barrier there’s a tremendous joy!”*

Phyllis: *“University has altered me dramatically from being a rather frightened anxious person into. . . I discovered this is where I like to be.”*

Second, there were challenges to identity with which some participants struggled, persisted with, and ‘broke through’ in the end: overcoming negative beliefs about being ‘dumb/ stupid,’ doubts about the decision, disruption and changes to lifestyle.

Phyllis: *“There’s certain things you’ve grown up with, that you believe about yourself, that you believe that you’re stupid, you believe that you can’t learn. You can go on believing that if you so choose or you can do something about it and it’s a great revelation to go somewhere along the line. ‘Hang on a minute I’m not as thick as I thought I was.’”*

Evans (1984, p. 65) ponders a question for prospective or new students: “Do they realize the potentially far-reaching implications of studying?” Another question might well be “Do you realize how much you have already changed to get to this point of even being interested in university study?” Helping prospective mature aged students understand that they are already engaged in a process of change may add extra light to their decision making process, helping them to clarify their goals and motivation for study. As was the case for their fears, all respondents in this study, irrespective of their status as on-campus or distance learners, commented on the impact university study had on their identity. Neither the literature nor this study has explored possible differences for distance education students in the quality and the intensity of identity changes. Further research in this area is required.

Conclusion

This study has identified issues, themes and concerns arising for pre-enrolment distance students seeking to enter higher education, and has highlighted some reasons why students persist. The key theme, which has overarching implications for all students, is that of motivation. Researchers observed that participants whose motivation and commitment remained high were able to resolve many of their concerns and problems regarding family support, disability, fear of failure, financial issues, and so forth. On the other hand, participants whose motivations were unclear, wavering or inadequate (such as pressure from others rather than one’s own intrinsic desire) were more likely to falter when they encountered hurdles of various kinds. As suggested earlier, pre-entry guidance can help learners to unpack and reflect upon their motivations and provide a ‘reality check’ regarding their needs and what universities can actually offer.

The themes uncovered in this study could inform and provide structure to any pre-entry guidance, support or counselling offered to mature aged distance students. In addition to the issue of motivation, the following issues should be discussed with potential students well prior to their decision to enrol:

- Articulating and managing their fears
- Building academic skills through available academic preparation courses
- Building computer and information literacy skills
- Thoroughly researching the degree programs in which prospective students are interested
- Exploring the impact of study on roles within the family and strategies for preparing for changes
- Considering the impact of study on work and financial commitments, and strategies for preparing for changes
- Anticipating the impact of study on self and identity
- Identifying support networks relevant to the needs of the student

In offering guidance to prospective distance students, all sources of potential support need to be discussed. In many instances, it will be the informal family and student networks that will be of most value to students studying at a distance.

Equally important will be the range of academic and student support services available to distance education students at the particular university, and within particular schools or faculties, in which they are enrolling. Many universities now offer easily accessible student administration and support services via the university website. For example, one university offers an ongoing online stress management discussion forum for distance learners. Acting as regional liaison officers for distance learners, another has identified individuals in every region throughout the state. Universities, and schools or faculties within universities, will have different levels of support for distance learners depending on the duration and breadth of their experience with distance education provision. Academic support from within schools and faculties take various forms and may include the provision of online interactive learning environments, teleconferencing, email, student contact lists, residential stays, travelling workshops, and so on.

The primary goal of guidance and counselling for prospective distance students is to assist them in making an informed decision as to whether to attend university or not. Successful outcomes are more likely when students are able to make a decision based on sound information. Another goal is to identify and discuss with prospective distance students common emotional responses to returning to study at university, and common pitfalls in distance education: fear, isolation, lack of support, and so on.

Intervention at this early stage can be viewed as an investment that may well contribute to improved retention rates, although this connection requires further research.

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Indicators of Support in Online Interaction

Patrick J. Fahy

Athabasca University - Canada's Open University

Abstract

Peer-to-peer interaction using computer-mediated communication (CMC) would appear to be a promising source of timely and cost-effective student support, but little empirical evidence regarding actual participant support behaviour has been presented (Lee, 2000). This paper reports a study of the occurrence of 13 online strategies defined as “supportive,” according to the categorizations found in an instrument called the *Transcript Analysis Tool* (TAT). The corpus used in the study consisted of three transcripts produced by students (graduate degree and professional development diploma candidates) engaged in course-related CMC conferencing. Analysis of the transcripts generated by the three groups showed the following:

- The support strategies most frequently used by the three groups were *referential statements* (statements which made reference to others’ previous comments; TAT type 2B), *signatures*, *greetings*, and *horizontal questions* (open-ended questions which invited negotiation of a plausible answer; TAT type 1B).
- There was some variability among the groups in the frequency of use of *referential statements*, *horizontal questions*, *emoticons*, and *invitations* to others.
- High- and low-support groups differed from each other in their use of referential statements, signatures, greetings, horizontal questions, rhetorical questions, and humour.

As an examination of the social element of three communities of inquiry, the study described how members of these groups attempted to connect with one another interpersonally, using asynchronous conferencing, on topics related to the conceptual content of the courses. The paper concludes that while in this case the above behaviours were the means most often used to support and encourage interaction, further examination of online support behaviours and strategies is needed, especially in relation to valued outcomes such as persistence, greater motivation, less stress, and, ultimately, enhanced learning.

Introduction

Interpersonal growth of participants and promotion of intellectual development have for some time been regarded as important challenges in distance education, particularly as problems of dissemination of materials and other logistical issues have largely been resolved, at least in developed countries (Commonwealth of Learning, 1993). The emerging view of student services in education is one of an integrated and coordinated institutional response to the range of possible

learner needs, which promotes successful and satisfying program completion and seamlessly combines counselling and advising with more traditional instructional services (Simpson, 2000; Allen, 2002). Within an environment of critical and reflective personal and group activities the resulting “community of inquiry” should support both cognitive and social engagement (Garrison, 2002).

One of the obvious but largely un-addressed questions arising from increased use of interactive communications technologies is whether course-related online communications can be shown to contain “supportive” elements; that is, whether, to what degree, and how do participants use the interactive possibilities of online technologies to give and receive support? (McInnis and Brindley, 1986; Juler, 1990; Carrier, 1991; Cannell, 1999; Saltiel and Russo, 2001) There is increasing use of technology in online programs to provide routine information or to permit students to request clarification on assignments and course content (Johnson, 2001), and an increasing array of administrative tasks can be accomplished online (Luedtke, 2000). But little empirical data exist on the forms and amounts of actual peer-to-peer student support behaviour online (Lee, 2000), despite recognition of this form of social support as an important type of “relational cultural capital” (Carnwell and Harrington, 2001), an “enabling” resource for learning (Rezabek, 2002), and a significant enhancement to the intellectual quality of learning environments (Garrison, 2002).

The reason for the lack of attention to the ways in which online interaction is actually used for support purposes may be due to the newness and rapid evolution of the online technologies on which it is based. Nevertheless, possibly useful evidence has been emerging about the strategies participants use to interact within text-based online communities (Fahy, Crawford and Ally, 2001; Garrison, Anderson and Archer, 2001). Analyses of online conferences have yielded information about how participants view each other, and how they collaboratively create and sustain purposeful interaction, which might be related to other findings on decision support systems, the workings of task groups, strategic management teams, cognitive presence/ metacognition, and how individuals connect and collaborate interpersonally in online learning environments (Stringer and Uchenick, 1986; DeSanctis and Gallupe, 1987; Walther, 1996; Garrison, 2002). From these sources it appears possible that the same tools and techniques, which enable participants to solve procedural or logistic problems, may also be adapted to enhance interpersonal online relationships (Tait, 2000). The same analytic approaches may also be applicable. If this premise is accepted, a logical next step is to use tools that focus on the actual interaction patterns found in transcripts to examine whether and how participants respond to others’ needs for intellectual, social and interpersonal support.

Literature Review

The Concept of Support

Student support has for some time been viewed as consisting of *all* those interventions and facilities that help distance learners cope with the technology, isolation and communication problems they might encounter (Tobin, 1995). In this view, interpersonal interaction may be regarded as a basic type of learner support, regardless of its source, intervening or enabling media, or formal/ informal status. What is critical is that supportive interventions be “personalised and localised” (Tait, 1996), as in learning communities of various kinds that address “fundamental human needs for social interaction in the educational context” (p. 12).

Another basic principle is the provision of a variety of personal and individual human contacts to counter the mass-produced nature of many distance education materials (Robertshaw, 2000), and to recognize the personal and public-social character of education (Garrison, 2002). Sewart (1993) argued a decade ago that without individualized and varied support systems and components, modern distance education might be seen as too “industrialized” and, consequently, depersonalized (p. 122). In this view, individualized treatment through student support sub-systems is essential to learner success, especially as institutions grow in size and complexity (p. 128). Sewart concluded that support must acknowledge and respond to the “almost infinite” needs and differences of its clients (p. 129), a requirement which, before the arrival of effective and ubiquitous communications technologies, was a truly daunting prospect indeed.

Personalization and individualization of learning support are enhanced in the provision of choices and emphasis on cooperation, connection, collaboration and interaction (replacing competition) in the learning environment and its relationships (Carrier and Schofield, 1991; Commonwealth of Learning, 1993; Allen, 2002; Garrison, 2002). Technologies may be helpful in facilitating these support objectives. When online moderators and instructors accept responsibility for student support, instruction and support functions begin to blend and overlap, ideally forming a web of seamless resources and options available to learners in any kind of need (Simpson, 2000).

Interaction and Peer-To-Peer Support

The blending of instruction and support potentially benefits both, especially if instructors encourage students to engage in mutually supportive collaborative interactions. While the exact nature of those interactions may vary (this study explored some of them), there are principles which could be helpful in using CMC-based interactions in helpful ways:

- The instructor does not always have to be the primary source of all student support; technology-mediated peer-to-peer support can be a valuable adjunct to the formal support most institutions and programs are able to provide, and when programs become large or lose flexibility for any reason, they may substitute such support (Brown and Brown, 1994).
- The design of instructional materials or texts which anticipate all student questions and needs is probably not feasible (Juler, 1990); it is therefore preferable to provide an environment where questions can be posed and information can be discussed freely in a timely and flexible manner as needed.
- The process of peer interaction presents students with possible new roles; in addition, the “unstructured and unpredictable” nature of the resulting discourse may be desirable from a learning perspective (Juler, 1990).
- The interaction among peers common in CMC has constructivist aspects, producing an environment in which critical discourse and transactional and transformational learning co-reside in an atmosphere emphasizing consensus-building, collaboration and cooperation (Commonwealth of Learning, 1993; Garrison, 2002).

To summarize, technology-based interaction, especially peer-to-peer, because it is readily available and increasingly familiar, may constitute a valuable source of support, and under some distance education circumstances might even be viewed as essential for a full and successful

(reflective and collaborative) learning experience, supporting two long-acknowledged goals of distance education, learning and socialization (Mugridge and Kaufman, 1986). As robust communications systems have become more widely available and familiar, the question arises as to whether and how peers use such tools to interact with and to support one another. Does examination of online interaction show that participants attend to one another, use the strategies available to enhance personal, social and cognitive development, and thus strive to create a *community* of inquiry, socially and cognitively attentive to the individual needs of participants? (Purnell, Cuskelly and Danaher, 1996; Garrison, Anderson and Archer, 2000, 2001)

The Study

Background

Previous exploratory work in analysis of the structures and interaction patterns in CMC transcripts, using a tool call the *TAT (Transcript Analysis Tool)*, revealed interaction patterns useful in assessing different communications styles and online behavioural preferences among participants. Methodologically, this work also demonstrated that both structural and notional (content) elements of transcripts could reveal subtleties in resulting communication and social networking patterns.

The *TAT* consists of the following categories (Attachment A):

- **1A – vertical questions:** assume a correct answer exists and can be found
- **1B – horizontal questions:** invite negotiation on a plausible answer
- **2A – non-referential statements:** make no reference to others' comments or views
- **2B – referential statements:** make direct or indirect reference to others' statements
- **3 – reflections:** usually guarded personal thoughts, judgments, opinions or experiences
- **4 – scaffolding and engaging:** intended to initiate, continue, encourage or acknowledge interaction, and to “warm” or personalize the interaction environment
- **5A – quotations and paraphrases:** from sources within or outside the conference
- **5B – citations:** attributions of quoted or paraphrased material

In previous work with a smaller transcript corpus (the Centre for Distance Education (CDE) option course in this study), comparisons of the frequencies and proportions of the above sentence types found in the transcript (along with structural cues captured or generated by synchronous conferencing software, such as the date and time of posting, the sequence of postings, and interaction patterns among specific participants), produced a multi-layered description of conference interaction. This corpus and technique have been used subsequently to examine the presence of expository and epistolary communications (Fahy, 2002b), patterns in the use of qualifiers and intensifiers (Fahy, 2002a), and aspects of *cognitive presence* itself (Fahy, 2002c).

In this study, sentences which denoted “supportive” behaviour (those coded as TAT types: 1B, *horizontal questions*; 2B, *referential statements*; and 4, *scaffolding and engaging comments*) in

three study transcripts, were examined. The supportive nature of these categories was found in the characteristics of the attendant communication, as described below (Fahy, et al., 2001):

Horizontal questions (Type 1B) are those for which there is no one right answer, others are invited to help provide plausible or alternate “answers,” or to help shed light on the question. The interactive process itself helps build and articulate consensus toward an adequate (as opposed to a correct) answer.

Referential statements (Type 2B) include direct answers to questions, or comments referring to specific preceding statements (by other participants). Referential statements suggest a dialogue, or interplay of statements, questions and responses, related to others.

Scaffolding and engaging comments (*TAT* 4) are specifically intended to initiate, continue or acknowledge interpersonal interaction, and to “warm” and personalize the discussion by greeting, welcoming and recognizing others. These comments connect or agree with, thank or otherwise acknowledge someone else and recognize the helpfulness and legitimacy of the ideas, comments, capabilities, and experience of others. Included are comments without real substantive meaning, “phatics,” which signify the speaker/ writer’s readiness for interaction (Feenberg, 1989), greetings, and [n]etiquette-related devices such as closings and signatures, rhetorical questions (which gently suggest a position, while leaving open the possibility of further discussion about it), and emoticons.

A total of 13 supportive behaviours coded in one of the three *TAT* categories were identified. The view in this study was that, because of their interpersonal and social focus and impact, these 13 strategies or “moves” (Herring, 1996) operationally constituted a construct of “support,” the presence of which had the effect of motivating others to become or remain engaged in the online interaction (Attachment B):

1. Type 1B: Horizontal questions
2. Type 2B: Referential statements
- Type 4: Scaffolding and engaging comments:
 3. Acknowledgements
 4. Agreements
 5. Apologies
 6. Closings
 7. Emoticons
 8. Humour
 9. Invitations
 10. Rhetorical questions
 11. Salutations
 12. Signatures
 13. Thanks

The above construct of “online support” includes the linguistic, paralinguistic and graphic devices which, if they chose to do so, CMC users might use to signal their recognition and support of others as co-participants in the online community. These devices and strategies are supportive of communication, replacing myriad analogous sociolinguistic devices and strategies, including non-verbal elements normally available in face-to-face interaction, (Ridley and Avery, 1979). In face-

to-face discourse, conventions exist for participants to check responses and avoid miscommunication; in online situations, the conventions necessary for productive and positive interaction usually must be adapted or invented, an unavoidable step in the adoption of any complex innovation (Buderi, 1996). Extra care is needed to reduce online communication failures, as the channels for confirmation are less responsive and more subject to misinterpretation (Feenberg, 1989; Burge, 2000), and the consequences for miscommunication in the network can be severe.

For participants in online interaction, the process is one of adapting established and well understood face-to-face communications conventions and strategies to fit new media and, in the case of CMC, the constraints of asynchronicity. This study was intended to determine whether, how often, and in what ways, online participants interacting asynchronously using text only, might employ any of the 13 identified support conventions, permitting an estimate of the construct “support” in these conferences.

Method

The CMC participants whose interaction generated the study transcript were students and instructors in three courses, two consisting of graduate students from Athabasca University’s Centre for Distance Education (CDE), and one from a diploma program offered by a non-degree granting Alberta post-secondary institution ($n = 17$). The CDE courses included one core course required of all MDE students ($n = 26$), and one senior option (elective) course ($n = 13$). In all three cases, the discussions which produced the study transcripts, were moderated by the course instructor, who also participated in the discussion.

CMC played a somewhat different role in the three courses. In the CDE courses, credit was awarded for participation: 10 per cent of the course final mark was dependent upon CMC participation in the option course, 15 per cent in the core course. The non-AU course, which was non-credit professional development training, did not award marks for CMC participation. The CDE courses were 13 weeks in length, while the non-CDE course was three weeks long. Most students in all three groups held Bachelor’s degrees (10 per cent held graduate degrees), most were teachers/ trainers, and all were experienced technology users.

Coding and analysis of transcript content were accomplished using ATLAS.ti, a qualitative analysis software tool, and SPSS-PC. The CDE option course transcript was coded by the author, while the CDE core course and the non-CDE course transcripts were coded by CDE research assistants (RAs) who were trained by the author. Coding was at the sentence level, and multiple codes were used for sentences that contained more than one category. The RAs worked in pairs, checking each other’s codings and, where necessary, discussing and resolving coding disagreements. Where coding disagreements or questions arose for any reason the author served as the arbiter. The author also performed all analyses reported here using ATLAS.ti and SPSS-PC.

Findings

Group Conference Activity Levels and Behaviour

Tables 1 and 4 compare of some descriptors of overall conference activity by gender and by course. The small differences in Table 1 (none of which were statistically significant) showed

little variation in interaction, but a small difference in the support ratio (total supportive postings divided by total posts) favouring women, showed a finding consistent with previous reports (Fahy, 2002b). The fact that men appeared to post more frequently than did the women was influenced by the fact that three-quarters of the students enrolled in the non-CDE course, which was three weeks long and consequently provided fewer conferencing opportunities, were women (Table 4). The largest group was the CDE core class ($n = 26$), but the largest transcript and the greatest number of postings were produced by the CDE option course. The ratio of the support score (the sum for each individual of all sentences which were coded as one of the 13 support types listed above) to total posts did not differ among the groups, indicating that despite differences in interaction opportunities and volume, the participants in the three groups engaged in proportionally much the same kinds of supportive behaviours.

Table 1. Conference participation, support score, and support ratio, by gender

Element	Males		Females		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total posts	15.61	11.48	12.67	10.65	13.87	10.99
Support score*	37.96	33.79	36.30	27.73	36.98	30.01
Support ratio (support score / total posts)	2.37	1.22	3.14	1.65	2.82	1.53

*Sum of all sentences coded in TAT categories 1B (horizontal questions), 2B (referential statements), and 4 (scaffolding and engaging comments).

Supportive Activity

Table 5 ([Attachment C](#)) shows the overall presence of TAT categories in the three transcripts. As in a previous study (Fahy, et al., 2001), the most common category was *non-referential statements* (type 2A; 54.6 per cent), followed distantly by *scaffolding and engaging comments* (type 4; 15.2 per cent) and *reflections* (type 3; 11.3 per cent).

Table 2 shows a comparison of the three groups in relation to the 13 support behaviours of interest. The first observation was in relation to the differences in the occurrence of each of the 13 support indicators. The table shows the proportion of each of the indicators within the total of “support” elements for each group.

Table 2. Percentage of support indicators as part of supportive posts only, by course

Support indicators	Mean		S.D.		Sig.*
	High Support (n = 17)	Low Support (n = 13)	High Support	Low Support	
Greetings	.51	.15	.29	.22	.001
Humour	.02	.00	.03	.00	.011
Rhetorical questions	.14	.02	.15	.09	.013
Signatures	.63	.26	.41	.33	.010
Horizontal questions (1B)	.32	.13	.24	.23	.035
Referential statements (2B)	.83	.41	.31	.34	.002

*t-test.

By a wide margin, the chief support indicators found in all course transcripts were:

- **Referential statements** (TAT type 2B): these constituted 26.7 per cent of all support indicators overall in the three groups, with a significant range in variation (from a low of 20 per cent in the CDE core course, to a high of 38 per cent in the CDE option course).
- **Signatures**: these comprised 16.4 per cent of all support strategies, with a small range (less than 6 per cent) among the three groups.
- **Greetings**: made up 13.3 per cent of all support, with a range among the three groups of less than 5 per cent.
- **Horizontal questions** (TAT type 1B): while these totalled almost 10 per cent of all supportive postings, the difference in means among the three groups was significant, at over 12 per cent. (The CDE core course transcript contained a substantially higher proportion of *horizontal questions* than either of the other two.)

In total, the four indicators above accounted for two-thirds of all supportive behaviour found in the transcripts. A fifth observed difference, in expressions of *thanks*, approached significance ($p = .074$), with the non-CDE course, despite its smaller size, containing a proportion of *thanks* occurrences over four times greater than was found in the CDE option course (5.3 per cent and 1.3 per cent, respectively).

Another finding was that the participants' support scores varied widely, reflecting differences on an individual level in terms of the amount of supportive online behaviour exhibited. The overall mean *support score* for the total group was 41 (S.D. = 35.1); the range was 149 (minimum = 0, maximum = 149).

Within-group gender differences were significant on only one element: *agreement*. Women in both the CDE option course and in the non-CDE course were more likely to express agreement than the men. As noted earlier, this finding is consistent with other reports (Herring, 1996; Fahy, 2002b).

Five other between-group differences were found (Table 6, Attachment C):

- The non-CDE course contained proportionally more *acknowledgements*, use of *emoticons*, and more occurrences of *thanks* than one or the other of the other two groups. (In regard to *acknowledgements*, the non-CDE course instructor modeled this behaviour, employing *acknowledgements* 20 times in her postings, 13 per cent of her supportive elements overall. In comparison, the CDE option and the CDE core instructors employed *acknowledgements* 0 and 4 times, respectively.)
- The CDE core course contained proportionally more *greetings* and *horizontal questions*. (The modeling here was negative: the CDE core course instructor used fewer *horizontal questions* [12] than did the CDE option instructor [46] or the non-CDE instructor [13].)

Table 2 also shows that use of four support strategies varied among the three groups: *referential statements*, *horizontal questions*, use of *emoticons*, and *invitations*. These variations need further examination; they may indicate behaviours, which vary with different group purposes,

individuals, or moderating behaviour, or they may be nothing more than chance fluctuations. If they do identify strategies that actually increase support, they also constitute behaviours, which might be readily focused on or modeled if a more supportive online environment is desired.

In order to identify more clearly which of the individual behaviours were most associated with levels of overall supportive behaviour, the online activities of high- and low-support individuals (the top and bottom quartiles) were examined. Thirty individuals were included in the two groups, 13 in the lowest quartile (those whose *support score*, the sum of all their “supportive” postings, totalled 16.25 or less) and 17 in the highest (*support score* 41 or above). (The between-group difference in overall support scores, 3.22 and 1.71 respectively, for the high- and low-support groups, were significant at the .001 level.)

The comparison of these two groups’ use of the 13 support behaviours revealed differences on the six items shown in Table 3. Participants who have high support values tend to engage in strategies of *greetings*, *humour*, *rhetorical questions*, *signatures*, *horizontal questions*, and *referential statements*.

Table 3. Differences between High-Support and Low-Support groups based on support scores

Support indicators	CDE option (n=13)	CDE core (n=25)	Non-CDE (n=17)	Total (n=55)	Sig.*
2B: Referential statements	38.0%	20.2%	27.7%	26.7%	.011
Signatures	20.2	16.3	13.7	16.4	.394
Greetings	10.9	15.8	11.6	13.3	.156
1B: Horizontal questions	6.3	15.9	3.5	9.8	.000
Acknowledgements	6.0	6.3	11.9	8.0	.195
Agreements	4.7	7.8	5.9	6.5	.609
Rhetorical questions	4.5	3.2	5.8	4.3	.665
Closings	1.4	4.7	4.3	3.8	.270
Thanks	1.3	2.8	5.3	3.2	.074
Emoticons	2.4	1.0	3.8	2.2	.045
Invitations	1.1	3.6	0.9	2.2	.029
Apologies	1.3	0.8	3.8	1.8	.387
Uses of humour	1.9	1.7	2.0	1.8	.964
Total	100%	100%	100%	100%	

Discussion

“Support” in distance learning may be constrained by the separation of the participants (Moore, 1991). However, there is no simple association between distance and the perception of separation or isolation. Indeed, face-to-face interaction may also suffer from various “distances” (psychological, interpersonal, cultural, linguistic, environmental, etc.), while anyone who has ever had a pen pal, or been caught up in an online relationship, knows the power of “mere” asynchronous text to create and sustain interpersonal engagement.

The purpose of this research was to determine whether and how peers used online strategies to lessen interpersonal distance and increase interpersonal interaction, as compared with strategies that simply state a position, convey information, or answer or ask factual questions. While the study analyzed online behaviour only, it is recognized that the true test of any strategy is the impact of “supportive” online behaviour on other efficacy outcomes, such as persistence,

satisfaction, and learning. The connection of these outcomes to the analytic model and assumptions used here needs further investigation.

At the same time, this analysis is valuable because it describes “natural” online interaction behaviour. Support strategies vary in different communications situations, but previous research suggests that all forms of effective support tend to incorporate variety, and provide choices in response to individual needs, preferences and situations of learners. As Moore (1989) previously put it, the need and exact character of learner support should vary “according to the educational level of the learners, the teacher’s personality and philosophy, *and other factors*” (emphasis supplied). Interaction observed here addressed interpersonal needs and preferences, which can be regarded as being among these “other factors.”

Also among the “other factors” available, thanks to the evolution and increasing familiarity of interactive technologies, is accessible and inexpensive or free supportive peer-to-peer interaction technologies of various kinds. As robust tools have become readily available to permit discretionary learner-learner interaction at the learners’ discretion, there is now need to focus (as in this study) on describing the strategies engaged in when using these tools in online, course-related, moderated interaction. Examination of the record of actual online interaction is a first step in understanding current uses of CMC, and assessing the communications tools (hardware and software) on which it is based.

The question posed by this study was whether evidence could be found in an online conference that participants actually took the time and made the effort to support each other when given the opportunity to interact, and what techniques were employed to provide supportive social interaction as well as the intercommunication of ideas and information. As in face-to-face interaction, the findings showed that the most common supportive activities focused on interpersonal recognition, inviting or extending dialogue, and demonstrating a sense of [n]etiquette. *Greetings, signatures, statements making reference to others’ comments, and open-ended questions* constituted two-thirds of all online support behaviour; in so doing, this CMC-based interaction could be seen to imitate face-to-face normal communications in seminars and classrooms.

Some differences were noted which require further exploration. In the three groups overall, differences were found in the use of *horizontal questions, referential statements, emoticons, and invitations* to others to begin or continue participation. High- and low-support individuals differed in their uses of *referential statements, greetings, signatures, horizontal questions, rhetorical questions, and humour*. The bases for these differences was beyond the scope of this study, but explaining the conditions under which they seem to occur may be a next required step in research in this area.

Conclusion

Overall, the findings of this study suggest that participants used obvious interpersonal strategies to support each other: they asked open-ended or rhetorical questions; they referred to the contents of each others’ comments; they invited others to join the conversation; they used “epistolary” techniques to create an ambiance in their correspondence similar to a private letter (*greetings, signatures*); and they used emoticons to clarify their tone (Fahy, 2002b).

Individually, there was considerable variation in uses of these conventions and communications techniques. As would be the case in other forms of social networking in learning environments,

everyone does not choose to engage in identical supportive behaviour. As in face-to-face situations, this study found that some individuals were more attentive to and involved in maintenance of the social network in which the purposive course-related communications occurred (Ridley and Avery, 1979).

The finding that students in three courses from two different distance programs and institutions used online interaction similarly in supportive ways, including going beyond academic requirements and expectations to motivate, demonstrate willingness to comment, and encourage others to continue interacting, is important. Supportive online social behaviour among participants (beyond basic civility) is usually not an explicit course requirement in most CMC learning environments (as it was not here). Some of the 13 indicators of support were not used equally by all participants (i.e., humour), and participants showed clear personal preferences in how they demonstrated support. But it is significant that virtually everyone found some way to engage in supportive interaction. (There was one exception among the 56 students, a male participant who posted only three times, and who included no supportive comments). One-quarter (25.9 per cent) of all interaction in these conferences was classified as supportive, a proportion which, though it must be tested against wider and larger conferencing samples, indicates the importance attached to the interpersonal in these online interactions.

Attachment A

1A – vertical questions: questions which assume a “correct” answer exists, if the right authority can be found to supply it. [“What are the categories in Bloom’s taxonomy?”]

1B – horizontal questions: accepts that there may not be one right answer; others are invited to help provide a plausible or alternate “answer,” or to help shed more light on the question. [“What is good teaching?”]

2A – non-referential statements: contain no or very little self-revelation and usually do not invite response or dialogue; tone may be didactic; the main intent is to impart facts or information). [“Although our office has been in the business of providing program inservice and training workshops since its inception, it is new to the area of computer-mediated communications.”]

2B – referential statements: postings that make direct or indirect reference to elements of preceding statements. [“I want to add to {name’s} point about the importance of context in assessing technologies.”]

3 – reflections: thoughts, judgments, opinions or information which are personal, or usually at least somewhat guarded or private; a tone of self-disclosure is suggested in the sharing process. [“I felt, as a teacher, that I had failed the most needy students – it’s the reason I left teaching after ten years and lots of private tears.”]

4 – scaffolding and engaging: intended to initiate, continue, encourage or acknowledge interaction, and “warm” or personalize the discussion; the tone is friendly, even intimate; includes phatics and emoticons. [“Thanks for your brilliant description of the problems new teachers face – you could have been describing any one of us, I think.”]

5A – quotations and paraphrases: “Every tool carries with it the spirit by which it has been created.”

5B – citations: “Werner Karl Heisenberg, *Physics and Philosophy*, 1958.”

Attachment B

Support Indicators: Definitions and examples from the transcript

- | | |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Acknowledgement | Recognizing or acknowledging the helpfulness, ideas, comments, capabilities and experiences of other.
- "Interesting ideas."
- "Sounds like quite the experience you have." |
| 2. Agreement | Expressing agreement; connecting sympathetically with the views of another participant.
- "Like [name], I view advanced technologies as technologies that are not yet mainstream."
- "I agree that each media has a strength and weakness." |
| 3. Apology, self-criticism | Any form of apology.
[See text.] |
| 4. Closing | Ending the post with some closing summary or leave-taking convention.
- "Cheers."
- "All the best." |
| 5. Emoticon | Using an emoticon in a post to provide tone.
- J
- (in my humble opinion ;-)) [This includes a closing] |
| 6. Horizontal questions | Questions which do not have a "correct" answer, but for which discussion might produce consensus or deeper understanding of the problem.
- "What do students 'understand' when they are taken into a computer lab, for example, before anything is "taught" with those computers at all?"
- "What is a 'learning technology' after all?" |
| 7. Humour | Some effort at humour (may be self-deprecating or ironic).
- "Re: last message - see, I'm wide awake(?) and can even type my own name now."
- "I still want my 5% - grinz." |
| 8. Inviting | Inviting agreement, sympathy or comment from others.
- "What do you think?"
- "Thoughts?" |
| 9. Referential statement | Statement which makes specific reference to the content of a comment posted by another participant.
- "The impact you asked about is difficult to identify."
- "Very little teaching will take place over the "big pipe," as you called it." |

- 10. Rhetorical question** Posing a rhetorical question.
 - "But, hey, why force energy on a customer when they don't want it."
 - "How can strategic plans survive?"
- 11. Salutation** An expression of greeting, usually at the opening of the posting.
 - "Hi, [name],"
 - "[Name] and [name], ..."
 - "Hi, all."
- 12. Signature** Ending a post with the writer's signature or a nickname.
- 13. Thanks** Expressing thanks to another participant, or thankfulness for another's behaviour or views.
 - "Thanks for getting me thinking about it."
 - "Thanks for the information on the paper we discussed."

Attachment C

Occurrence of Selected Support Indicators

[Table 4, Description of selected overall conferencing activity](#)

[Table 5: Occurrence of TAT categories](#)

[Table 6: Differences in support values, by course](#)

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Research Notes

Supporting Distance Students Using the Internet: A Brazilian experience

**Marialice de Moraes, Carolina Rodrigues Paz
Flavia Lumi Matuzawa, and Patricia Jantsch Fiuza**
Federal University of Santa Catarina
Brazil

Introduction

The current context of globalization is marked by rapid and widespread technological, economic, and social changes, all of which raise important questions for educators. Described by such terms as 'knowledge explosion,' 'information era' and 'information hype,' we are living in an era where knowledge is evolving at a rapid speed, where students and teachers alike are called upon to quickly assume new skills, competencies, and knowledge. However, in spite of its positive economic impact on society as a whole, skills and knowledge development are increasingly seen as a responsibility of individuals. Clearly the acquisition of new skills, competencies, and knowledge are essential for individuals to gain better and more lucrative employment opportunities in the new world economy. Therefore, both individuals and society must keep abreast with constant changes occurring in today's global economy.

The Internet plays a fundamental role in this equation: Sixty percent of North American schools and universities use email. Ninety-four percent of Americans indicate education as a 'top priority' for governmental actions. Fifty percent of the students engaged in higher education today are 25 years of age or older (NEA, 2000).

Market-driven economies are demanding a highly skilled and knowledgeable workforce. To meet these demands, universities and educational institutions of all stripes are exploring strategic alliances and striking win-win partnerships. Such dynamic is taking place in India, a country where substantial investments are being made in educational disciplines like computing science, which is producing highly trained computer programmers readily employable in the global job marketplace. Thanks to India's foresightedness, that country is currently leapfrogging from a pre-industrial society to a markedly digitized one.

With an eye on India's success, Brazil's Federal University of Santa Catarina (UFSC) Graduate Program in Engineering (PPGEP) in 1996 created the Distance Education Laboratory (LED). Investing heavily in new information and communication technologies for distance education (DE) purposes, the LED has identified, designed, and developed flexible course alternatives using a variety of DE media and models.

According to Barcia and Vianney (1998, p. 61)

"Using communication theories, the LED is developing research in order to find the most appropriate languages for the use of the Internet, videoconference,

teleconference, video-lessons, CBT's, printed materials, fax and telephone in the distance education process. This process aims to stimulate in students their sense of responsibility for the learning process, and to improve the interfaces to promote a more efficient student-media, student-content, teacher- student-institution, student-teacher-tutoring, and student-students interaction, in the direction of establishing learning practice and a culture of collaborative learning."

The goal of this article is to examine the Internet in terms of the role it plays in supporting both distance education students and teachers.

Internet and Distance Education

Traditionally, distance education (DE) consisted of and used passive media such as print media, radio, and videotaped lessons, teaching and learning modes that often derive low potential for interactivity. Within the context of traditional DE delivery, interactivity occurred mainly through asynchronous correspondence between individual students and their instructors using print materials. With the advent of the Internet based technologies, however, DE practitioners now have at their fingertips technology that allows them to magnify and greatly enhance the quality of current DE models, thereby creating new and increased levels of interaction, communication, and collaboration among and between students, teachers, and their institution (Schrum, 1998). According to Harasim (1989) online course characteristics include independence of time and place, communication of many to many, collaboration of learning, and dependence in literal communication. Harasim also points to the many advantages of DE delivered via new technology: it allows for synchronous or asynchronous communication among students and teachers, regardless of time and space constraints, a condition which increases educational access to geographically isolated communities and interaction between diverse cultures.

According to Berge (1986), access to Internet-based technology, specifically late model computers and a trustworthy telecommunications infrastructure, is necessary for online DE instruction. Berge nonetheless considers technology as a secondary/ supportive player. Instead, he argues that careful construction and delivery of DE planning processes, including clear specification of learning objectives, must remain central to educational success. Internet technologies must be viewed as merely as the vehicle in which the interactions between the students and teachers travel, a means of intellectual transportation that helps people span geographic distances.

However, despite its increasingly widespread use (NEA, 2000), DE delivered via the Internet is not an easy task. Wiesenberg and Hutton (1996) cite some significant challenges to Internet delivery of DE. These challenges include the allocation of enough time necessary for planning, designing and offering of online DE courses; and the creation of dynamic virtual communities that encourages students to become independent learners capable of seeking out information from different sources. Students who study online at a distance must demonstrate greater control and responsibility in their learning processes. Writing must also be viewed an activity that allows students greater reflection (Harasim, 1990; Rohfeld and Hiemstra, 1994). Research also indicates that the addition of an online communication component integrated into traditional course models increases communication between student and teachers, which great enhances their levels of interactivity (Schrum, 1995; Schrum and Lamb, 1996; Stokes, 2000). It can therefore be said that electronic communication embodies features that naturally promote interaction and collaboration between different groups engaged in online learning.

On a macro level, the British Open University asserts that the delivery of DE using the Internet must embody a holistic vision, one in which DE learning culture is both acknowledged and given a supportive framework; development, design and delivery costs are realistically addressed;

technological integration takes place between administrative and online DE learning/ teaching functions; and it is acknowledged that a fundamental transformation of pre-existing pedagogical and administrative practice will take place. In other words, new technology should not be used to repeat old practices (Thomas et al., 1998).

Because some students often do not possess the requisite Internet skills to fully and successfully participate in DE, different authors (Gladieux and Swail, 1999; Tomei, 1999) caution that some may not be ready to engage in online learning. As a result, institutions must be prepared to provide support so that their students can develop the necessary skills and abilities to engage in online learning. However, so as not to overwhelm, students must acquire online skills through gradual contact with the technology.

According to Tapscott (1995), Web-based technologies are facilitating the fundamental changes that are taking place at universities today. These changes include changes to the processes of teaching and learning at a distance.

Table 1. Past and Current/ Future of DE teaching and learning

Past	Current / Future
Physical classrooms	Virtual classrooms
Focus in the teacher	Focus in the student
Model of lessons based in display of the content for the teacher (owner of the knowledge)	Model of lessons is based on the discovery by the student, for exchange with teacher and colleagues
Customized contents	Personalized contents
Transmission of information	Facilitation of access to information
Stand alone work	Group working
Fixed calendar	Flexible calendar
Centered organization	Decentralized organization
Local	Global

Supporting Students Using Internet Technologies

Thanks to its pioneering efforts, the British Open University serves as a model for other institutions. In 1995, the British Open University made its first foray into the use of Web-based technologies to offer student support in areas such as electronic conferencing and the use of email for communication between students and tutors, primarily for evaluation purposes. The British Open University's early experiences revealed that a critical mass of online participants was essential for quality online interaction. The British Open University's experiences also revealed the tutors' central role as an active participant and facilitator, a human factor necessary for successful online learning outcomes (Thomas et al., 1998). Other research carried out at the British Open University (Price and Petre, 1997) indicated that students engaged in the online tutoring sessions, were:

- Acquiring skills like how to use course materials and suggested activities
- Determining course structure, goals, incentives, and project deadlines

- Raising questionings and leveraging learning from other students' study
- Confirming that they are on the right path and making progress towards their educational goals
- Seeking social contact with other students

Early research also showed that student support in online environments was only partially academic. A strong tendency toward socialization, a factor that allows students to build closer relationships with tutors and fellow students, was also evident.

LED and the Use of Integrated Media

To meet Brazil's increasing demand for flexible learning opportunities, University of Santa Catarina's LED is working to procure media designed for different pedagogical and administrative purposes. LED's objective is to expand and greatly enhance interaction of students, teachers, and colleagues through the use of integrated media technologies. To achieve this objective, LED is:

“. . . acquiring new technologies that are customized to balance the characteristics of its clients and Brazil's current technological reality, with the learning objectives of a given DE course. As a result, the University of Santa Catarina is using Integrated Media that incorporates not the latest most current media, but media used during first and second generations of DE” (Barcia et al., 2001).

The main purpose of the Integrated Media model, therefore, is to enhance all phases of student learning cycle by increasing and enhancing student/ teacher and student/ course content interaction. For instance, the University of Santa Catarina's masters programs employs a combination of videoconferencing, coupled with the Internet and/ or more traditional delivery modes such as print materials including articles, books, and study guides. Employing the Integrated Media model to enhance book-based learning activities, LED is engaged in such activities as guided reading exercises via videoconferencing.

The main purpose for applying the Integrated Media concept is to enhance interaction among students and teachers, technology and contents, during all moments of the teaching/ learning process. In the University of Santa Catarina's masters program, the media used, in order of preference, include videoconferencing, Internet, and printed material in the form of books, articles and guides, which in themselves are used to develop lessons for the videoconferencing sessions and stimulate students' interaction during guided reading activities.

The University's virtual learning environment is based on the metaphor of the classroom, and on the belief that students are independent adults capable of learning in both collaborative and individual settings. For this reason, the aim is to reproduce the same interactions that would normally occur in a traditional classroom.

With videoconferencing, the Virtual Classroom allows teachers to “teach face-to-face at a distance” (Cruz, 1996). Because this environment makes possible flexible learning using telecommunications as an exclusive educational delivery mode, traditional educational environments are undergoing change. “Distance” is no longer the most important factor; instead ‘how communication takes place’ is the most important. The new generation of DE requires “connections between people” and “communication applied to teaching-learning process” (Collis, 1995, p. 09).

Supporting Students via the Internet: The experience of the LED

To support distance students' needs, the LED relies upon a team of monitors responsible for establishing direct, fast, and effective communication flow between and among students and teachers. This multidisciplinary team consists of graduate students engaged in DE research, and as such they are constantly researching new resources to expand upon the existing pedagogical framework of the Laboratory. Paralleling their research, this team also concerns itself with the adequate use of existing media, consolidating and integrating it to improve and enhance the teaching/ learning model developed by the Laboratory. In this context, the Internet is regarded as simply a tool to facilitate fast and efficient communication, a vehicle in which to arrive at institutional goals based on enhanced student support and monitoring. In the future, it is anticipated that the Internet may help diminish, and perhaps even eliminate, gaps between the forms of students support students/ teachers/ institutions are currently receiving and delivering, and what is actually desirable.

To build students' and teachers' a comfort levels in distance learning contexts, the support team offers both teachers and students instruction on 'how to' use the media along with general course overviews. Instruction targeting teachers focuses on equipment (e.g., computers, document camera, microphones and other videoconferencing equipment, etc.), as well as the didactic principles of teaching at a distance using videoconferencing technology. For students, face-to-face instruction is offered at the beginning of the course, when monitors travel to the remote sites and conduct a two-day long seminars, where students' questions are addressed and answered on such topics as course content, Internet technology, videoconferencing etiquette, administrative details, etc. At this point, the monitor becomes the distance students' main contact, and is available to answer students' questions or concerns by telephone or videoconferencing from 8:00 am to 10:00 p.m. week days, or 24 hours per day, seven days a week, via asynchronous email.

To gauge students' abilities and aptitudes, as well as obtain basic information for course development purposes, a Student's Profile questionnaire was developed by the support team. To successfully complete this questionnaire, which must be accessed and completed online, students must possess minimum Internet skills, one of the basic necessities cited by Gladieux and Swail (1999), and Tomei (1999). Data collected include students' age, academic background, and levels of proficiency using Internet and videoconferencing technologies. The questionnaire also asks students qualitative questions about what compelled them to enroll in a particular course (e.g., for personal or professional interests).

From these data, the support team generates a report called the 'Group Profile.' The Group Profile report is subsequently forwarded to those responsible for course delivery (e.g., teachers: teaching and mentoring purposes); course coordinator; and local coordinator (i.e., institution partner). The Group Profile is also archived on the class website for students to access their personal information if they so desire. The Group Profile report has been of great value for teachers, because it provides them necessary background information to stay current with paced course syllabuses, determine when and where in a course to place emphasis, as well as alert them to students that may require special attention. With the recent digitalization of the University's course registration processes, this questionnaire is now a requisite document that students must complete prior to gaining admission to the Graduate Program in Production Engineering. Once students have completed all the necessary admission requirements, they receive a password to access their virtual classroom environment, as well as support websites that house the virtual library and interactive tools used in regularly scheduled extra-classroom activities and events.

The virtual learning environment also offers students' access to academic discussion forums, collaborative learning areas, a notice board for general course information, and a virtual 'Coffee House,' where they can socialize and relax in a virtual atmosphere. For example, using a

comprehensive help menu, students can choose the option ‘Talk to the Monitor’ for administrative matters, obtain updates on their academic progress, and ask questions. If a question and its response are deemed of sufficient informational/ educational value to other students, they are transferred to a database, which can be accessed by others enrolled in the same course.

Email is another tool that facilitates interaction, communication, and information exchange. Indeed, in spite of the fact that the course website offers many interactive features, email remains the most popular mode of communication between and amongst students, monitors, and the University. Such easy-to-use features as the ability to file and archive messages, respond to queries asynchronously offline, program address books and mailing lists, etc., makes email a preferred choice for many students. When used correctly, email also motivates, inspires, clarifies, and greatly reduces the sense of isolation often felt by distance education students and their monitors.

Experiencing higher degrees of proximity with their students – even those they have never met personally in face-to-face settings, monitors are able to greatly enhance and thus support students’ distance learning experience. Via the use of new and emerging technologies, the team can monitor students’ success through the entire duration of a course. To the end, the team is developing activities and procedures that can monitor student performance at all phases of the study cycle, information they will share with students to provide immediate, high quality feedback.

In short, the role of the support team is central to student support and thus to student performance, and success. This team and its technical infrastructures functions in such a way that they link teachers with students, with the underlying goal of better developing and stimulating student learning.

Conclusion

New information and communication technologies developed and designed specifically for educational purposes have greatly enhanced the development and quality distance education. To maximize potential techniques and to optimize new distance modalities of educational delivery, close coordination and ongoing exploration of new ways of providing enhanced student support are necessary. To this end, Brazil’s Federal University of Santa Catarina LED support team has been working to exploit technological features that allow efficient communication and enhanced interaction among those involved in course delivery, from administrative planners, to teachers, to students. The choice and, more importantly, how educational media are used, are central considerations in the teaching/ learning equation.

The University’s support team is currently concentrating its efforts on development of new processes that greatly improve currently available features. They are also seeking to increase students’ overall access to Internet-based tools. The LED is likewise designing a database that archives and retrieves course-related information, thereby extending monitors’ expertise to students at a time and place convenient to them. This database is growing daily, rapidly becoming an extensive repository of course-related knowledge, tips, and templates.

The support team is also looking to the future; they are currently modeling its next generation of virtual student monitoring and support environments.

The work of the University’s support team is considered by many to be central to its distance educational offerings. In this modality of education, the monitor “is considered an important element in the communication network that ties the distance student to the institution. Around 90 percent of the remote institutions have a organization to offer support and direction to the students “ (Holmberg, 1985, pg. 19).

In conclusion, investments being made by the Distance Education Laboratory (LED) to develop an efficient student support infrastructure based on technology and are considered central to Brazil's Federal University of Santa Catarina University future success in distance education initiatives.

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Research Notes

Is Enough Too Much? The dilemma for online distance learner supporters

Christopher K. Morgan and **Anthony D. McKenzie**
The University of Sydney
Australia

Abstract

We are a gregarious species, so it is not surprising that distance learners can be prone to feelings of isolation. In the days of traditional print-dominant distance education, attrition rates were often higher among distance learners than for their on-campus counterparts; but now, with the wider choice of communication options afforded by the online revolution, institutions have opportunity to look afresh at ways of compensating for the loneliness of long distance learners.

However, teachers in higher education have their own problems. By viewing an online program as a human activity system, we identify an issue of growing concern concerning system maintenance; specifically, how system survival depends on meeting the human needs of those involved. The authors are not only concerned for distance learners, but also learning facilitators, many of whom face their own context-induced pressures. From the case of their own institutional setting, the authors demonstrate the need to manage the twin risks of student dropout and lecturer burnout.

Keywords: learner support; distance learning; learning community; human needs; information and communication technologies; academic workloads

Introduction: Some conceptual preliminaries

As the institutional adoption of online technologies continues apace, the global market for higher education makes more insistent demands for what online learning appears to offer: the virtual dissolution of the isolation handicap. Dealing with this, however, is not an easy matter. Individual academics and their institutions ponder this question: "What kind of information and communications technology (ICT) solution will we embrace, and within what infrastructure, what pedagogical solution will be applied?"

Changes in educational practice can either be the result of top-down or collegial resolve, or, as the trial reported in this study shows, early adopters of new methodologies act as trail blazers for their less experimental colleagues (Cleary, 1999). Either way, change may be driven primarily by principle, or it may display more the character of compromise. We shall explore this idea through an explication of the authors' own institutional experience: we will focus on the case of an individual lecturer, who teaches a second year unit on business finance. After being a prime mover in the Faculty's earliest experiment in Web-based support for its distance education students, the lecturer set out to examine the outcomes of the support he was giving students.

In this scenario, the case captures the protagonist's personal account of the theoretical and research antecedents of his trial. The literature review that follows serves to locate his trial within the current state of research into supporting online distance learners. The opposing force, specifically the imperative for the watering down of principle, is the gap between what work he saw needing to be achieved, and what he had the time and energy to provide.

The contributions of cognitive psychologists such as Piaget, Bruner and Vygotsky has given prominence to the social nature of learning. For educators who accept learning as being socially situated, it makes sense to provide support within a community of learners (e.g., Scardamalia and Bereiter, 1994). Opportunities to do this with students at a distance have been afforded by ICT, which has caused educational practices to be reconsidered and re-engineered (Turvey, 1992). Constructivists maintain that the processes involved in online dialogue – engaging in discussion, reflecting on the ideas of others and receiving feedback – provides the scaffolding needed to achieve higher-order thinking (Slavin, 1994).

Distance educators have found that an important factor in successfully building online communities is the creation of a sense of social presence through participants projecting their personalities into their online discussions (Leh, 2001; Poole, 2000; Rourke et al., 2001). Of interest here is that such findings may appear to confound both media richness theory (Rice, 1992) and social presence theory (Short et al., 1976), which suggest that communication that is text-based, asynchronous, and online is a less personable experience than face-to-face communication. However, researchers such as Walther (1992), for example, argue that participants in text-based electronic conferences adapt their language to make missing non-verbal and vocal cues explicit, and are able to develop relationships that are marked by affective exchanges. Such researchers contend that personal perceptions of presence override media features (Gunawardena and Zittle, 1997; Poole, 2000; Richardson and Swan, 2001; Rourke, et al., 2001).

In an exploration of the role of a 'sense of community' in asynchronous learning networks such as online learning, Rovai (2002) draws a link between the quality of student–teacher interaction and persistence in university studies. Rovai endorses Cutler's (1996, p. 326) proposition that "the more one discloses personal information, the more others will reciprocate, and the more individuals know about each other, the more likely they are to establish trust, seek support, and thus find satisfaction;" and Tinto's (1975, p. 107) view that "social interaction via friendship support is directly related to persistence."

While attrition from distance education tends to be high (Tate and Mills, 2001), it is also multi-causal (Garland, 1993; Morgan and Tam, 1999), and a weakness in the relationship between student and university is a significant contributing factor in many cases (Retention Project Team, 2001).

In the present paper, we will attempt to sift through our experience within our institution, and allow the reader to gain a sense of how our ongoing inquiry is being shaped by several perspectives from the literature. One way of signalling the scope of our longer-range interest is to highlight Tinto's (2000) social constructivist notion that a learning community approach to educational design can induce a profound change in the texture of learning:

. . . a growing number of institutions [in the US in the nineteen nineties] have begun to reform educational practice and restructure classrooms to involve students more actively in learning. One such effort gaining increasing attention is that encompassed by learning communities and the collaborative pedagogy that underlies them. Unlike many [theory-driven] programs which exist at the periphery of the academic experiences of students, learning communities seek to restructure the very classrooms in which students find themselves and alter the

way students experience both the curriculum and learning within those classrooms [italics added] (Tinto, 2000, p. 48).

While Tinto's comments are written with reference to classroom contexts, we are encouraged even at this early stage in the evolution of online learning environments that online learning communities can aspire to similarly rich learning. In this paper, we wish to report on work that has sought to minimise the "*transactional distance*" that separates students and teacher in one of our institution's distance education units. Transactional distance for Moore (1993) is the psychological and communication space between learners and instructor. It varies from person to person, and is a function, says Moore, of the amount of control ('structure') exercised by the instructor on the one hand, and the degree of engagement ('dialogue') displayed by the learner on the other.

The cultivation of relationships between asynchronous distance learners and their learning facilitator presents fertile opportunities for universities and individual teachers (Morgan, 2001). It is reasonable to expect that providers who improve in this area could well be rewarded by higher completion rates. For some students who may be hovering on the brink of withdrawal, workable initiatives in this area can be expected to tip the balance towards them persisting with their studies. For the purposes of this paper, we shall consider that the "relationship" sought is a composite one that encompasses distance learners, their fellow students and the individual lecturer, plus, more loosely, the institution concerned. [The present study did not seek to explore the potential value of engagements *between* distance learners, but this clearly remains a critical area for future investigation. Note that there are empirical grounds for at least commencing with a focus on the learner-teacher relationship (i.e., Chen and Willits 1998, p. 7). We also note, in passing, Ainsworth's (2000) attempt to dismiss the educative value of social interaction via the Internet in learning; but it is one that social constructivists on the whole will not, we suspect, warm to.]

In the second part of the paper we wish to acknowledge the human needs of the teacher within the human activity system of online learning. We do so on this occasion by considering the problem of workload of academics involved in teaching online, and its effect on teacher wellbeing – that is to say, this discussion will only attempt to deal with one aspect of the online teacher's sense of wellbeing in the higher education sector today. Aggarwal and Bento (2002); Brabazon (2001); and Shedletsky and Aitken, (2001) are among those researchers who have contributed to a growing recognition that teaching online can significantly increase the teacher's workload compared with conventional classroom teaching. As we shall see, this case study suggests that optimising the online learning teacher/ class interaction places additional demands on the learning facilitator. The meta-narrative, the theme we hope will tie our two disparate stories together, is that all players in a human activity system require enough resources – plus the wherewithal – to sustain their inputs into the activity, or else their input is scaled down, weakened, or terminated. In the case study we report, the twin risks are *dropout* by students and *burnout* by the academic.

The position we are adopting in this paper is deliberately self-conscious and self-critical. We are, in part, reporting on work that helps shed light on the question of bridging transactional distance within an online, distance education program. As such, we see this as relevant to our concern about retention rates within the study unit in question. But we also wish to remind readers that an intelligent and critical approach to professional practice requires us to go beyond current conceptualisations of problems. The challenge is to not only understand and critique practice in terms of current theory, but to push that theory to the limits, to demand more of it and break new ground as a way of achieving the best practices of which we are capable. We may sometimes therefore seem to slip between the rigorous critique of our institutional practice in terms of ideas that researcher-practitioners have applied before, and more free wheeling thinking that makes use of ideas like 'human needs' and 'human relationships.' While our account leaves unresolved other dimensions of the human needs of the players in a distributed learning system, perhaps it will help us to refine the questions that we are – or could be – asking. We invite you to share the

meaning making process represented by this paper, noting not only the connections we make explicit, but others that might offer future and fruitful lines of inquiry.

Bridging Transactional Distance: A case study

In a deliberate attempt to improve completion rates by creating bridges and building a greater sense of community and affiliation among students at a distance, a lecturer in the Faculty of Rural Management, University of Sydney, implemented a small project – before an online learning management system became available. Distance learners engaged in the lecturer's particular business finance unit of study, had no face-to-face contact sessions. The unit was presented in an asynchronous manner to off-campus students who generally rated the unit highly in their evaluations. The medium used was printed study materials.

The first attempt at developing a stronger bond between the lecturer and students involved the lecturer initiating an early supportive personal phone call to each student. While it was felt that the students responded positively to this initiative and appreciated the personal contact, the exercise was particularly arduous for the lecturer. Such efforts involved the lecturer making many unsuccessful attempts to achieve telephone contact, leaving of messages and calling back, investment of a great deal of time and, as the majority of calls were over a long distance, it proved to be expensive. It was concluded that one successful call to each student at the start of the study period was not sufficient to build sustainable and meaningful bonds, and that the logistical and other problems meant that another less resource expensive approach needed to be found. It was not surprising that this approach had no discernible impact on retention rates.

While the lecturer remained strongly committed to developing a more palpable sense of belonging among those studying at a distance in his unit, a previous experience with audio-conferencing had resulted in logistical and other problems; hence the lecturer was not inclined to pursue this technology further. The tools of information and communications technologies (ICT) appeared to offer some potential, and were chosen as the medium for the next round of experimentation. The lecturer viewed this as an opportunity to provide the factors necessary for high quality support for distance learners as cited by Cowan (1994), namely timely prompting, encouragement and facilitative interventions.

A Subsequent Application using ICT

WebCT was available and its strategic use offered this lecturer the opportunity to interact with students in an ongoing manner. The goal was to use the technology to achieve social engagement for those who do not otherwise have it, thereby improving the quality of students' learning experience through building a greater sense of community and affiliation.

The distance presentation incorporating printed study materials was supplemented by the voluntary use of the *WebCT* platform. This supplementation was made available to all students over five consecutive years, but only a minority was able or chose to make use of it (85 of the 256 students over the five year period).

The lecturer regularly sent group messages throughout the semester when the unit of study was on offer and generated at least one such message each week. These messages frequently were focussed on facilitating the achievement of the learning objectives associated with the technical area of study. In addition, other more personal types of messages were sent. The nature of these messages varied and included matters such as requests for students to respond with details of their study progress, general items of news around the campus and in the life of the lecturer, notification as to when the lecturer would be away from the office, and progressive assessment performance details over the whole unit so individual students could monitor their own

performance against the total enrolment. The tone of all messages was conversational and students were encouraged to send their own group messages.

Each time students responded to a group message or else initiated one themselves, the lecturer sent an individual encouraging response to ensure their contribution was received and appreciated. The lecturer sent private individual emails to students who did not reply to a group message that required a response. Additionally, the lecturer initiated enquiry messages to individual students when they were late submitting their assessment, or when they were not heard from for a while. The lecturer also sent personalised messages of encouragement to students, urging them forward in their studies.

Other facilities available through the *WebCT* platform were utilised, such as asynchronous forum discussions where challenge questions were posed, synchronous chat sessions, models, and links. The thrust of the project, however, was to have frequent personalised interactions between the lecturer and students. Some management features were:

- The lecturer assigned to this task checked the website at least twice each day. In this project rapid response was regarded as a quality issue.
- Website visits were monitored to identify students who had not been in contact for some time. In turn, the lecturer would send 'missing' students a personalised message, either enquiring about some aspect of their study progress or following up on a previous interaction.

The outcome from building and maintaining personal contact was startling. Over the five year period of this study, 73 of the 85 (86 per cent) of those who were in the Web supported group completed the unit of study while only 107 of the 171 (63 per cent) of those who did not participate in this support process completed it. We subjected the data from this experiment to formal year-by-year analysis. When summed over the period a Pearson chi-squared value of 5.37 with 1 df was obtained with the probability level of 0.021. There was no difference in the grades achieved in the two groups. Of course, it is possible that those students who self-selected into the Web-supported group may well have been more engaged and enthusiastic, and therefore more likely to persist. It is noteworthy that students enrolled in other courses in the same programme of study in which online participation was a compulsory requirement of their units, exhibited completion rates similar to those reported here for the group choosing Web support.

Student Impressions and Lecturer Reflection

At the end of the semester, an independent third party surveyed participating students and evaluated their experiences. Students in all three offerings overwhelmingly reported that they enjoyed online interactions with their lecturer and looked forward to them. They acknowledged relatively low levels of interaction between the students themselves, but reported they were not particularly concerned about the student/ student aspect. However, because interaction between students was not part of the unit's design, such undervaluing of peer interaction is understandable. In other contexts, where collaborative learning is encouraged or required, expectations would be different.

Of particular interest is that students found their interactions with their lecturer motivating. Some commented that because of the relationship that they developed with their lecturer, they made time for their study, even when they did not think they had any time available. They reported that regular contact kept them on task and prompted them to maintain their study as a high priority among competing obligations.

Students responded positively when asked whether the online interactions contributed to their sense of affiliation to the faculty. They commented that the experience removed the loneliness associated with being isolated and gave them a sense of belonging to a learning community with other students and staff. Several volunteered the opinion that they would have been unlikely to persist had it not been for the regular communication they received.

Despite these positive responses, the lecturer reported that he faced a dilemma. Feedback from students and improved completion rates were professionally satisfying, but the personal investment needed to achieve these outcomes was considerable. The lecturer's perception mirrored that of his supervisor's: his workload was excessive and as a result, he considered scaling back such high levels of online support to students – despite his recognition of the value of doing this for students.

The Chance to Push Our Thinking Further

To recap, this paper seeks to report the authors' effort to make sense of online teaching and learning within the Faculty of Rural Management, against the backdrop of the growing body of theory and practice being reported in the literature. We do not apologise for reporting on a fluid situation. As practitioners, what we do in the classroom is *what we are able to do*, given the institution's culture-in-flux, coupled with our own values and understanding of the opportunities and constraints surrounding us. In other words, we are not undervaluing the importance of scholarship in informing the way we will do things, but rather recognising that the status quo too often wins against innovation, primarily because that is where the institutional momentum is heading.

Opportunities and constraints may be construed in various ways: the finite, often quantifiable conditions in which we must operate, our creativity, and the quality or texture of our own *pedagogical understanding*, which is in turn a function of the current state (stage) of our engagement with various theoretical discourses of our choosing. Had the lecturer in our case study embraced the aim of creating a learning community in the sense used by Tinto (2000) or Rovai (2002), there would have been different outcomes to evaluate. That the lecturer did not has made this paragraph possible. We see a place for reporting on situations in flux, and see a need for a scholarship of *practice-on-the-run*.

We turn now to the other side of the coin: the capacity of the academic in this teaching-learning interaction to give, and keep giving in a measure that a relationship-sustaining approach to teaching demands.

The Human Needs of the Online Learning Facilitator

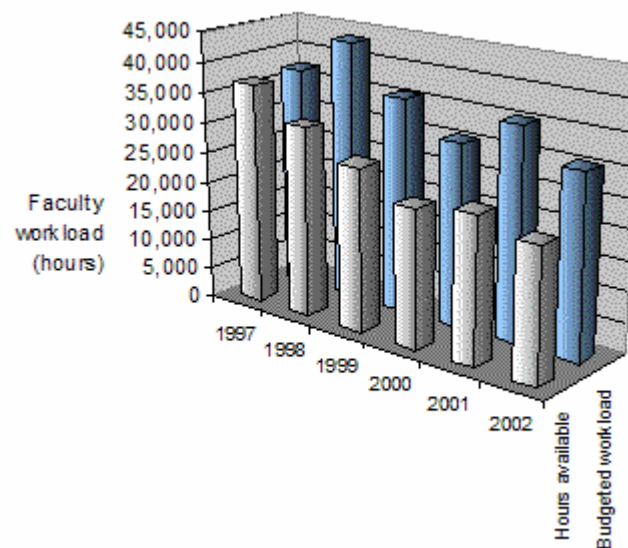
In this paper we will not attempt to do more than consider the Gestalt of what it is like to be an online learning facilitator amid the varying claims on one's time as an academic in Australian higher education today. We take our own institutional context as a case in point.

In preparation for this paper, the authors conducted a short survey of staff seeking to gain glimpses of the impact of academic workloads on job satisfaction, self-perception of teaching effectiveness, and coping strategies. We also obtained data on academic workloads from the Faculty against which to interpret the impressions of staff. What follows has a bearing on our foregoing account concerning online learning facilitation, in the sense that it shows the level of background noise (i.e., the distractions of other responsibilities) that likewise requires academics' attention.

A Macro View of Academic Workload within the Faculty

The University follows standard practice in seeking to share equitably the total workload of a faculty among academic staff, and the complex computations that flow from this practice make use of the notion of a ‘normal’ workload. Figure 1 shows the load being borne by academic staff in recent years by comparing total hours committed for the following semester – a workload agreement between each academic and the Faculty of Rural Management – with the notional normal workload (i.e., “hours available”).

Figure 1. Excess of total hours worked beyond notional ‘normal academic workload,’ Faculty of Rural Management, University of Sydney, 1997–2002. (Data refer to hours worked by full time and part time “permanent” staff, but excludes casuals.)



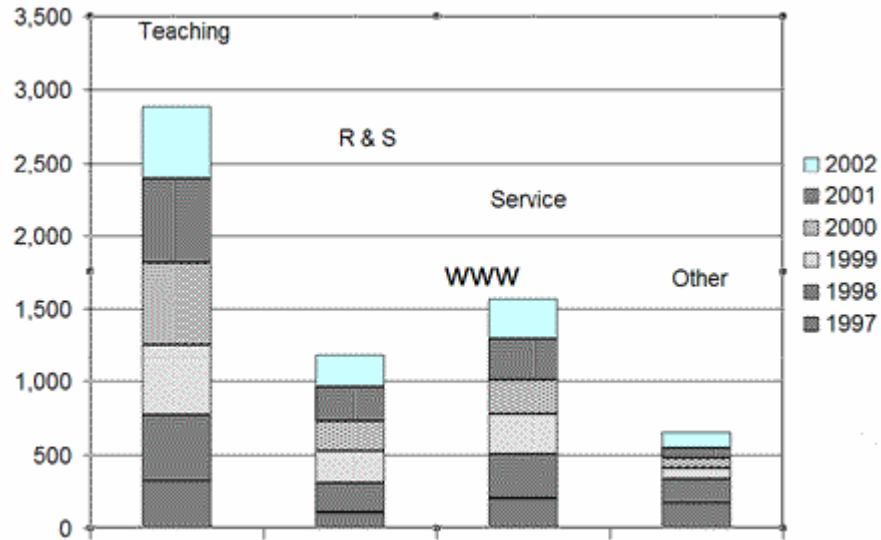
The statistics shown in Figure 1 reflect a period of declining staff numbers within the Faculty, ranging from a high of 46 faculty members in 1997 to 27 in 2002. This reduction in staff numbers was reflective of the faculty in response to financial imperatives. As a result, for many of those remaining, shrinking staffing levels brought additional responsibilities and pressures. In the context of our present argument, we table our untested hunch, specifically that academic staff energy is a limited resource, and that low staff numbers reduces lecturers’ ability to display concern for students in need.

More to Do than Hours in the Day

Teachers do more than teach. Public universities in Australia are offered financial incentives to maximise the research and scholarship output of staff. Academics are therefore expected to engage in research (or scholarship, more broadly), and give service to the institution and to the community, as well as engage in further professional development. In addition, staff are given opportunity to engage in outside consultancies and participate in outreach, short course programs.

Figure 2 shows the budgeted breakdown of academic staff workloads per semester within the faculty between 1997 and 2002.

Figure 2. Mean hours worked per semester per academic in the broad categories of responsibility: 1) teaching (undergraduate and postgraduate coursework); 2) research and scholarship; 3) service to the institution and the community; 4) other (professional development, consultancy/outreach). Data from Faculty of Rural Management, University of Sydney, 1997–2002.



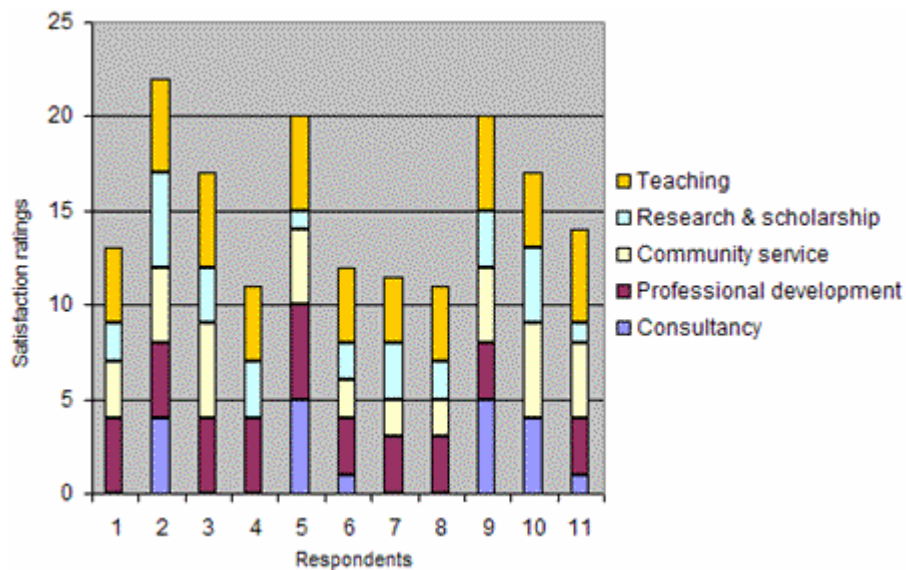
In 2002, academic staff members were surveyed on the topic “resisting burnout.” On face value, the survey was designed to elicit staff views on the impact of academic workloads on job satisfaction, self-perception of teaching effectiveness, and coping strategies. What we hoped to determine, in fact, was the actual *wellbeing* of academic staff. Clearly, online learning facilitators may be called on to expose their humanness as part of their efforts to sustain isolated learners. However, to muster such ‘humanness,’ they must be in a position of personal ‘wellness,’ or self-*centredness* in the noblest sense of the term. Selected responses to one survey item are shown in Table 1. Although responses are mixed, they suggest that concomitant with increased workload pressures, faculty are showing increased concern about their ability to teach well or maintain their disciplinary expertise.

Table 1. Perceptions of impact of academic workload on individual teaching effectiveness, Faculty of Rural Management, University of Sydney, 2002.

Question. <i>Is your workload having an influence on your perception of your own teaching effectiveness?</i>
<p>Responses</p> <ul style="list-style-type: none"> • Yes, I do not feel that I have enough time for lecture preparation, review or reading to keep up with the latest changes in my field • Not really, but it strongly affects my performance in other areas • Yes, because you are so pushed to try and fit in all that has to be done you end up with insufficient time to put together the polished performance you would like to do, regardless of the amount of hours you put in. • Main issue is the breadth of coverage of teaching duties. This puts at risk my ability to keep abreast of relevant knowledge and remain up to date. • Probably slightly. Teaching is an art and requires the teacher to continuously respond to changes that are associated with the units one teaches. When time is too limited, time for reflection may be compromised. • I don't believe the external notes get sufficient attention. I don't believe I have time to design interesting lectures/tutorials. I find WebCT is very time consuming and that in itself eats into my overall workload (more so than face to face teaching).

In the light of these comments, it is interesting to view respondents' job satisfaction ratings in each of the broad areas of responsibility (Figure 3).

Figure 3. Academic staff job satisfaction ratings in each of the five broad areas of responsibility, Faculty of Rural Management, The University of Sydney, 2002.



One survey question asked staff to give a separate satisfaction rating for each of the five components of their academic workload. (Category (iv) in figure 2, 'Other,' is split in Figure 3 into the separate areas of professional development and consultancy.) For each work category, staff rated their satisfaction as 5) consistently high; 4) OK most of the time; 3) fluctuating more than I'd like; 2) low most days; or 1) consistently low. Note that missing individual ratings indicate where ratings were not given. The chart reveals elevated frustration levels amongst staff in terms of meeting their individual goals in five areas of responsibility. Inferring the ratings as a kind of gauge of frustration is reasonable when interpreting them in the light of comments quoted in Table 2. While 11 may not appear to be a large number of respondents, it nonetheless represents a 40 per cent response rate. These results do not demonstrate a direct association between concern about increased workload and concern about capacity to support online distance learners. At this stage of our investigation, our hunch is that the overall pressure of academic life does effect one's teaching effectiveness, including the quality and quantity of the learning facilitator's individual interaction with learners.

Conclusions

We will now draw together the twin themes of this paper: 1) the importance of human support of online distance learners; and 2) the effort required from the learning facilitator to do this; and the difficulties that busy academic staff face in maintaining such high-level input into the distance teaching/ learning activity system. Both themes were developed with reference to operations within the authors' institution.

Human Support for the Online Distance Learner

Australian universities have been encouraging their staff to make more use of ICT for educational purposes. However, it is easy to become enchanted with technological developments and forget the human factors associated with learning. It is paramount that educators develop implementation strategies whereby they make use of ICT to engage with their students and create effective collaborative learning environments. Attention needs to be given to how the social dimensions of learning relate to curriculum issues.

Despite Lentell's (2001) concern that tutors in distance education remain unrecognised and unheralded, little doubt remains that tutors can build positive relationships with their distance students via regular, personable and committed use of ICT. The case study discussed in this paper shows that this approach clearly can have value for students who avail themselves of ICT, and can be rewarding for staff who enjoy the challenges of teaching in a university distance learning environment. The survey of students referred to in this article revealed that students felt that they mattered to the lecturer, benefited from intervention, and perceived their bonds with the institution as were strengthened. The quality of the distance education experience for these students was elevated.

An outcome of having more satisfied students is that the university can enjoy the consequent advantages of stronger student/ university bonds. It also appears that the social bonding that can develop between students and staff may lead to higher completion rates. By taking a personalised approach when using ICT, the tutor's involvement with each student can have a positive influence on study activity and perseverance.

To create and administer intensive online support that achieves high completion rates can be demanding on the tutor's time. Unfortunately, as Rocklin (2001) points out that university teachers are unlikely to be able to devote more effort to their teaching than they already do. Thus the realities of contemporary academic workloads will likely limit the capacity of many tutors to provide the commitment required for the kinds of learning enhancements outlined in this case study.

Rewards for those who are able to make such commitments can result in more satisfied learners and higher persistence rates. For the tutor to spend the time needed to connect with (absentee) students, utilising the technological tools to build and maintain bridges with students, requires considerable commitment.

Supporting the Online Learning Facilitator

The survey of staff and the faculty workload statistics point towards a situation of stress for many university academics in Australia. Such information tends to support the assertion that increased workload can have a negative effect on learning facilitators' ability to provide the levels of human support that online learners seem to need. A national study of academics has reported on an increase in perceived levels of stress, and one of the major contributing factors was adjusting to teaching with new technologies (McInnis, 2000). In a more recent report, Baldwin and McInnis (2002) examine the need to relieve academics of "the increasing demand on their time of providing academic support for students" (p. 45). For the busy learning facilitator, every minute spent in one-to-one dialogue with an online learner or in monitoring patterns of student engagement is one less minute available to write a report, confer with a colleague, or conduct research. The impression derived from this account is confirmed from the authors' own experience that work pressures can be difficult to cope with. Difficulties of the job in an institution at times can induce feelings of debilitation. When academics are in that mood, how do they then cheer up distance learners who are feeling discouraged?

The second theme of this paper, namely the difficulty for university academics in maintaining human support of distance learners, is relevant to the first theme. –Although online learners' need for such support, online learning facilitators can only give so much to students from the spring waters of their own wellbeing. Unless all players in a human activity system possess sufficient energy to sustain their inputs into the activity, their input will be scaled down, weakened or terminated. On the basis of our institutional context, we have highlighted the twin risks are *dropout* by students and *burnout* by academics. While we have not directly addressed these two extremities of system breakdown, we have explored some of the early warning signs of both. They are themes we will continue to explore and report on.

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Bridges to Effective Learning through Radio

Usha Chandar and Ramesh Sharma
Indira Gandhi National Open University
India

Abstract

Indira Gandhi National Open University has been allotted 40 FM radio stations from which to broadcast educational programmes for the benefit of students and general public in India. These FM radio stations, delivered through the Gyan Vani network, cater to learners seeking to gain knowledge in the areas of basic, primary, higher, and extension education. Radio programming covers various subject areas. It is anticipated that the opening of India's airwaves will prove beneficial to the nation's general population, thus fostering the democratising principals of empowerment, advocacy, and community participation. This study examines the results of a survey conducted to obtain feedback from a representative sample of the Gyan Vani network's projected audience. The survey focused on audience's perceived need for a radio channel dedicated exclusively to educational programming; it also provided an opportunity for respondents to suggest possible programme content and formats. Respondents, in general, indicated that they looked towards the network Gyan Vani to fulfil personal and educational goals by offering certified vocational courses, coaching for entrance exams, updated information on careers, courses, etc.

Keywords: Gyan Vani; radio for education; India; survey

Introduction

The establishment of the Indira Ghandi National Open University (IGNOU) in 1985 was an important milestone in India's educational history. Through the use of open and distance modalities, IGNOU currently provides an array of educational options to those desiring to improve their qualifications and upgrade their academic skills. By design, IGNOU establishes a direct bridge between education and vocation, thus extending the scope and reach of higher education to underprivileged groups and individuals, many of whom reside in India's remote and rural areas.

IGNOU's mandate is to provide higher educational opportunities to one and all, a principle that acts to democratise higher education in India. In its effort to provide student support services and to deliver open and distance programmes, IGNOU has developed a diversified delivery system comprising a vast physical network of regional study centres. Reflecting differences in the needs of learners and the didactic nature of the programmes, different types of study centres have been developed. IGNOU's institutional network is further augmented through the use of such electronic media and computer networks as: radio, television, cable TV, audio/video cassettes, CD-ROMs, Internet, interactive systems (one-way-video/ two-way-audio teleconferencing) and

interactive radio counselling. In this educational mix, radio is an important medium that helps support students studying at a distance, as well as those generally interested in expanding their knowledge.

Radio for Education

Radio has been used in different formats for educational purposes the world round. Radio technology was first developed during the late nineteenth century and came into popularity as an educational medium during the early twentieth century. Although often overshadowed as educational medium vis-à-vis other technologies such as television, radio remains a viable medium that has proven educational worth in terms of both pedagogical importance and geographical reach. Radio is capable of delivering high quality educational programming to highly diversified audiences located across broad geographical expanses – all at a low per unit production cost (Couch, 1997). Studies conducted by the Open University UK have demonstrated that, when used as a supplementary learning tool, radio benefits weaker students (Tripp and Roby, 1996). The Agency for International Development has shown radio to be more cost-effective and capable of exerting greater learning effects than textbooks or teacher education (Tripp and Roby, 1996). Radio has the advantage of permitting the teaching of subjects in which classroom teachers are untrained or lacking certain knowledge sets. Another benefit for multi-grade classroom use is that radio can provide instruction for one group of students, whilst the teacher is occupied with another. Radio can also bring new or previously unavailable resources into the classroom, thereby greatly enhancing student learning (Muller, 1985). As a medium that can be listen to in the privacy of one's home or room, radio is often the preferred choice for those seeking information on culturally taboo topics such as HIV/AIDS or STDs.

Jaminson and McAnany (1978) report three main advantages of radio: (1) improved educational quality and relevance; (2) lowered per student educational costs; and (3) improved access to education, particularly for disadvantaged groups. Some limitations of radio for educational purposes are that it inherently lacks interaction; instructor feedback and clarification are generally unavailable; instruction cannot be interrupted or reviewed by students (unless it is tape-recorded); the pace of the lesson is fixed; note taking is difficult for some; and time for reflection is minimal. To overcome these drawbacks, preparation, supporting materials, and follow-up exercises are recommended when possible (McIsaac and Gunawardena, 1996). Below are a few points made by the many academics that have researched the use of radio for educational purposes:

- Byram, Kaute, and Matenge (1980) reported on the use of radio for civics education in Botswana.
- Muhlmann de Masoner, Masoner, and Bernal (1982) described the use of radio in Columbia for various educational subjects.
- Ray (1978) revealed radio as effective in promoting improvements in farming practices and production in Guatemala.
- Long (1984) reported the use of radio in India for rural development.
- Kinyanjui (1973) found radio to be a supportive medium in Kenya correspondence courses.
- Ouane (1982) described use of radio in Mali for literacy training.

- Ginsburg and Arias-Goding (1984) examined use of radio for literacy training and other programs in Mexico.
- Cooke and Romweber (1977) found radio was used in Nicaragua for health education.
- In Nigeria, Shears (1984) reported radio being used for management courses in the agriculture sector.
- Academy for Educational Development (1979) described radio being used in Paraguay to offer primary school instruction.
- Cooke and Romweber (1977) reported adoption of radio in the Philippines for nutrition education.
- Park (1967) reported radio in support of family planning in South Korea.
- Academy for Educational Development (1980) reported use of radio in Sri Lanka to promote family planning and health education.
- Byram and Kidd (1983) reported using radio for public health purposes in Swaziland.
- Galda (1984) reported use of radio in Thailand to teach mathematics to school children and Faulder (1984) reported its use for teacher training and other curricula.
- White (1976) reported adoption of radio in the Dominion Republic to support primary education.
- Saettler (1990) revealed that the University of Wisconsin and the University of Minnesota received licenses to establish educational radio stations in 1922.
- Gueri, Jutsun, and White (1978) reported use of radio in Trinidad and Tobago to promote knowledge of breastfeeding.

Radio for Educational Purposes in India

Vyas, Sharma and Kumar (2002) reported some major educational radio projects in India:

- The School Broadcast Project was commissioned in 1937 to focus on elementary school students.
- Adult education and community development project (Radio Forum: 1956), served residents of 144 villages in the vicinity of Poona, Maharashtra state, which were the main beneficiaries.
- Farm and Home Broadcast Project, which commenced operation in 1966, targeted farmers and those living in rural towns and villages.
- University broadcast project, launched in 1965, targeted university students.
- Language Learning Programme, launched in 1979-80, provided instruction in Hindi as a first language to school aged children.

- IGNOU-AIR (All India Radio) was launched in January 1992 in collaboration with IGNOU, AIR stations of Mumbai, Hyderabad and Shillong. IGNOU-AIR broadcasts IGNOU educational programmes to serve students enrolled in both open and conventional universities.
- IGNOU-AIR Interactive Radio Counselling, launched in 1998, targets university students enrolled in both conventional and open programmes of study.
- Gyan-Vani, India's first exclusive educational FM radio network, was launched in 2001 to serve a target audience of university students enrolled in both conventional and open programmes of study.

Vyas, Sharma and Kumar (2002) also reported on an experiment of radio-vision technique (*Multimedia through Digital Radio*) carried out in 1975-76, by India's National Council of Education Training and Research as one of its multi-media components for inservice teacher training purposes.

In their evaluative study focusing on interactive radio, Bansal and Choudhary (1999) reported that radio holds great potential in terms of supporting students who are learning at a distance. The first course of study to use interactive radio as a mode of distance education delivery was a radio project targeting students enrolled in IGNOU's Management and Bachelor Preparatory Programme. Students enrolled in this pioneering effort reported that the interactive radio sessions proved effective in helping them achieve their coursework objectives. Students enrolled with other institutions and the general public also participated in these interactive radio sessions; these two groups reported interactive radio as an 'interesting experience.' Significantly, the Management and Bachelor Preparatory Programme students also registered a higher rate of participation using interactive radio, than during teleconferences and even face-to-face sessions.

Karim, Kama, and Islam (2001), investigated the role of radio and TV programmes used in distance open learning system at the Bangladesh Open University. They reported radio and TV programmes guide learners on how to use the courses, and offer adequate explanations of concepts.

Sukumar (2001) undertook a study of interactive radio counselling as practiced in IGNOU. He found that radio counselling provides an excellent opportunity for learners in remote areas to raise concerns, ask questions, and generally interact directly with teachers/ speakers. Interactive radio counselling also provides an opportunity for the general public to connect with speakers, thus adding a new and enriching dimension to the general publics' learning experiences. Sukumar's study also revealed listeners considered radio counselling as both popular and effective.

Times News Network (2003) reported the finding of a study conducted by A. C. Nielsen, called the Radio Audience Measurement (RAM). The RAM measured radio listener-ship ratings in Mumbai (India), which found that since the launch of private FM radio in India, the number of people tuning into radio has increased steadily. An earlier report of RAM (June, 2002) indicated that nearly 42 per cent of Mumbai's population tuned into to FM radio. RAM's current report (2003) shows that 72 per cent of the population of the area now listen to FM radio stations. The report surveyed over 2000 listeners using the "Day After Recall Method." In sum, the RAM study revealed that listeners regard FM radio as an increasingly popular medium.

India's government has allotted certain frequencies in the popular FM band for educational purposes. The anticipated results are that the increased availability of knowledge and information will reach and benefit all sectors of Indian society – including illiterate populations. With UNESCO support, IGNOU conducted an experiment in 2001 that led to the evolution of the concept of 'Radio-Vision' or 'Home School.' The multi-site, multi-partner pilot experiment explored innovative applications of satellite based digital radio broadcasting systems (Asia Star of WorldSpace) primarily for distance learning purposes. A feasibility study was thus designed and conducted using the same new satellite digital technology in distance learning. Sreedher (2002) reported successful transmission of such media in terms of hyper-linking and downloading multimedia courseware, conditions that lead to cost effective transmission and distribution of audio-visual courseware. Dikshit (2002) suggested using terrestrial FM radio transmitters in conjunction with satellite radio transponders to enable the global distribution of local content. For more details, please visit: <http://www.ignou.ac.in/unesco/unesco46.htm>.

Another use for FM radio (e.g., teaching tool) has been the recent introduction text data transfer technology delivered and received via computer networks (e.g., students' tool). In short, the introduction of this new technology creates a new radio/ text environment. The convergence of radio with computer technology now allows students to send and receive text messaging to the radio station, a dynamic which greatly enables and enhances student learning using low cost FM radio delivery technology. Chaudhary (1996) described an experiment using radio-text at Yashwant Rao Chavan Maharashtra Open University, Nasik, India. In his study, he revealed high satisfaction (more than 80 per cent) among learners using radio-text technology.

Gyan Vani: Current realities and future direction

The Gyan Vani educational FM radio network, which was launched in 2001, will eventually comprise of 40 Stations linking various cities and towns across India. Gyan Vani will broadcast approximately 43,800 hours of educational programming per year. Currently, six FM radio stations are now operating at Allahabad, Bangalore, Coimbatore, Lucknow, Vishakhapatnam, and Bhopal. Gyan Vani's radio network is slated to expand in phases, thus incrementally expanding its educational reach to all parts of the country.

Gyan Vani FM radio uses 10 Kw stereophonic FM transmitters capable of emitting a broadcast footprint with a radius of about 60 Kms, enough to cover an entire city or town plus its surrounding suburbs. In terms of technology, FM radio stations are usually fully digital and operated by professionals. Representatives of educational organizations, colleges, training institutions, universities, professional institutions, NGOs, government, and quasi-governmental organizations are expected to contribute to the programming content of public radio, primarily in the form of pre-recorded programmes, or through participation in interactive radio sessions. Thus Gyan Vani radio FM is positioned as an ideal medium for fulfilling local educational, developmental, and socio-cultural aspirations and needs.

Gyan Vani: A cooperative model

Gyan Vani's mandate is to carve out an identity that is both unique and distinct from India's other radio broadcast interests. It achieves this employing a decentralized managerial approach and philosophy. Each station has been given a measure of autonomy; its programming and delivery of localized content is guided by a local steering committee consisting of different community stakeholders. Gyan Vani's central office assumes responsibility for policy planning, monitoring,

budget, and administrative support. The suggested cooperative model envisages 60:40 programming ratio, a mix representing the following educational and social sectors:

- Serva Shikha Abhiyan
- Primary and Secondary Education
- Adult education
- Technical and vocational education
- Higher education
- Distance education
- Extension education
- Indian ministries such as Agriculture, Environment, Health, Women and Child Welfare, Science and Technology, etc.
- NGOs
- United Nation agencies

Each partner receives between one to two hours of broadcast time daily. Subsequent resource mapping and audience profile studies examining all 40 centres' broadcast needs will be undertaken with the help of established institutes and social sector stakeholders. Key stakeholders will collaboratively shoulder responsibility for periodic monitoring, reviewing, and evaluating content.

Gyan Vani: Vision statement

Gyan Vani's vision is to be an interactive, participatory, educational initiative that bridges the gap between those who are educationally privileged and those who are deprived (ERT Unit, 2001). Using radio as a medium to disseminate information and facilitate communication, Gyan Vani promotes the development of community values and establishment of a learning environment in Indian society. By facilitating the ideas and ideals of public participation, it seeks to empower India's people, particularly those who are disadvantaged. Its mission is to overcome the social burdens of illiteracy and other disadvantages in the learning domain through the use of modern interactive communication technologies. Ultimately, Gyan Vani strives to revive indigenous knowledge systems premised on rich oral traditions, culture and heritage. To achieve this objective, Gyan Vani will be building larger and nation-wide collaborations, whilst at the same time strengthening local level partnerships.

How does Gyan Vani Differ from All India Radio (Air)?

1. How Does Gyan Vani'S content/ programming differ from All India Radio (Air)?

Gyan Vani will only broadcast relevant educational and information programmes, with the underlying goal of enhancing listener's specific knowledge sets.

2. Does Gyan Vani reach different audiences?

Although on a technical level, Gyan Vani can reach the same audience as AIR, it's programming content is strictly aimed at educating individuals interested in particular subjects or programmes of study.

3. Does Gyan Vani have goal or agenda different from Air?

While AIR has a goal of education, entertainment, and information, Gyan Vani also has a goal of bringing interactive education into the homes of listeners.

The Survey

A survey was designed to obtain feedback from a representative sample of Gyan Vani's projected listening audience. Respondents were asked about their real or perceived need for a radio channel designated exclusively for education purposes. Respondents were also asked for suggestions about programming formats. The survey was conducted over a two-month period spanning May to June 2001, prior to the launch of the Gyan Vani station at Coimbatore. It must be noted that the study has limitations in terms of scope, sampling size, and details. However, the results may be considered suggestive of general trends.

A sample of 47 respondents was selected to avoid gender bias. Care was also taken to choose a sample that is representative of all learner- and socio-economic groups. The sample was limited and drawn from a geographic area within the radius in and around the Tamil Nadu Agricultural University campus at Coimbatore, the proposed site of Gyan Vani's first and main broadcast centre.

Objectives

The objectives of the present study were to:

- Analyse media consumption habits of viewers in relation to print media (e.g., newspaper), radio, and television
- Seek viewers' perceptions of the need for an exclusive educational radio channel
- Obtain viewers' opinions as to whether FM radio is an appropriate medium for Gyan Vani programming
- Ascertain what function radio holds in listeners' daily lives
- Determine aspects of viewers' lives that are influenced by radio programming
- Obtain listeners' suggestions relative to delivery formats for educational programming
- Obtain listeners' opinions on the most appropriate times for certain types of educational broadcast programming
- Seek suggestions for improvement of Gyan Vani programmes in terms of topics/ themes, presentation/ anchor style, levels of interactivity, and duration of programming, etc.

Technical Configuration of Gyan Vani at Coimbatore: Getting there from here . . . Gyan Vani shares the existing infrastructure of All India Radio (AIR), specifically the serial mast, antenna system, feeder line, and office space in the transmitting centre. An existing studio with a dedicated transmitter link is also shared with AIR. Since Gyan Vani was able to share and leverage AIR's existing infrastructure, the radio station was online sooner and at a lower cost than would have otherwise been possible. Nonetheless, some technology was procured separately. The new state-of-the art 10 kw FM transmitter, with 40 individual 300 watt amplifiers, diplexer, and audio workstations used for Gyan Vani's broadcasts were purchased specifically for the network. Even if two or three amplifiers crash, the system will still broadcast signals at a strength of 1 Kw to 10 Kw. In case of breakdowns or scheduled maintenance, this transmitter can be serviced

simultaneously during broadcasts. “Diplexer” technology that links both AIRs and Gyan Vani’s transmitters, ensure the two signals do not interfere with each other.

In terms of audio workspace, another partner institution’s infrastructure, the GRD College of Science, was also leveraged and used. For programme linkage, specifically from audio workspace (GRD) to transmitter (AIR), a pair of non-exchange lines were procured from Bharat Sanchar Nigam Ltd., a state owned telephone agency. From the AIR studio to transmitter, AIR’s existing studio to transmitter link is currently being used. However, from a technical standpoint, this choice is proving to be problematic on two fronts: (1) the technical quality of non exchange-lines are usually poor and tend to fail; (2) little spare capacity remains on AIR’s current studio to transmitter connection, which means Gyan Vani’s broadcasts are currently susceptible to breakdowns. To overcome such technical problems, an independent studio-to-transmitter is being planned for future installation.

Although Bharat Sanchar Nigam Ltd., the state owned telephone agency mentioned previously, has signed an agreement to provide the necessary bandwidth to Gyan Vani, it regrettably does not have enough high-level bandwidth capacity at this time to deliver the levels of interactivity Gyan Vani hopes to achieve. Indeed, Bharat Sanchar Nigam Ltd., whose overall service is reportedly poor, has yet to provide other basic services such as hotline telephone links. Due to these infrastructure constraints, Gyan Vani’s current broadcast quality is poor, and as such listeners can only receive mono-mode FM signals at this time. And although ISDN technology to increase bandwidth is being investigated, a temporary stopgap measure has been employed to continue Gyan Vani broadcasts in the interim. Currently, Gyan Vani uses a UHF link, telecommunication technology designed for such purposes as walkie-talkie type communication used by police, ambulances, etc. Although such technology is admittedly inferior, the fact remains that it does avoid such inconveniences as frequent travel to and from GDR to AIR, etc. Moreover, it is also the only currently available alternative if and when a programme link fails. To complicate matters, because there is no power backup (e.g., diesel generator) for Gyan Vani’s transmitter at this time, power failures also interrupt programming.

AIR’s staff are currently handling Gyan Vani’s technical operations in addition to their regular AIR-related workload. As a result, monitoring of signals by AIR staff is not currently possible. IGNOU is, however, compensating AIR staff via the payment of rental and technical service fees. Thus, in simple terms, both technical and infrastructure continue to plague Gyan Vani, but temporary stopgap solutions are being implemented until more permanent ones become available.

Methodology

To collect relevant data, a questionnaire was developed by incorporating and measuring different variables as defined in Gyan Vani’s objectives. Basic demographic information on the respondents was also elicited through the questionnaire.

Survey Findings

The findings are presented under three separate sections: (1) demographic profiles; (2) media consumption habits for print, radio and television; and (3) suggestions for improvement of Gyan Vani programming.

1. Demographic Characteristics

The findings relate to respondents' gender, age, educational level, and monthly combined family income. The survey sample was fairly representative with respect to gender. Of the total of 47 respondents, 23 (49 per cent) were female, and 24 (51 per cent) were male. The majority (62 per cent) of respondents were youth between 13 and 21 years of age and enrolled in either senior secondary or higher education. Average monthly combined family income of those surveyed was below Rs.5000.

2. Media Consumption

Respondents were asked to indicate whether they subscribe or read newspapers, listen to radio, or watch television. They were also asked how frequently they 'consumed' such media. In the data analysed, there were overlaps indicating that many respondents consumed more than one media. About 83 per cent of the respondents reported consuming print media. Of total respondents, 37 (79 per cent) subscribed to newspapers. The remaining 10 respondents (21 per cent) reported that they did not subscribe to newspapers, but instead read them at shops and public places.

Respondents were asked about their radio-listening patterns. About 55 per cent of respondents surveyed reported that they were regular listeners of radio (26 respondents). This included 11 (23 per cent) respondents who listened up to half hour per day. Two respondents reported listening to radio up to one hour per day; four up to 1.5 hours per day; seven more than two hours per day; and two more than 8 hours per day. Eleven respondents (23 per cent) reported they listened to radio occasionally. The main reason cited for 'not listening' was that some owned no radio sets; whilst others listen only to news, music, or cricket commentary, during power cuts when other forms of electronic media were not available. Ten (21 per cent) respondents reported they were non-listeners, even though some owned radios. Twelve (26 per cent) respondents indicated that they preferred to listen to radio alone; however, of this group, some reported that they are forced to listen to radio with their family, usually because only one radio set was available in the household. A significant number of respondents (51 per cent) reported that they preferred listening to the radio with their family and friends.

When asked about their television viewing patterns, 89 per cent of respondents reported that they watch television. Forty-two respondents (89 per cent) indicated they watch television regularly; one did not own a television set; whilst four reported that they only watch television occasionally.

When asked about a radio station devoted to educational programming, the majority of respondents indicated approval, a finding that tends to support the need for such educational broadcast service. Some interesting figures emerged when respondents' opinions were sought regarding appropriateness of using FM radio technology for GyanVani broadcasts: only 34 per cent indicated a positive response. Nearly half of those surveyed did not in favour the use of FM radio; however, these respondents were unaware of the concept of FM radio. A significant number of respondents (e.g., those who had previously indicated that they were non-listeners) preferred to remain silent on the subject.

Generally, respondents viewed radio as a news source domestically (inside India), and foreign (outside India). Twenty-three per cent felt that radio helps them to relax and unwind, whereas 13 per cent indicated that radio was strictly used for leisure. Seventeen per cent said that radio helps them to concentrate on their studies or work.

Respondents were asked to recall at least one aspect of their life that was influenced by radio. More than half (55 per cent) indicated bulletins on local issues such as railway arrivals and departures, and load shedding, as important information that directly influenced their lives. Nineteen per cent reported that radio improved their general knowledge, whilst 11 per cent indicated that it provided tips on good health. Radio also increased respondents' general awareness in terms of job or career opportunities, good agricultural practices, moral values, entrance examinations, etc.

Respondents were asked for their views about the most appropriate times for educational broadcasts. Although preferred listening times varied according to students' schedules, the evening slots clearly emerged as prime time for radio programming. And whilst the sample was primarily aimed at gathering information from youth and learner groups, older adult respondents were keen to voice their views and wanting to be heard. They reported having a passion for music and noted that FM radio is particularly suitable for such programming. They were also nostalgic about radio as a medium, many preferring to listen to radio news broadcasts. Other respondents indicated a preference for radio for educational content delivery. Clearly, radio must cater to the educational needs of all age groups including those starting new careers in mid-life, learning new skill or hobbies, or retirees.

3. Suggestions Provided by Respondents on Various Aspects

Respondents were asked to offer suggestions on Gyan Vani's educational programming. 'Discussion' was the most suggested form of programming (43 per cent), followed by 'quiz show' programming (40 per cent). Respondents also indicated their preference for 'lecture' and 'docu-drama/ edu-tainment' programming. Eleven respondents (23 per cent) did not offer suggestions.

When asked to suggest improvements to improve the Gyan Vani programming, the majority indicated a preference for general knowledge programming. However, such response can best be understood in terms of respondents' age vis-à-vis their response. Most respondents surveyed were in the career building stage of their lives, and thus indicated a desire for more general knowledge to help them prepare for work related competitions. Hence, there appeared to be an overriding preference for technical and vocational programming, information technology, and general science programming. Overall, respondents indicated less preference for programming related to teacher training, engineering, and electronics.

Sixty-two per cent indicated that 'interactivity' as a necessary programme feature. Phone in programs and panel discussions were the most-commonly suggested forms of interactivity cited by respondents.

In terms of the actual duration of Gyan Vani programming content, one-hour long time slots were preferred by 30 per cent of those surveyed. Twenty-six per cent indicated a preference for half-hour programming. Eleven per cent indicated a preference of programming ranging between half to one hour long. Programming of shorter duration (e.g., 15 to 30 minutes) was generally not favoured. These findings suggest that the majority of Gyan Vani's programme content should be one hour in length. Nonetheless, to address other audiences listening preferences, programmes of differing lengths should be broadcast during other time slots that match and maximize that particular audience segment's needs and attention.

Other Suggestions Given by Respondents:

- Feedback on Gyan Vani programming should be solicited via letters, telephone calls, and email
- Some suggested that students be allowed to host presentations and programs; however, most indicated their preference for subject matter experts to anchors and moderate programming
- Some offered this interesting remark: “Don’t label the channel as ‘educational,’ because it will put people off.”
- Most respondents said that they want to have a copy of Gyan Vani’s programming schedule at least one day in advance
- It was also suggested that small capsules of curriculum information would be beneficial for some listeners
- Specialised vocational skill courses (e.g., construction and tailoring) are preferred over general ones

Conclusion

About 83 per cent of those surveyed indicated that they were currently consuming print media. Fifty-four per cent listened to radio regularly. Eighty-eight per cent watch television. Overlaps of media consumption are indicated, as many respondents used more than one media. When asked, 44 per cent were not aware of FM radio technology, even though they were radio listeners. When asked about the role radio plays in their daily life, 50 per cent of respondents indicated they received information (e.g., domestic and global events) that influences their lives, whilst 25 per cent indicated they primarily used radio for learning purposes. In general, respondents were clear in providing suggestions for time slotting, duration, format, programming, style, themes, and content. Such inputs suggest educational radio will likely be popular and useful for those living in and around Coimbatore, thus providing a fertile test-ground for educational and broadcast content development.

Equally important, respondents were clear that they did not want advertisements or ‘fancy’ anchors to host educational broadcasts. Instead, respondents were generally looking towards Gyan Vani programmes to fulfil both personal and defined educational goals (e.g., certified vocational courses, coaching for entrance exams, current information on careers, courses, etc.)

Radio has made a comeback and clearly it influences the lives of people of all ages in many ways. Radio enhances learning and provides information on various issues critical for making daily decisions. It can even be used for entertainment purposes. And because it does not have the visual distractions of television, which requires one’s eyes and ears to both be engaged, low-cost educational programming can form an informational/ educational background that can complement household, manual, and academic work. In short, radio can complement more traditional forms of educational delivery.

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April – 2003

Book Review

The Strategic Use of Learning Technologies

Editor: Elizabeth J. Burge (2000). *The Strategic Use of Learning Technologies. New Directions for Adult and Continuing Education*, 88. 105 pages. Paperback. San Francisco: Jossey-Bass. ISBN: 0 7879 5426 8.

Reviewed by: Wim Van Petegem, Director of AVDienst/ eLINK, Katholieke Universiteit Leuven, Belgium

The editor defines the term *learning technology* as “any tool that requires informed design and appropriate use in order to enhance an adult’s ability to learn – i.e., to enhance the use of various information processing strategies and learning activities alone, with peers, and with appropriate advisers and educators.” With this definition in mind, all authors focus their contribution on learners and learning services or activities as key issues – not technology as such, but the *use* of technology for learning purposes. So far, the title covers the contents of the book. Unfortunately, from my perspective, the book falls short of explaining or offering more insight in the *strategic* aspects.

Chapter 1 gives readers an overview of learning strategies for adult learners, with different learning goals. Six guiding principles are proposed to link learning strategies with learning technologies by providing [course] design components that activate, mirror, and support strategies for effective learning. These principles guide course developers, adult educators, and distance teachers in designing courses for adult learners, but they do not completely address the important question of “how to connect learning strategies with learning technologies.” Nevertheless, I agree with the author that “the challenge of teaching with technology is to create a learning design that cues and supports the full repertoire of learning strategies.”

In Chapter 2, the authors explain what learner services are, ranging from information and advice at registration, to coaching during actual study, up to career guidance after completion. What formerly has been done in person, now can be supported by using information and communication technology (ICT). This is illustrated with the example of a ‘Learner’s Guide’ partly online. Advocating a cautious approach, ICT is considered not as a replacement, but rather as an additional resource for supporting learner services, which are expected by adult learners.

Chapter 3 addresses the issue of literacy. The introduction of learning technologies in adult education implies a new set of literacies – i.e., information literacy (mastering the information-seeking process), combined with new abilities called cyber-literacy, electronic or e-literacy, or digital literacy (with slightly different definitions). These multi-literacies are also referred to as critical literacy – i.e., skills that enable adult learners “into spaces of inquiry and learning that require engagement with the cultural and social dimensions of electronic technology,” a threat

and a promise combined, which together make an essential characteristic of information-literate learners.

The unintended effects of using learning technologies, as described in Chapter 4, are interesting and should be carefully examined. However, the examples given are rather far-fetched. Nevertheless, we should be aware that the introduction of ICT “into a social environment does not result in the same environment plus [ICT].” How to deal with unintended effects that cannot be anticipated is a difficult question.

Surprisingly two older learning technologies are described in Chapter 5 and Chapter 6: paper and radio respectively. Of course, we should not abandon those technologies, especially not in adult education. It was striking to read in Chapter 5, the remark that writing on paper helps learners to structure their ideas. From my own practice, I know that this statement also applies to learners using, for example, email and/ or word processors. Moreover, such learning technology tools include implicit help for learners by helping them structure their ideas by means of built-in style formats. So, the benefit of preferring paper to ICT is not entirely clear to me. Chapter 6 describes a new way of using radio as a learning technology. The author’s presumption is that “radio as a technology may be ubiquitous, [but] it needs a certain mix of professional skills to render it a successful learning technology.” She describes such strategic issues as the training of lecturers, cost aspects, intellectual property rights, and infrastructure. Resolution of these strategic issues could transform radio “docu-lectures” into workable learning experiences.

Chapter 7 tackles problems of professional development associated with overcoming resistance on behalf of adult educators to Web-based teaching. Issues and principles are presented for different types of reactions to the introduction of ICT in education, from early adaptors, over to majority followers, to late laggards. Rather than to address the specificities of learning technologies, especially the Web as announced in the title of this chapter, the solutions offered are more or less generic to all forms of innovation. Note, however, the important role of librarians and “e-libraries” in this context: they should be proactively involved in developing information-literate Web users.

The underlying principles of learning and cognition are the same for all media and learning environments. Chapter 8 provides the guiding pedagogical vision of a constructivist or meaning-centred approach to learning and teaching via the Web: adult learners could constantly construct meaning. Justly, the authors mention the potential of the Web to “bring people together,” or, in other words, “to foster communication between (adult) learners and their peers or tutors, a variant of socio-constructivism.”

In the last chapter, the editor herself makes a selection of highlighted concepts from each chapter to create a holistic framework for reflective and strategic thinking about learning technologies. As a reviewer, I made my own selection above, in an attempt to constantly reflect on the contents in relation to the title. I believe that this book addresses many interesting aspects of using learning technologies. I believe that the reader could apply many of the ideas for his or her own purpose, be it in the context of adult learners or in a traditional classroom setting on campus. However, I found lacking strategic insights regarding the use of learning technologies, specifically a coherent plan or policy based on lessons learnt, and including the aspects and issues put forward in this book. The editor synthesizes her own view in a list of eleven themes for strategic thinking, which is certainly ‘food for thought.’ Perhaps, this was an ‘intended effect,’ because according to the

basic rules of constructivism, I have to constantly construct my own meaning, knowledge, and insight through reflection on these themes in my own professional situation.

Finally, I concur with the editor and the legendary Canadian literary scholar Northrop Frye: *'There are no answers, only more questions . . .'*



April – 2003

Book Review

The Costs of Open Learning: A handbook

Author: Thomas Hülsmann (2000). *Bibliotheks-und Informationssystem der Carl von Ossietzky Universität Oldenburg*. Oldenburg, Germany. Softcover. 150 pages, ISBN 3-8142-0724-6

Reviewed by: Ricardo Vanella, Director, Distance Learning and Virtual Education Department, in collaboration with Gabriela Milanese, Students Administration Manager of the Distance Learning and Virtual Education Department, Universidad de Belgrano, Argentina

Our Experience Part I

When I assumed the post as Director of the School of Distance Learning and Virtual Education in March 2000, my first task was to define a strategy to follow. In a context where trends indicated a dramatic increase in the application of new information and communication technologies used to support distance learning, there was a need for new institutional policies to provide a framework to support our activity. In short, I had to decide how to organize an academic unit to support distance learning. This task called for an analysis of all educational technologies available at the time, in order to develop the courses which were to be included in our educational offer. Costs were clearly an important consideration.

By recalling this three-year-old experience, I am now in a position to assert that, as stated by Hilary Perraton in the Introduction, Thomas Hülsmann's book is an effective tool for decision makers in the field of open and distance learning.

The Costs of Open Learning – Analysis of the Book

The first part of Hülsmann's book consists of five chapters. It proposes a methodology to carry out comparative cost analysis among the different technologies used to develop open and distance learning programs. These chapters provide a clear and detailed explanation of their use, their relation with quality and effectiveness in learning, and the difficulties found while interpreting the findings. Likewise, the last chapter contains interesting recommendations in its closing comments. Although the book's contents are basically technical, they introduce interesting issues that deserve theoretical analysis.

Chapter One describes and analyzes from a comparative cost perspective, four sets of teaching technology: print, sound (i.e., audiocassettes or radio), audiovisual communication (i.e., videocassettes, open circuit broadcasting, and closed circuit television such as videoconferencing), and computers. Providing key information for management decision-making, the author highlights the importance of considering the costs of these alternatives and the different ways such costs behave. The "student learning hour" has been chosen as a standard

measure to compare costs, and a distinction has been drawn between technology as (1) a resource media, and (2) as a communication media. In both cases, fixed and variable costs, and the reason why they behave differently, are analyzed.

The methodology of cost-effectiveness analysis and its use in an educational environment are explained in Chapter Two. In order to discuss the selection of media in an educational context, the authors analyze media capabilities and information costs. Their starting point for a quick forecast is the combination of teaching processes vis-à-vis the cost per student learning hour.

Chapter Three describes both conceptual and practical difficulties in applying these findings.

Applying the information and methodology described in the foregoing chapters, Chapter Four focuses on helping choose correct media for open and distance learning.

Chapter Five concludes with a consideration of reception costs and their implications for learners, as well as issues related to quality, effectiveness, access and equity.

The second part of the book presents eleven case studies funded by the European Commission's Socrates Program. The cases describe the experiences of educational institutions in several European countries and the USA, including: the British Open University and the Anglia Polytechnic University in the UK; NKS Fernundervisning in Norway; the Fachhochschulfernstudienverbund der Länder and the Centre for Distance Learning Teaching at the University of Oldenburg, in Germany; the Centre de Téléenseignement Universitaire of the University of Rheims, France; the Politecnico di Milano, Italy; the Catalan Open University in Barcelona, Spain, and the University of Maryland in the US.

Using a general approach to examine the information obtained from those institutions and their experiences, the methodology explained in the first part of the book was applied to the analysis of each of these case studies. Because the courses selected used a wide variety of technologies (from traditional print materials used until the advent of videoconferencing and computer-based teaching), the analysis of these case studies produced a wealth of helpful insights.

Our Experience Part II : Conclusions and Remarks

As we attempted to integrate diverse technologies in our own programs at the Universidad de Belgrano, we were required to make a 180 degree shift in the way our courses were developed, particularly in terms of prioritizing computer-base learning. Our ultimate decision was to maintain a varied media offer. And although social and economic conditions, as well as the state of technology development in our country influenced the decision to retain print material as one of our main resources, we also, had to consider the production, reproduction, and distribution costs involved.

In the light of our recent experiences and recent social and economic developments in Argentina, we have had to revise the decisions we made three years ago. We have considered several alternatives such as the delivery of material on the Internet, despite Hülsman's argument in Chapter One that such delivery transfers reproduction costs to students with consequences for the quality of print and permanence of students in the system. Similarly fruitful comparative analyses can be conducted of case studies of institutions with long track records in distance education

throughout Latin America, where managers responsible for making decisions must be constantly aware of changing conditions in this arena.

Although we agree with the author that it is essential to consider “both pedagogy and economics to justify the choice of one teaching medium rather than another,” we found that the pedagogical choices of particular media used to increase quality and to capitalize on specific strengths and capabilities, must often be tempered – and sometimes forced – by cost considerations. In other words, distance education managers must have a sound knowledge of how their programs can be affected by the current and variable economic trends and forecasts of the global economy.



April – 2003

Book Review

African Virtual University: The case of Kenyatta University, Kenya

Author: Magdallen N. Juma (2002). *African Virtual University: The case of Kenyatta University, Kenya*. 70 pages, softcover. Nairobi: African Virtual University, Kenya tan University. ISBN: 0 8509 2665 3

Reviewed by: Rashid Aderinoye, University of Ibadan, Nigeria

As was the case in most African countries, during period between 1970 and 1992 witnessed Kenya too witnessed a tremendous expansion in university education. In 1970, Kenya had only one university with a student population of 2,786. By 1991-92, there were five public universities with a combined student population of 40,000. Such increase has had great implications on capacity utilization, quality, instructional materials, facilities, and most importantly, access to university education. Astronomical increases in student enrolments reflect an insatiable demand for higher education. It is in this context that the rise of the African Virtual University is examined.

African Virtual University: The case of Kenyatta University is a forty-page book that succinctly examines the antecedents, objectives, courses, implementing strategies, student enrolments, and analysis of assessment. In 16 sections, it focuses on management, achievements, challenges, and the future of virtual education in Africa.

In her background information, the author says that the African Virtual University (AVU) was established to serve the Sub-Saharan Africa. Funded by the World Bank, the University's mission is to use the power of modern information technology to increase access to educational resources throughout Sub-Saharan Africa.

In her discussion of programme implementation, the author states that AVU pilot programmes were conducted in three phases: 1) the 1997-98 prototype pilot phase; 2) undergraduate degree programmes offered by universities worldwide; and 3) the offering of science and technology curricula by one or more partner institutions in Sub-Saharan Africa. In total, the book listed 27 institutions across Africa that have started AVU courses during 1998-99 academic year.

In a nutshell, this book enumerates those attributes that positioned the AVU as an open distance learning institution. Such attributes include the installation of equipment necessary for both live and pre-recorded instructional programmes, linkage with external institutions through INTELSAT, support to partner institutions in receiving digital satellite transmissions, and opportunities for 30 to 40 learners to engage in two-way interactive educational sessions.

This book describes the series of courses offered to the first 40 learners who participated in the three sessions pilot programmes. Detailed case studies cover enrolments, gender distribution, courses offered, Internet intervention, as well as an analysis of performance semester by semester. One thing that will fascinate readers is the graphic illustrations that accompany these detailed descriptions.

This book familiarizes readers with other programmes offered by AVU in the form of short computer courses, ranging from two weeks to one or two months in length and targeting civil servants, bank workers, university graduates, doctors, and school leavers – a target population that constitutes a major source of revenue for the AVU. In addition, pre-university programmes that prepare students for university degree courses are also touched upon.

The book also spotlights cost effective management principles associated with open distance learning. Examined is a mechanism in the form of a small nucleus of full-time staff supported by a number of temporary specialist consultants, whose role is to minimise operating costs. Such management techniques also help to maintain ties with partner universities.

In presenting the strategies adopted by the AVU, the author illustrates how modern technology may serve as a tool for the enhancement of learning. Apart from the curricula oriented learning processes aimed at on-campus students, other seminars are organized for the business community member, which are sometimes transmitted via video-conference live from the Virginia Technological Institute in the United States, in addition to those facilitated by the Economic Development Institute of the World Bank.

Juma also highlights the AVU's achievements in terms of the provision of educational resources, introduction of new courses, capacity building, income generation, increases in enrolment, and the digital library. She then focuses on the challenges facing university lecturers such as their need to adopt and become proficient in virtual teaching strategies, electricity interruptions, lack of a clear national communication policy, and slow Internet connectivity premised on narrow bandwidth.

In her closing section, the author informs readers of the mechanisms that AVU put in place during the operational phase, namely the training of scholars in curriculum development in core science courses, introduction of income-generation oriented courses, installation of Internet service provider (ISP), and establishment of a dynamic consultant section.

I have tried to present a concise view of the book, African Virtual University, highlighting some of its most noteworthy attributes. First, as revealed in the introduction, AVU was a timely intervention designed to widen access to formally exclusive higher education systems that must now strive to become inclusive. Equally too, the book shows the advantages of integrating ICT in higher education, and reveals how the teaching and learning process can become more cost effective – although the case studies presented in the book fail to explain the costs per student or how virtual education is being funded. Clearly, these are pressing issues, particularly when lean administrative structures are in place.

The book also demonstrates how a North-South collaboration among higher education institutions can contribute to development in the South, particularly when it is ICT driven. More importantly, the book shows that more work needs to be accomplished if Sub-Saharan African nations are to succeed in bridging the gap between poor and rich, particularly in the spirit of New Partnership

for Africa's Development (NEPAD), a programme of action conceived and developed by African leaders for the redevelopment of the African continent.

Because the book reports on the programme conducted as a pilot study 1997-98, rather than when the full operation took place in 1999, I believe it would have been more relevant if it had been published sooner than 2001. With the speed at which ICT changes, the programme itself needs to be reviewed in terms of how it now meets the demands of the 21st century. A section on how to best integrate ICT into open distance learning practices would also have been helpful, especially for African countries that already have established ODL systems reliant solely on print media.

In spite of this shortcoming, the book remains a pioneering examination of ICT-driven ODL in Africa. I recommend this book to all those who wish to explore the mainstreaming of ICT in African educational processes.



April – 2003

Book Review

E-Moderating: The key to teaching and learning online

Author: Gilly Salmon (2000). *E-Moderating: The key to teaching and learning online*. London: Kogan Page. 180 pages, softcover. ISBN: 0 7494 3110 5

Reviewed by: Dan Eastmond, Director of Learning Resources, Western Governors University

No one doubts that the Internet has permanently changed the face of higher education. One of the institutions to experiment, foster, and promote computer-conferencing from its inception through to current Web-based forms is the Open University of the United Kingdom (OU UK). From 1988, OU UK's few online offerings have grown to over 160 Web-based courses in which over 100,000 students participate. Having been a student-participant in one of these early courses back in 1992, I read with intrigue Salmon's description of this effort. I remember logging on from Syracuse, New York to the text-only online course with four e-moderators and 45 other participants scattered throughout the world – from Israel, Australia, Latin America, the United States, but mainly Great Britain. I recalled the frustration of trying to get connected to the conference at 1:00 a.m. with my 9600 baud modem, relying on a tech-savvy fellow graduate student to figure out the problems. What a thrill it was to upload and download messages to these threaded discussions located on a server hundreds of miles across the ocean, to ruminate throughout the day about the conversations I read there, and to return to the conference the next day to post my thoughts and to find responses to my contributions as our conversations unfolded.

A decade later, not only the OU UK, but also nearly every postsecondary institution in the developed world has launched hybrid courses, if not entirely distance degree programs. These are engaging new learners, usually working adults who can now access a college education from an institution located far away from their home. As a participant, instructor, e-moderator, trainer, and researcher, Salmon has been a major player in this Internet revolution. This superb book distills the lessons learned, particularly for faculty members, trainers, instructors, and facilitators who need to effectively move from traditional face-to-face modes of instruction in a classroom to the online world, an environment characterized by hearty peer interaction, learning communities, and knowledge construction. Salmon understands this world, understands how students and faculty make this transition, and furthermore how to move across that gulf to create and sustain successful online learning environments through e-moderating.

Salmon's field is business, where she has systematically trained over 400 e-moderators in several online courses for the OU UK, but the lessons learned from her action research apply to nearly all subjects within higher education. The first two thirds of the book lay out the most salient aspects of online instruction – from educational characteristics of the virtual environment and the software systems that support it – to issues surrounding training of e-moderators. The book

begins by reviewing the basics of online instruction, such as technical features of the network, the costs of this type of education, and online social and communication dynamics. Salmon adroitly weaves case examples and pertinent research into her presentation, which truly does give the novice a good feel for what this instruction is all about and reminds experienced online educators of the uniqueness of this learning environment.

The heart of the book is found in chapter two where Salmon presents a five-stage model for computer-mediated communication (CMC) in education and training. Based on her research over several years, the model progresses from the early concerns in stages one and two that learners have about technical skills and social relationships to later stages of learning. Early in the course, students are gaining access, becoming comfortable with CMC software features, introducing themselves to other participants, and forming impressions of others through initial interactions. Quickly, the e-moderator guides students to “information exchange” (stage three) about course topics, and then to the next level of learning, “knowledge construction.” At this stage, probably where most of the structured learning conversations occur, the e-moderator helps students engage together with the issues and process the information they encounter and mutually share. At the highest stage called “development,” students become responsible for their own learning, and taking over the direction of these conversations. Salmon asserts that the e-moderator’s role becomes more important as the conference progresses even though e-moderator’s control and domination gradually diminishes as the self-directed learners take over. Salmon admits that this sort of participant give-and-take is best suited to professional preparation for fields of practice where context, decision-making, and models need to be debated, challenged, supported, adapted, and dropped for students to become socialized into a field requiring expert judgment amid ambiguities.

An important table in the chapter outlines e-moderator qualities vis-à-vis various characteristics of the online environment. The major role, she posits, is for e-moderators to enjoin participants’ processing and “meaning making” for knowledge construction – not content transmission. The ability to guide online activities is more important than making polished instructional presentations. E-moderators are often part-time faculty, whose credibility comes from professional practice in their full-time employment (not from advanced research and scholarship about the course content).

From here, the book examines how e-moderators and participants should be trained and prepared to successfully engage online. Since e-moderators are to teach online, their training should be conducted in that same environment. She uses the same five-stage model to move e-moderators through this training; they progress from stage to stage by responding to initial questions, interacting, and concluding with reflective responses. The chapter includes actual conference contributions, distilling the essence of this training to the reader. Salmon writes: “teaching online needs careful planning and preparation, otherwise the stories will continue of e-moderators being overloaded, underpaid, and burnt out by their work,” since untrained e-moderators “take longer and do less well” (p. 56). She also considers the importance of monitoring e-moderator performance through online measures and supporting them through associated conferences while they conduct their first courses.

In describing participants in CMC courses, Salmon argues that all students are individuals, but that e-moderators should bear in mind the needs of certain types of persons: gender differences, those with a range of learning styles, various disabilities, lurkers, and those learning in a corporate training context. E-moderators must accommodate various learning preferences, be patient and respectful to all students – some of whom may have particular needs of which the

instructor is not immediately aware. Likewise, students also need an introduction to online instruction. In this orientation, they work through the five steps of the model online; many of the questions and discussion items adapted from e-moderator training.

While reading Salmon's work I reflected upon my own development as an e-moderator. First came the extensive qualitative research I conducted on distance Bachelor's degree seeking students taking online courses published as Eastmond (1995). Salmon outlines so clearly most of the aspects of effective learning environments that I discovered through phone interviews with students, email exchanges, and transcripts of computer conferences. However, it was not until I was approached by a graduate program to be an online instructor for its fledgling distance program that I formed e-moderating skills through the crucible of practice. Fortunately there were experienced faculty who understood the constructivist principles enjoined in Salmon's book: to allow the off-line textbook and readings be the lecture and to use the online threaded discussions to engage students in examining the implications and applications of those ideas, principles, and skills within the real-life contexts that they faced as professionals. These distance faculty members provided the sounding board on which to air the concerns I faced, working with students, and developing more effective Web-conferences. How helpful is the advice Salmon's book gives in providing this same sort of support to a faculty member who is going it alone in undertaking Internet courses! Perhaps more important is the book's usefulness for those who support faculty and administrators of tertiary institutions implementing online distance education.

Salmon ends the book with some 'star gazing' into the future of education transformed by CMC. Although the educational milieu will expand to a global scale, e-moderation must continue to address individual requirements. The workplace will more directly shape the university as it shifts from a repository of academic information to a supplier of capable employees at all organizational levels. The future workforce will be in continual flux as employees constantly upgrade their capabilities through continuing education. Online learners will need to become more self-directed, cooperative, capable information handlers, critical thinkers, and team players. The distinction between education and work activities will likely diminish as instruction becomes modular, "just in time," and competency-based, thereby fitted to individual needs. Institutions will change their modes of assessment to incorporate online activities, as well as address the "need for the valid assessment of the performance of larger numbers of learners at low cost" (p. 94).

Salmon claims that many traditional colleges and universities that cannot adapt to online modes of instruction will face extinction. Telecommunications will make it possible to build institutions around students rather than the geographic areas in which they are located physically (Susman, 1999 quote in Salmon, p. 90). She sees e-moderating becoming the key competitive advantage for new teaching and learning organizations that make this activity an integral part of their endeavors. Institutions that plan, sustain, and enhance this activity will thrive in the future.

However, as insightful, accurate and stimulating as this book is, I would have liked more information on how to implement new modes of distance learning. How can e-moderators support the modular study of students with different subject-matter requirements? What about students who come into and exit the online course based on individual needs and desires to slow the pace or accelerate their studies? Is the constructivism that Salmon professes always appropriate, particularly when outcomes are predetermined by the sponsoring organization and the participants themselves, as in a corporate training or competency-based educational environment? What about the development and sustenance of a learning community to span an entire degree program through e-moderating, not just the interactions of individual online courses? Salmon

does touch on these areas; however, her practical advice is toward implementing the familiar modes of postsecondary education. One issue she engages head on is the labor-intensive nature of e-moderated learning at course and institutional levels, suggesting practices to make this endeavor more cost-efficient.

The last third of the text contains “Resources for Practitioners,” twenty-two short items that aid in implementing key models and ideas presented in the text (e.g., “Using the five-stage model), to less central yet important activities (e.g., “Understanding Lurkers” or “Choosing a Software System for CMC”). Some of resources contain fascinating nuggets for imagination and reference. For example, Resource 20 contains a humorous, evocative account of a future manager’s day that can be used by e-moderators to collectively contemplate how their own roles might similarly evolve. Resource 21 offers many references about online journals, virtual institutions, online databases, and CMC software.

In conclusion, *E-Moderating* lays out a useful model for leading intellectually engaging, highly interactive, and effective online courses. This model makes sense and is grounded in Salmon’s extensive research and practical experience at the Open University of the UK, an immensely successful distance education enterprise. It clearly moves the novice towards assuming an expert role in leading online instruction. As seen in Part II, Salmon goes beyond the discussion of theory to give practical advice on implementation.

I was pleased to see numerous examples from other universities and training environments to exemplify key points. For example, Salmon shows how longer academic course can be adapted to a one-day asynchronous virtual seminar (pp. 48-49). The book also discusses common challenges; such as how many participants does an ideal conference take? An important contribution, the book moves learning institutions to consider, build, and affirm the role of e-moderator as essential in their evolution within the global information age. Salmon herself notes the dangers of star-gazing the future, but I won’t be surprised if her predictions about e-learning and e-moderating come true!

References

Eastmond, D. V. (1995). *Alone but Together: Adult distance study through computer conferencing*. Cresskill, N.J.: Hampton Press.



April – 2003

Book Review

Distance Learning Technologies: Issues, trends and opportunities

Author: Linda Lau (2000). *Distance Learning Technologies: Issues, trends and opportunities*. Idea Group Publishing, Hershey, PA. 252 pages, softcover. ISBN 1 8782 8980 2

Reviewed by: Chère Campbell Gibson, University of Wisconsin-Madison

Distance education continues to expand and colleges and universities strive to prepare professionals, including future faculty members, business trainers, industry, and the military, to work in distance education. Texts that focus on distance education, broadly defined, are few and far between. Even fewer focus on the technologies used, issues to be confronted, and opportunities to be afforded all within a breadth of contexts. It is from this perspective that this book was reviewed.

To be honest, the review of this book got off to a bad start. While the title of the book suggested a breadth of technologies would be discussed, the preface suggested otherwise with a lead off sentence that focused on the World Wide Web. The third sentence claimed that: “distance learning was pioneered at Stanford University more than 30 years ago . . .” – an assertion that ignored a mere 120 plus years of distance education in the United States and longer elsewhere! Nonetheless, the opening paragraph once again referred to distance learning technologies – plural – so there was hope for a comprehensive treatment.

Contrary to what one would assume from the cover, which suggests a sole author, the book is actually an edited book, consisting of 16 chapters divided into three sections. The editor suggests the first section “. . . provides the theoretical foundation of distance learning. . . ” the second section “. . . describes the conceptual aspect of distance learning. . . ” while the third and concluding sections “. . . provides five cases of practical implementation of distance learning.”

With a focus on the theoretical foundations, the first section begins with a chapter on constructivism, followed by a chapter emphasizing interaction, narrowly defined as learner-instructor and learner-learner interaction. Evaluation is the focus of the third chapter, followed by a comprehensive chapter on implementing corporate distance training using change management. Although this chapter focuses on the corporate environment, in my view, it would have made a better first chapter because it set the stage regarding the range of technologies, strategic planning, change management, and other major considerations that should be examined when implementing distance education. This section had a notable lack of connection to distance education theory or research. However, references were made to some relevant theory borrowed from cognitive psychology and classical instructional design.

With an emphasis on the “conceptual aspect” of distance learning, the second section contains seven chapters. The first chapter focuses on three strategies for using distance technologies in higher education, and emphasizes issues related to personnel, funding, markets, competition, fraud, and alliances. Written by the same authors, the next chapter discusses alliances. Several foundational chapters followed, focusing on the elements of a successful distributed learning program and essential conditions for successful online teaching and learning. Other chapters in this section describe a learning environment built on applications of technologies and Total Quality Management. Discussions of digital video in education and group decision support systems complete this section.

The final section presents five case studies that cut across sectors, from primary and secondary education to higher education, public and private, as well as business and industry. The national contexts for these studies include the United States and Egypt with both video conferencing and Web-based solutions highlighted.

The book was a challenge to read. In spite of the overview provided by the author/ editor, the order of the chapters seemed rather odd. The chapters focusing on theoretical foundations ignored existing distance education theory and failed to recognize seminal authors working in areas such as constructivism and interaction in distance education. Clearly unfamiliar with the literature of distance education, some authors sought to enhance their theory by building on sound applications of existing work, while others proceeded to formulate theoretical frameworks already in existence. Recognized by many as an early technology, the medium of print, with one exception, was all but ignored by chapter authors in spite of its considerable use alone or in conjunction with other media, including video- and computer-based instructional applications.

The chapters were also extremely uneven, ranging from superficial examinations to an in depth treatment of important issues, to assertions without supportive documentation and zero references to positions reinforced with current literature or Web-based resources and references that have informed the thinking and writings of the author(s). While the topic of distance education is an important one, and the technologies, issues, trends and opportunities related to teaching and learning at a distance are important to understand, this book does not represent the best starting point for exploration.



April – 2003

Book Review

Telecentres: Case studies and key issues

Editors: Colin Latchem and David Walker (2001). *Telecentres: Case studies and key issues*. 256 pages, softcover. Vancouver: The Commonwealth of Learning. ISBN 1 8953 6988 6

Reviewed by: Rozhan M. Idrus, School of Distance Education, Universiti Sains, Malaysia

In the wake of globalization and the current deluge of technological innovations, the *digital divide* that is now appearing and the fact that virtuality sometimes seems more real than reality itself, this book on telecentres has placed itself as a perfect bridge, which spans the past, present, and future.

Telecentres can be defined as strategically located facilities providing access to ICT-based services and applications. Depending on rural or urban location and whether they reside in a developed or developing world (p. 3), they vary in size, facilities and services, ranging from a basic telecommunication service such as “phone shops,” to fully interactive Internet-based training. In this book, Latchem and Walker treat readers to a buffet of endeavors, which can be relevantly adapted to specific educational contexts.

The book presents 14 case studies chapters within a framework that captivatingly documents the essence of telecentres. It achieves this by highlighting the location and content, history, affiliations and strategic alliances, functions, costs and funding, accommodation, management, staffing, training managers, staff and users, publicity, access, technology, research and evaluation, conclusions and references, of each telecentre examined. Personally, I was enthralled by the depth and relevance of each telecentre case study captured in this little book.

The history- and information-rich content of each case study is, indeed, impressive. The book presents a global showcase of telecentre concepts that examine a diversity of economic, political, and social backgrounds, as well as the interplay of socio-economic, political-economic, and social engineering in local, regional and global community settings. In sum, the authors call for accessibility, sustainability, and global networking. For me, this book is a testament to the realization of the July 2000 Okinawa Charter on Global Information Society, aptly pointed out by Jonnie Akakpo and Mary Fontaine in Chapter 13. According to TechKnowLogia (May/June 2000), telecentres may well be the “watering holes” of the 21st century, which I contend is a well put statement both in terms of the essence and physical nature of the various telecentres.

Nonetheless, I was still left with this nagging feeling that the five chapters outlining the various key issues could have been better consolidated by the editors. Indeed, some marvelous points raised in the various case study chapters, could have been used to illustrate salient issues raised in prior chapters. The appendix of valuable print and online resources, however, is excellent.

Technology lies at the core of the telecentre concept, and launching from this technological-core, we are witness to fascinating tales from each contributor. It would be impossible for me to cite individual chapters, as each one contributed generously and significantly to the book, but I shall focus on some highlights as I see them.

Psychologically, telecentres can work to dispel the fears and myths about technology (p. 137). It was hilarious to note that at the Gaseleka telecentre in South Africa, the first telecenter in the region tested some years ago, the sound of the telephone's ringing was so terrifyingly foreign, that a volunteer ran out of the center in a panic! But times have changed. Today, there are telecentres working towards an ISO 9001: 2000 certification (p. 39) and Australia's Queensland Open Learning Network presented a plan of a typical Open Learning Centre (p. 36). The Hungarian telecottage movement adopted a bottom-up approach in its development (p. 64), and the WREN telecottage in Warwickshire, UK are already toying with the idea of "virtual organizations and communities" (p. 73). The multipurpose community telecentre in Nakaseke, Uganda, maintains a database of all users' names, addresses, ages, gender and occupation (p. 109), and the Daimler Chrysler distance learning support centre in Maseru, Lesotho, serves both the on-campus and distance education students (p. 132).

The in-depth deliberations of Heather E. Hudson, which focus on telecentre evaluation in Chapter 16, must be taken seriously to help ensure the quality control and quality assurance for the sustainability and functionality of telecentres. These are crucial feedback loops designed for appropriate stakeholders, which also help disseminate various findings for the benefit of others.

This book is, indeed, timely and should make a comprehensive reference for economic, social, political, and educational planners; it is truly an informational asset that can help in the formulation of any blueprints used to address the acculturation, inculcation, and integration of ICT in both formal and informal settings that encompass communities, schools, colleges, universities, and training institutes. Clearly, no one should be left behind in the emerging digital era!

To sum up, I was struck by the somewhat simplistic, but nonetheless powerful, overview written by Santosh Panda and Sohanvir Chaudhary in Chapter 14. These authors say India needs both jet engines and bullock carts – a divergent DE delivery system of global connectivity and local delivery. Clearly, this is an almost nonchalant statement that, in reality, reveals the increasing of penetration of ICT in India versus the nation's divergent levels of literacy, cultures, individual and community needs, and implementation mechanisms, which when combined, spiral into function-focused and economically-driven telecentres – a system which will help pave the way for large-scale deployment in a global information network.



April – 2003

Book Review

Libraries Without Walls 4: The delivery of library services to distant users

Editors: Peter Brophy, Shelagh Fisher and Zoë Clarke (2002). *Libraries Without Walls 4: The delivery of library services to distant users*. 299 pages, hardcover. London: Facet Publishing. ISBN: 1 85604 436 X

Reviewed by: Harvey Gover, Washington State University Tri-Cities, USA

Librarians and other information specialists familiar with the *Libraries Without Walls* international conference series have eagerly welcomed the publication of this fourth conference volume. This book comprises the proceedings of an international conference held in September 2001, organized by the Centre for Research in Library and Information Management, at the Manchester Metropolitan University in the UK. Together these papers report on the developmental projects of forty-five library and information services specialists from seven nations – twenty-nine from the UK, five from Greece, five from the USA, two from Finland, two from the Netherlands, and one from Denmark.

A broad collection of papers are organized under seven conference themes: 1) Libraries and Virtual Learning Environments; 2) Online Enquiry Services for Remote Users; 3) Virtual Libraries and National Initiatives; 4) User Behaviour and User Training in the Distributed Environment; 5) The Public Library's Role in Serving Distant Users; 6) Content Development for the Virtual Environment; and 7) Key Technology Issues in Delivering Services to Distant Users.

This thematic organization, plus the extensive index, greatly facilitate readers' topical searching and usage of the volume. An opening alphabetical listing of contributors, giving their institutional or program affiliations and nations of origin, further enhances its use. Within the text, each thematic division is introduced by a separate theme title page, providing further emphasis to changes in thematic content. In addition to conference papers, there is an introduction prepared by the three editors and the keynote paper by Elizabeth J. Burge, "Behind-the-screen thinking: key factors for librarianship in distance education."

In their introduction, the editors provide valuable insights into the parallel chronologies of the Libraries Without Walls conferences and the development of online library services to remote users. The editors reflect on the rapid growth of these services, as observed from the first through the fourth conferences. They examine the concept of how online library services grew from a "theoretical perspective" and the "preserve of a small group" to becoming a "mainstream library service."

The editors also note the significance of “disintermediation,” or the elimination of interaction with librarians as information providers, because “more users are accessing services remotely.” Another closely related phenomena is that most libraries in developed nations now operate as “hybrid” service organizations, “relying on a managed mix of electronic and traditional ‘information objects’ to deliver appropriate [materials and] services to their clientele.” The editors then present a lengthy discussion of the contents of most of the papers, reflecting on their order and impact during the conference.

Burge’s keynote address was naturally the first to capture the editors’ attention and praise. Setting the tone for the entire conference, Burge packed a wealth of wisdom and vision into her presentation, making it valuable reading for all those interested in distance education and library services. Burge identifies eight factors relevant to libraries in distance education, including disintermediation, which “has to give way to proactive, ‘intelligent agent’ intermediation” on the part of distance learning librarians. Burge concludes with “thinking tasks” asking us to think “sideways.” Such “thinking tasks” include: “Think analytically about what you notice in your work contents. Think about library services in terms of change. Think creatively. Think critically and transformatively about just about everything” (p. 11- 13). Burge then closes with five maxims for librarianship in distance education, which include, “value your intermediation as essential [and] reach past the technology tools to the human conditions” (p. 14).

The emphasis on the human elements in Burge’s keynote address provided an ideal lead-in for the papers in the first section, covering the interactions of libraries and virtual learning environments. Effective human interfacing with users via a variety of means is a recurring theme. Julie Brett’s chapter entitled “Distance Learning Zones: A Pilot Project,” describes efforts to set up regional international learning centers staffed for transnational students at selected UK universities. Sally Chambers and Paul McLaughlin in their chapter, “University of London – Virtual Campus Project,” reported that an “External Library Projects Assistant will be the first point of contact for external programme library users. Having a main contact person for the virtual learning service will help to reduce the isolation experienced by students who are studying at a distance from the main university campus” (p. 38). Linda McCann in “Developing a Worldwide Distributed Resource to Foster Regional Studies” remarked: “Technology issues . . . in a networked environment, and content issues relating to distributed library resources and services to support distance and distributed learning, are undeniably important in the creation of virtual learning environments. However, . . . issues of communication are equally important. Real collaborative efforts require open and effective communication. We are all learners in virtual learning environments” (p. 48 – 49). Sue Roberts and John Davey made a similar declaration at the conclusion of their paper, “Virtual Learning Environments and Information Services,” when they said: “The development of relationships within the new academic team is the major critical success factor, and not the technological advances, which are simply the tools to make it happen” (p. 83).

The importance of communication is stressed in the second section, “Online Enquiry Services for Remote Users.” Lou McGill reports the finding in, “Global Chat: Web-Based Enquiries at the University of Leicester,” that:

“Whilst it was essentially aimed at providing an enquiry service, it became obvious that this type of facility was also a powerful tool for user education, at the point of need. Targeting skills support is a significant challenge for those providing services to distance learning students. A chat service offered a useful

mechanism for providing this support when it was most needed, and therefore most likely to be effective" (p. 87).

In the third section, "Virtual Libraries and National Initiatives," Shelagh Fisher, in "Evaluating the Impact of the UK's Distributed National Electronic Resource," observes the newly demonstrated importance of having an appointed review group working simultaneously with a national automation development project:

"The idea of running an independent evaluation alongside a major development programme, so as to encourage it to learn lessons from implementation, is relatively new, yet recognizes the dynamic nature of the Distributed National Electronic Resource, both in terms of rapid changes in technology and in terms of developing stakeholder experience, expertise and understanding. It is apparent that the task of building and evaluating national-level services is complicated by very different perspectives among key stakeholders, and by the lack of any single, clear model on which to base development and evaluate judgments" (p. 156).

Fisher's final statement applies equally to the building and evaluating of smaller scale services for individual institutions or organizations, and larger scale transnational or global services. Because we are venturing into new developmental territory, we simply do not possess any clear models for guidance and evaluation. Herein lies the vital importance for sharing what we are doing through conferences like Libraries Without Walls and through publication of resulting papers such as these. Through such efforts, we pool our experience and findings, sharing both our shortcomings and triumphs.

The scale of content of this little volume far exceeds its physical proportions. Brought together between its covers is a broad spectrum of reports on emerging automated information systems and the provision of library services to their users. Here are data and observations we cannot afford not to know, making this a book we cannot afford not to read.



April – 2003

Book Review

E-tivities: The key to active online learning

Author: Gilly Salmon. (2002). *E-tivities: The key to active online learning*. London: Kogan Page, softcover, 212 pages. ISBN: 0 7494 3686 7

Reviewed by: Mohamed Ally, Associate Professor, Athabasca University – Canada’s Open University

Overall *E-tivities: The Key to Active Online Learning*, written by Gilly Salmon, is easy to read and can be used by different types of professionals. The author claims that this book, which consists of two sections, is of interest to academics, teachers, course managers, teaching assistants, instructors, trainers, and developers. The first section provides ideas on how to design and use E-tivities. Below are some highlights of the first section.

According to the author, “E-tivities” have the following features (p. 1):

- Motivating, engaging, and purposeful
- Based on interaction between learners/ students/ participants, mainly through written messages contributions
- Designed and led by an e-moderator
- Asynchronous
- Inexpensive and easy to run

Based on the author’s description, E-tivities appear to be designed for asynchronous, low-level interactions that do not take advantage of the capabilities of the Internet to promote synchronous interaction. The author added: “E-tivities are important for the online learning world because they deploy useful, well-rehearsed principles and pedagogies for learning” (p. 3). However, the author failed to describe these principles and pedagogies in detail and provide theoretical support to back up these ideas.

The author claimed that because they use existing resources and the participants’ exchange of knowledge, E-tivities can save money. However, evidence that E-tivities actually save costs was not provided to back up this claim.

The author presented a five-stage framework for E-tivities:

Stage 1: Access and motivation. The instructor provides access to participants, welcoming and encouraging them

Stage 2: Online socialization. Participants connect with each other so that they know who to interact with during the learning process

Stage 3: Information exchange. Participants interact with and support each other to help achieve each other's goal

Stage 4: Knowledge construction. Group discussions develop and interaction becomes more collaborative

Stage 5: Development. Individuals use the interactive system to achieve personal goals and to reflect on the learning process

These five stages are helpful for anyone thinking of designing and using asynchronous communication for instruction. According to the author, the stages in the framework require students to progressively increase their level of interactivity, resulting in higher levels of learning.

For each stage, the author provided examples of interaction based on a course that was delivered asynchronously. The examples were helpful to understand the five stages; however, better transitions between the sections in the "E-tivities in Action" chapter would have made it easier to follow the information. Chapter 4 in the first section provides information and key principles relating to how to design E-tivities for asynchronous delivery.

The first section of the book lacks the theoretical base and references to the research literature to support the ideas presented. Ideally, the first chapter in the book should have provided readers with an overview of learning and interaction theories. The many "screen dumps" of examples of interaction in the main section interfere with the flow of the ideas and made this first section disjointed.

The second section of the book provides practical ideas for use in online interaction; however, most of the ideas are for low-level asynchronous interaction. The major topics in the second section are as follows:

- How to design effective E-tivities by planning, building motivation, using action words, and "spark ideas"
- How to develop E-tivities using email games, creativity, collaboration, online emotions, and intelligent E-tivities
- How to conduct online communication and E-moderation

In conclusion, this book is an easy to read "how-to" book with many ideas and practical examples on how to design asynchronous online learning. However, from an academic perspective, it lacks a theoretical background to reinforce the ideas presented. Additionally, an operational definition of E-tivities would have clarified the nature of E-tivities. Transitions between the different parts of the book were not well developed. As well, overviews throughout the book would have enabled readers to see the big picture before reading the details.



April - 2003

Technical Evaluation Report

17. Videoconferencing in Theatre and Performance Studies

Mark Childs and Jay Dempster
University of Warwick
UK

Abstract

Previous reports in this series have indicated the growing acceptance of video-conferencing in education delivery. The current report compares a series of video-conferencing methods in an activity requiring precision of expression and communication: theatre and performance studies. The Accessing and Networking with National and International Expertise (ANNIE) project is a two-year project undertaken jointly by the University of Warwick and the University of Kent at Canterbury, running from March 2001 to March 2003. The project's aim is to enhance students' learning experience in theatre studies by enabling access to research-based teaching and to workshops led by practitioners of national and international standing. Various technologies have been used, particularly ISDN video-conferencing, computer-mediated conferencing, and the Internet. This report concludes that video-conferencing methods will gain acceptance in education, as academic schools themselves are able to operate commonly available technology the assistance of specialised service units.

Teaching Performance by Video-Conferencing

Of the activities carried out in the ANNIE Project between March 2001 and late 2002, nine have been conducted via video-conferencing (see Table 1).

Table 1. List of Videoconferences Conducted as Part of the ANNIE Project

Location of lecturer(s)	Location of students	Technologies	Used for
Frankfurt	Warwick	ISDN	Vivas
Vancouver	Warwick	IP + desktops + <i>iVisit</i> + projection	Workshop
Exeter	Canterbury	IP + desktop + <i>NetMeeting</i> + projection	software demo
Exeter and Canterbury		IP + gateway + projection	Workshop
London	Warwick	ISDN	Lecture
London	Warwick	IP + desktop + <i>NetMeeting</i> + projection	Lecture
Vancouver	Leicester	IP + desktops + <i>iVisit</i>	Workshop
Kansas	Canterbury	IP + desktop + <i>NetMeeting</i>	Supervision
Canterbury	Exeter	IP	Workshop

Evaluations of these sessions were carried out by focus groups with the students and by email. Interviews were held with the people conducting the lectures and with academic staff attending the sessions either as a facilitator or observer. The following analysis is based on these responses and on notes taken at the time of the activities.

Evaluation of Communication Modes

Video-conferencing activities used differing communication modes at different times during each session. These can be described as: (1) one-to-one; (2) one-to-many; (3) many-to-one; and (4) many-to-many. The first two of these are self-explanatory. However, we are often not aware of the second two modes of communication in face-to-face situations, although they become evident in video-conferencing. The *many-to-one* communication can be typified as ‘class feedback,’ relating to the set of verbal and nonverbal communications that a lecturer observes from a class while lecturing. Many-to-many communication exists in two modes: where a single link exists between two sites with more than one person at both ends, and where multiple links are made to many sites, each with one or more participants.

Evaluation of the case studies indicates that the *many-to-one* mode is the most difficult to achieve in video-conferencing in vivas, lectures, and software demonstrations. (Workshops involve an additional set of problems, which will be discussed separately.) The problems with many-to-one communication that were noted were:

- *Audio echo.* If two-way audio is enabled, anyone communicating via the video-conferencing equipment may hear their own voice relayed back to them a short time later. To avoid this, the audio feed from the lecture room is switched off. As such, the person speaking has to stop deliberately, and hand over the audio to another room for someone there to begin speaking.
- *Restricted video view.* Seeing all the participants both adequately and simultaneously in a videoconference is impossible. Sightlines are difficult to achieve too. Since the speaker at one end is looking at the screen, and the viewer at the other end is seeing what the speaker’s camera sees, there can be no direct eye contact unless the camera and the screen are in the same place.
- *Time delay.* Time delays can cause communication breakdown in a one-to-one communication mode. In the situation where someone at a distance is taking part in a discussion, the person at the other end of the video-conferencing link will often feel isolated, since they will always be lagging a short time behind the discussion.

These technical problems amplify poor teaching practices and highlight the need to develop effective teaching techniques. Students attending the video-conference lectures felt passive and uninvolved. Many reported that they could not maintain their attention for the full length of the lecture. According to comments made by the focus groups, even the perceived reduction in movement reduced their ability to learn. These difficulties in communication focus attention on the following video-conferencing ‘best practices’:

1. *Sessions must be highly structured.* Since students cannot interrupt, and the lecturer cannot adequately observe students to detect if they are not following the lecture, the lecture needs to be broken into short sections, and feedback must be elicited from the students after each section.
2. *Presentation skills must be developed.* In order to compensate for the lack of physical presence, skills such as modulating tone of voice, developing good questioning, and building activities into the session, should be considered as more important in video-conferencing than in face-to-face presentations. It is necessary to make the length of the didactic sections of a video-conference session shorter than one would in a face-to-face session.
3. *Trial, rehearsal, training.* A frequent suggestion that arose in the focus groups was that the video-conference would have been more productive if the participants had practised interacting using the technology beforehand.

Feedback from the student focus groups indicated a high degree of apprehension before the video-conferences. Although dissatisfied with many aspects of the actual videoconferences, all focus groups agreed that the experience was better than they had anticipated, and that they would be willing to repeat it.

Comparing Different Technologies

1. Use of Isdn (Video Telephony Methods)

The *advantages* of using ISDN are:

- High-resolution audio and video are possible when the technology works
- Sessions usually take place in dedicated video-conference suites, which require no set-up and no technological upgrading or improvement of skill at the far end
- It involves no firewall problems

While the video-conference suites mentioned above are suitable for the lecturer, at Warwick and Canterbury they are not large enough to accommodate a class of students. At the students’ end, therefore, it is necessary to use rooms that have ISDN connections, though they do not need to be dedicated spaces. This leads to the following *disadvantages* of ISDN:

- Conference rooms can be completely unsuitable for teaching
- Space must be booked in advance
- Facilities can be expensive
- Software packages must be used
- The method is generally unreliable

2. Use of IP Gateway Systems

The *advantage* of IP gateway systems is that:

- They enable ISDN and IP technologies to be interoperable, permitting high-resolution video-conferencing equipment to be plugged into IP network ports. A codec (coder-decoder) allows digitisation of analogue signals from video and audio devices. Multiple cameras and audio channels can be connected in this manner, which means high quality videoconferencing can be located in any room that has an IP port

Disadvantages are:

- Network bandwidth is often insufficient to take full advantage of the extra quality the equipment makes available
- Set-up procedures are more complicated than with other technologies

3. Use of IP Room-Based Systems

Because in the intervening time the Joint Academic Network (SuperJANET 3) came online, the system set up for the above workshop became outdated within a few months. In our use of room-based video-conferencing for Stand-Up Comedy case study work, equipment was used which could plug directly into the network port in the studio. For any institutions connected to SuperJANET with a sufficiently high bandwidth (approximately 2 MBps), this system can provide the same quality of image as ISDN-based video-conferencing.

Advantages of room-based systems are that:

- The equipment is simple to use – simply plug and play
- Image quality is high – equivalent to six-line ISDN equipment
- Equipment is expensive (approx. £ 5000)
- Most institutions have insufficient connectivity to SuperJANET to take full advantage of the equipment. Options are to request that a certain bandwidth be dedicated to the video-conferencing activity. Alternatively, video-conferences can be conducted in the evening when contention for the bandwidth is less of an issue

4. Use of IP Desktop Systems

Various desktop systems have been used in the ANNIE project. All of them, however, have the same core features:

- PCs are connected via IP to the Internet
- A camera is connected to the PC
- Video-conferencing software runs on the PC
- A data projector projects the monitor image onto a screen

The first three features are commonly used in standard desktop-to-desktop video-conferences. These are adapted for use in a teaching situation by the addition of the data projector, and

usually a microphone and speaker system. The software used was *iVisit* [recommended as a useful freeware product previously in this series. *J. P. B., Series Editor.*].

The *advantages* of IP desktop systems:

- *Accessibility.* All of the equipment used in our IP-desktop videoconferences were already available in the department, or could be purchased at a low cost. The accessibility of the equipment, and the fact that it can be used anywhere there is a network port (or within 40 meters of a port with sufficiently long patch cables) means that users have flexibility and, more importantly, *control* over the videoconference
- *Familiarity.* Since it is a simple extension of familiar desktop video-conferencing, the setting up of the equipment does not require expert technical staff. It is also reliable, since it uses technology that is in constant use

Disadvantages are:

- Lower resolution and frame rate of the video
- Lower quality audio
- Bandwidth problems
- Firewall problems

Gaining Acceptance for Video-Conferencing

Video-conferencing promises to provide access to remote expertise in theatre and performance studies, depending on the ease with which the practise can become embedded in the regular work of our department, and on its perceived need for video-conferencing. This need has already been recognised by the academic staff with whom we have worked on the ANNIE project. Owing to the expense of transporting the experts and other time commitments, none of the sessions conducted via video-conference could have taken place face-to-face.

To embed the practice, the staff involved need:

- Control over the technology
- For it to be easy to integrate into the regular teaching programme
- Minimum of planning
- Lowest possible cost
- A location within the usual classrooms and studios

On these counts, ISDN has fallen far short of our requirements. Although PC/ IP-based technology meets all of these criteria, it is severely limited by the standard of the Web cameras available, and by low bandwidth available via university networks.

Conclusion

The ANNIE project has shown that there is a role for video-conference lectures and workshops. A series of technological solutions has been tested in the teaching of theatre and performance studies, among which the traditional, telephony-based ISDN methods have proven the least

satisfactory. The use of specialist equipment controlled by service departments is problematic, whereas commonly available technology is allowing video-conferencing methods to become easily utilised within the academic schools themselves. With improvements in the quality of these methods, video-conferencing will become embedded into the school's regular teaching programme.

Authors

Mark Childs and Jay Dempster teach in the Centre for Academic Practice, University of Warwick, UK.

The next report in the series includes an updated review of online whiteboard applications.

N.B. Owing to the speed with which Web addresses are changed, the online references cited in this report may be outdated. They can be checked at the Athabasca University software evaluation site: <http://cde.athabascau.ca/softeval/>. Italicised product names in this report are assumed to be registered trademarks.

JPB. Technical Notes, Series Editor



April - 2003

Technical Evaluation Report

18. Internet Audio Products (Update)

Jim Depow, Jim Klaas, and Norine Wark

Masters of Distance Education Program

Athabasca University - Canada's Open University

Abstract

The benefits in distance education of collaborative interaction via online, synchronous audio methods have been discussed in previous reports in this series. As the months go by, new software products are continually introduced to the market and existing products updated. In addition, the effect of increased traffic on the software servers is noted. The current report updates some of the series' previous reviews of online audio-conferencing products (i.e., *iVisit*, *NetMeeting*, *PalTalk*, and *Yahoo Messenger*), selected because they permit conferencing (i.e., interaction between three or more people), are free/ cost-effective, and operate on PC systems of limited capacity. These products are compared with two fully featured educational and commercial products (*LearnLinc* and *VoiceCafé*) that provide benchmarks in terms of reliability, technical features, and ease of use.

Trials of Free or Nominal Cost Products

1. *iVisit* (version. 2.8b11). This product is easy to install after downloading the 1 Mb installation file. The initial use of the product is confusing due to the presentation of many icons; but after becoming acquainted with its layout, it is fairly straightforward to use with little or no service interruptions. Online help is in real-time, provided by other *iVisit* users, and is valuable in that it can clear up concerns in 15 minutes or so. The product features multi-party video, text chat, messaging, browser sharing, multiple simultaneous connections, call screening, and a built-in directory to seek other users, and voice with "full duplex" – i.e., two way, hands-free communication).. Permanent conference rooms can be set up and password protected to restrict access. Total disk storage is 16 Mb of hard drive space.

2. *NetMeeting* (version. 3.01). This *Microsoft* product is integrated with most versions of the *Windows* operating system (e.g., *Windows 98* and *2000*). Features include audio- and video-conferencing, whiteboard, text chat, file transfer, and file and program sharing. File and program-sharing facilities allow a user to grant control of a shared file displayed on the screen to another user, thus increasing the collaborative nature of the conference. The greatest potential of *NetMeeting* appears to be for many features of audio-conferencing, but the product's general value is limited owing to connectivity issues. Calls are placed from one user to another through their IP addresses, which must be known and communicated to callers before a connection can be made. In addition, discussions between more than two people are impeded by the fact that only the first caller can share an audio connection with the conference host. In order to accommodate a true conference with audio capabilities for all, one user must be set up as a server, which requires the installation of additional server software. Our tests did not include this process and consequently cannot shed light on the ease of the server's installation and configuration.

Other *NetMeeting* connection problems were noted by the members of the evaluation team situated behind a router/ firewall, which may allow outgoing but not incoming calls – though such problems are not restricted to this product alone. The software requires 16 Mb RAM for *Windows 95, 98 and ME*, and 24 Mb RAM for *Windows NT v. 4.0*. Of these totals, 10 Mb of disk space are required for the initial installation and another 4 Mb for storage.

3. ***PalTalk*** (version 5.0). *PalTalk* offers an easily installed and used audio communications software, with a modest 873 KB download file. Its features include audio-conferencing, text chats (both public and private), help chats, file transfer, and video display. (Note: the freeware version allows viewing of a still picture only). Users can easily be added to a directory of ‘friends,’ and user IDs can be edited to more accurately indicate the contact’s identity. Participants can ask to speak by clicking on a ‘raised hand’ icon, which facilitates the management of speakers by a moderator. Chat rooms are easily set up, either as needed (free) or permanently (with a monthly charge) and can be password-protected to restrict access. Access to the server can be delayed during peak traffic periods; and loss of audio transmission is occasionally experienced, sometimes triggered by the frequent and unwanted pop-up advertisements featured in the freeware version. Pop-up advertisements can be eliminated, by purchasing the product’s basic, semi-annual version for \$30.00 US. Installing the software behind a firewall may necessitate a manual configuration of port settings. Total disk storage is approximately 1.2 Mb.

4. ***Yahoo Messenger*** (version 5.5.0.1246). *Yahoo Messenger* is easy to install and use with a 195 KB download file. Its features include audio-conferencing, text chat (both public and private), file transfer, video display, and multilingual versions (e.g., Spanish). Users are easily added to one’s directory, with an option to be alerted when they log in. User names can be edited to reflect a name other than the *Yahoo* ID. Conferences can be password-protected, and unwanted visitors in the non-protected conferences can be ignored and/ or muted. Browser-based chat rooms can be set up on the *Yahoo* website, though our evaluation team encountered problems accessing the site for this purpose – notably if using an operating system other than *Windows 2000* or higher. Occasional loss of audio transmission may be experienced, but is usually corrected by clicking the ‘Voice’ icon off and on again without leaving the conference. If this tactic fails, completely leaving and re-entering the conference re-establishes the audio connection. Other features include the use of ‘emoticons’ in the text-chat modes (e.g., as the happy face :)), instant, editable ‘themed messages’ (IMVironments), and a rudimentary whiteboard. Total disk storage is approximately 8.7 Mb.

Trials of Commercial Products

5. ***LearnLinc*** (version 6.0). This learning environment package features high-quality audio communication, and offers a stable service with a quick and easy download. Its educational tools include group-based and private text messaging, internal group emailing, an internal browser, shared whiteboard and pointer, audio and video recording, and integration with *PowerPoint* presentations. First time users may be confused by all of the icon options, but most options are easy to use with a little practice. A ‘hand-raising’ feature allows the instructor to pass classroom control to highlighted student names. An ‘assistant instructor’ option enables a second person to help the instructor with class interactions. There are two floor-control options: single user (e.g., instructor), and open discussion (i.e., ‘Meeting Floor’). Breakout groups can be created at any time during the instruction, with random or instructor-selected teaming. These groups return to the main session via an automatic timing system. *LearnLinc* class interaction can be personalized with *LearnLinc Picture ID*. The instructor also has a ‘Glimpse’ option that shows the status of student work for immediate feedback purposes. A class agenda enables automatic launching of course content. The *LearnLinc* screen can be split for applications sharing. Record and playback options allow users to archive classes, which can be downloaded and/or edited at any time. Multiple-choice and true/false feedback (e.g., faster, slower, please review) is available. *Testlinc* is a separate product that allows a variety of tests to be posted and

graded in a standard browser window. *LearnLinc* is multilingual (i.e., available in English, German, Japanese, Spanish and Portuguese). It uses HTTP bridging and offers Web-based browser diagnostics for firewall configurations, although the evaluation team cannot comment on these features, not being situated behind firewalls during the evaluation. *LearnLinc* requires 2 Mb of disk space.

LearnLinc's pricing varies according to the number of concurrent users, the length of the contract commitment, and whether the software is purchased outright or leased. A 25 per cent discount is offered to educational users. A sales representative was reluctant to discuss costs "because of the competitive space we are in." However, a review article by Katz and Rezaei (CJC-Online, 1999) states the following: "A server license for 120 students is approximately \$50,000 US with mandatory maintenance and technical support costing an additional 20 per cent of the total cost per annum. Furthermore, video capabilities are not included in the server license cost. An additional \$500 is charged per student video link." These authors go on to point out that because 15 Kbs per-client bandwidth is required, a T1 line should be available to transmit *LearnLinc* materials effectively across the Internet. These specifications provide a benchmark for more up-to-date comparisons.

6. ***VoiceCafé*** (version OpTecs MLM tourmasterdemoLITE). This product is currently available to the users of *Pentium II* systems and above. Audio is clear and transmission is reliable. *VoiceCafé* is a 'full-duplex' product (e.g., two way, hands free communication), allowing three or more people to talk simultaneously. Two versions are currently available: full or 'lite' (the latter being useful for computers with lesser RAM memory). Both versions contain three options: *Classmaster* (for groups of up to 10 or 25 people per room); *Officemaster* (for group collaboration); and *Tourmaster* (for 50-500 people per room). The vendors invite interested parties to a live demo before giving them access to use the software independently. However, the software is user-friendly, so minimal assistance is required (with the exception of router/ firewall configurations, which prevented one of our testers from participating).

VoiceCafé also includes such features as 'follow me' polling, voice and text communication, customized interface template (e.g., for a corporate banner), personalized opening page, moderator/ host console, transparency window slider, boot and banish function, interactive whiteboard, an internal browser (capable of holding up to 20 pre-selected URLs), page 'push,' built-in video 'uploader,' various levels of password protection and 'auto-modulation' (i.e., automatic microphone and sound card settings). The software has a high security system (i.e., 1024 bit encryption). If a user attempts to access options to which they do not have access privileges, they are booted out of the program and must re-enter.

Conclusion

The selection of effective audio-conferencing software depends largely on the situations in which it is used. If cost is not an issue, and technical support is available to assist with firewall connection problems, *VoiceCafé* provides exceptionally good product and service. For financially restricted institutions and students with lower-end equipment, *PalTalk* and *Yahoo Messenger* are useful possibilities. Another product, *iVisit*, is another freeware option, although it requires higher-end computer capabilities than *PalTalk* and *Yahoo*. If an online community has extensive experience with one such product, it is recommended that it develop experience with a second program, which can be used as a backup to the first. The advantage of such strategy includes protection against the sudden demise of a product, as well as against suddenly introduced service charges. If the learning community has little previous experience, however, and is generally satisfied with the product it is currently using, the advantages of introducing a new product are often not worth the effort of switching the entire community to its use. Because it is the simplest to install, has multi-language support, minimal advertising, and easy to install upgrades available at no cost, of the products reviewed in this report, *Yahoo Messenger* is recommended for the DE user.

[Since the fees of the commercial products reviewed in this report are negotiable for the different situations in which they are applied, the reader is invited to seek private quotations directly from the vendors. *JPB, Series Editor.*]

References

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The next report in the series includes an updated review of integrated course delivery packages.

N.B. Owing to the speed with which Web addresses are changed, the online references cited in this report may be outdated. They can be checked at the Athabasca University software evaluation site: <http://cde.athabascau.ca/softeval/>. Italicised product names in this report are assumed to be registered trademarks.

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Technical Evaluation Report

19. Integrated Course Delivery Packages

**Judy Annis, Tracy Hensel,
Patricia Lundstrom, and Richard Jones**
Masters of Distance Education Programme
Athabasca University - Canada's Open University

Abstract

This report contains updates of three products: *Elluminate*, *LearnLinc*, and *Wimba*. Each features audio communication, both asynchronous and synchronous, and has been selected for this report to complement the preceding review of Internet audio products. The three packages also contain integrated applications for online, classroom-like, educational activities and discussions. A fourth service, *Ed2Go*, offers online tutorial facilities similar to those provided by the *Elluminate* vendor. The four reviews are offered as examples of the many products now offering integrated applications of this type.

Trials of Products

The evaluation criteria used in this study were based on criteria outlined in Report #7 in this series: cost; complexity; control; clarity; common technical framework and features.

1. *Ed2Go* (Education to Go, Inc.) uses an integrated online delivery browser application to offer over 200 short courses in six week blocks, two lessons per week, six times per year. The *Ed2Go* company targets adult learners engaged in continuing education courses offered by accredited institutions. Registration is straight forward as each lesson is clearly defined, and course layouts are clean and precise. The content of each lesson is accompanied by questions that are delivered while the student works through problems. Quizzes and assignments are also included so that the students can evaluate their level of understanding of the content. Links are provided to related websites, which can sometimes be distracting. An alternative to completing the lesson in a single session is to download the lesson to the student's computer. This saves connection time costs for the student. The instructor is an email away, and each course contains a conference area where the students and instructor can post questions and comments. *Ed2Go* courses can be accessed with minimal system requirements, using all major browsers. Computer programming and Web development courses require the capability of running the software used in the course.

The cost of initiating, developing and delivering online courses for educational institutes can sometimes be prohibitive. *Ed2Go* offers online materials that budget-constrained community colleges may find refreshing. There are no up-front charges with respect to software purchase and hardware installation, although institutions do pay a fee to offer the courses. The institution's responsibilities are to set and collect student fees, market the courses, and register students. At the close of enrolment, *Ed2Go* invoices the college for a "low, per-student fee," a percentage of the actual student fees collected. (*Ed2Go*'s sales representative was unwilling to disclose the exact percentage amount.).

2. ***Illuminate*** (formerly known as *TutorsEdge*) offers *vClass*, a license-based virtual classroom that allows live, online teaching and learning. As a teacher-controlled product, it provides synchronous text messaging (public and private), audio conferencing, Web touring (co-browsing), applications sharing polling, and whiteboard functions, all available simultaneously. Only previously identified students are permitted to participate in these sessions. Students are assigned passwords to gain access to a session, and throughout the session the software identifies who is speaking, typing a message, or using the whiteboard. A hand-raising feature can be used to sequence the order of student questions or comments; and *PowerPoint* presentations and gif and jpg images can be integrated. Although the product is primarily designed for full teacher/ moderator control, the administrator can assign moderator privileges to any or all participants. Individual work areas (whiteboards) can be assigned to participants, allowing them to work individually or collaboratively. The clear audio works over low bandwidth, allowing both students and moderator to interact while using all of the product's features. The product also includes a graphing calculator, and advanced polling methods. *Illuminate* offers the option of recording live sessions for subsequent playback.

Illuminate provides support for both *Windows* and *Mac* platforms, and makes relatively low demands on system requirements. *Illuminate's* minimum PC requirements are a *Pentium II* with a speed of 266 Mhz, and 64 Mb of RAM. Its minimum *Mac* requirements are a *G3* with 233 Mhz and 64 Mb RAM (operating system 9.0-9.2) or 128MB RAM (OS X). The software requires a preliminary installation of *Java Web Start*. Technical support is provided online via a toll-free number. A customer support webpage provides a useful link to a Java applet for testing the kind of connection that can be established for users behind a firewall. The vendor also provides *vTutor* - online tutorial services involving 50-minute live, instructor-lead tutorial sessions for students on weekdays. Homework help is also available through *vTutor*, whereby students can receive assistance from qualified instructors by visiting the *Illuminate* website.

The download and installation of *Illuminate* on *Pentium II* computers, each with 64 Mb RAM, took approximately 25 minutes via a 56K modem connection. The system resources required to use *Illuminate* left approximately 53 per cent free on the computers of both evaluators. The product provided clear audio on a dial-up connection. No difficulties were encountered in connecting into the virtual classroom or maintaining the connection throughout our five test sessions. Users, and others with whom they communicated using the software, had no difficulty connecting and communicating with one another while using the range of software features. [The *Illuminate* license fees vary between situations, and are not included here for the sake of consistency within this set of reviews. *JPB, Series Editor*]

3. ***LearnLinc*** is a *Windows*-based application integrated with *Microsoft's SQL Server*, and is usually sold as a concurrent user server. Each distributed server can support up to 200 participants. The *LearnLinc* environment provides synchronous and asynchronous communication capabilities, and applications sharing. Synchronous communications include two-way video, streaming video, unicast and mulit-cast audio-conferencing, and real-time recording and editing of audio and video for synchronous or asynchronous playback. The environment featured in the current evaluation consists of 16 remote electronic classrooms connected through the public Internet to a *LearnLinc* server and to university instructors working in dedicated studio spaces.

The product is well structured, intuitive, and easy to navigate and use. Although is susceptible to network congestion, it has a consistent, stable and functional interface. When a student clicks on the 'raise hand' button, the instructor can give the student control of the classroom, including course content, a shared pointer, and audio conferencing. Two 'floor control policies' are available for classes: instructor-led and open discussion. While the instructor is leading the class, one or more assistant instructors can monitor text chat, hand raising, and feedback. This is a useful feature, especially in classes involving a large numbers of participants. Instructors can also organize breakout groups.

LearnLinc's question and answer (Q&A) applet can be used to ask multiple-choice and true/false questions. Questions can be pre-determined or composed during the class, and the results are indicated in a percentage format that may be shared, or not. A feedback applet enables continuous polling. The text-chat tool (public and private) includes cutting and pasting functionality and can generate printed transcripts during the class. There are no spell-checking or formatting functions with the text-based tools. Instructors use the 'glimpse' applet to grab a screen capture of any student's desktop, monitor the status of an individual student's work, and thus correct problems as they arise. Latecomers are automatically synchronized with the current content of a session. Instructors and students may use the browser to lead other members of the class to different websites (co-browsing). Objects and text from any *Windows*-supported application can be pasted into the product's shared whiteboard. Whiteboard contents can be saved as text, whiteboard files, or printed. There is a viewer for uploaded *PowerPoint* presentations. The *PowerBoard* toolbar contains navigation controls for moving through the presentation, as well as a full set of markup tools for highlighting items as they are presented. Mark-up tools were a heavily used feature in our tests.

LearnLinc includes a step-by-step procedure for configuring the audio component under varying hardware and software conditions. *LearnLinc's* client/ server architecture is designed to enable computers to connect to a server with modems at lower bandwidths, which can make audio-conferencing problematic. The system is sensitive to latency, and can suffer from synchronisation problems. A cable or DSL modem provides the bandwidth required to handle audio-conferencing. Ideally, clients and servers reside on the same local area network, such as a corporate Intranet, or have the ability to connect to a high-speed research and education Internet such as Canada's CA*net 4, or Internet II in the US. Client software requires a one-time download followed by an automated installation. The standard classroom client is contained in a 2 Mb file.

3. ***Wimba*** comprises a set of vocal, bi-directional streaming Web applications, which allow Internet users to listen to, send, download, and manage vocal messages at times convenient to them. A range of related products is available. *EduVoice* tools, including *Voice Direct*, which allows real time online vocal lectures or discussions. *Voice Boards* allows students to listen to, record, and post messages in a threaded message board. *Voice Email* permits course participants to send and receive voice emails. *Voice Presentation Publisher* allows educational course developers to voice annotate course content, including *PowerPoint*.

Wimba for WebCT is a special edition of *EduVoice*, allowing students to use *Wimba* voice tools without having to leave the familiar *WebCT* interface. *Wimba for Blackboard* allows users to create and manage voice boards, voice email, and voice authoring within the *Blackboard* course environment. *WebLab* is a Web-based language laboratory, authoring and interacting environment, designed to teach oral language skills, and to make asynchronous vocal interaction available over standard modem connections. *Wimba Voice-Enabling* software comprises two Java applets, which can be inserted into a specific voice-based application development project for integrating PCs, Personal Digital Assistants (PDAs), or fixed mobile phones. *Wimba* options can be obtained via the vendor's server, or by purchasing the company's server technology, the *Voice Management Server* (VMS). To support these products, *Wimba* provides consulting and custom development services for clients wishing to build their own voice applications.

Our tests of the *Wimba* products involved accessing the demo versions of the various products available on the *Wimba* website. These were user-friendly and easy to access, and yielded high audio quality. *Wimba* runs on both *Windows* and *Mac* platforms. Its minimal requirements over low-speed Internet connections (28K minimum) are: *Windows 98* with *Internet Explorer 4.0* (plus *Java VM 5.0*), *Netscape 4.1*, or *AOL 4.0*. A privacy policy applies to the storage of client messages on the *Wimba* server, and access to messages is restricted, depending on the *Wimba/*

client arrangement. The company gives assurance that the record of personal messages and email addresses on its servers is not used or sold for bulk mailing.

Conclusion

The abundance of integrated programs and delivery tools is a result of the exponentially growth in the number of distance education tools. Both private and public institutions are saturating the market with numerous online courses and training programs. Tools of the trade include both synchronous and asynchronous components. *Ed2Go*'s offerings are an example of a well-developed system of online courses of this type. The other three products reviewed illustrate the fact that the design of a controlled virtual 'space' for text chat messaging (synchronous), conferencing (asynchronous), and audio/ video chat can be an important ingredient of online course delivery.

Illuminate, *LearnLinc*, and *Wimba* differ greatly in the extent to which they place control over these features in the hands of the teachers and students. Each of these products has unique characteristics, and places different demands on the computer systems that host them. Integrated packages of this type require more bandwidth than applications containing fewer features (e.g., chat and audio tools only). Accessing such packages through the Internet, especially at busier times of day, involves occasional audio dropout and loss of synchronization with shared applications. In the selection of an ideal package for specific educational situations, these factors must be carefully weighed against other product options.

In a market with an increasing range of freeware providing such collaborative functions, the significant license costs of these four products mitigate against their current widespread use in distance education. Otherwise, *Illuminate*, *LearnLinc*, and *Wimba* could each be an asset in online educational settings where synchronous and asynchronous communication with audio needs to be fused. [Since the fees of these commercial products are negotiable for the different situations in which they are applied, readers should seek private quotations directly from the vendors. *JPB, Series Editor.*]

The next report in the series includes an updated review of online whiteboard applications.

N.B. Owing to the speed with which Web addresses are changed, the online references cited in this report may be outdated. They can be checked at the Athabasca University software evaluation site: <http://cde.athabascau.ca/softeval/>. Italicised product names in this report are assumed to be registered trademarks.

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Technical Evaluation Report

20. Whiteboard Products

Nolan Cox, Cindy Hoyme,
Neil Martindale and Liz Morch
Masters of Distance Education Program
Athabasca University - Canada's Open University

Abstract

A common feature of online collaborative methodologies is the whiteboard, a *tabula rasa* type area in which participants can share simultaneous applications and learning experiences. The current report is the first in this series to examine a range of whiteboard technologies specifically. Some are available in stand-alone freeware products such as *Groupboard*, while others are components of license-based packages such as *VClass* and *WebCT*. The whiteboard features of these three products are reviewed.

The Whiteboard

The term 'whiteboard' is used to describe both digital whiteboards designed for classroom use, and virtual whiteboard drawing software designed for Web use. In this report, the term whiteboard refers to a virtual whiteboard used to provide an interactive visual palate for use over the Web. Five qualities of whiteboard required for effective online tutoring can be identified:

1. Adequate compression rates and high resolution to ensure image quality
2. A large whiteboard area for effective implementation of instructional methods
3. Availability of simultaneous whiteboards and an easy method to move between them
4. Unlimited storage capacity to access and save whiteboard tutorials and images
5. Efficient location of user controls for easy access to the whiteboard, especially when the board is larger than the screen

The following reviews compare the efficiency with which three contrasting whiteboard provides such features. The reviews apply the evaluation criteria discussed in Report #7 in this series: i.e., cost; complexity; clarity; and common technical framework.

Product Trials

1. ***Groupboard*** allows users access to whiteboard, text-chat, message board, and game products. It includes a free version, full versions for up to 15 users and 100 users, and a stand-alone server version. This evaluation focuses on the whiteboard component of the free version, which utilizes Java applets hosted on the *Groupboard* server, to support five simultaneous participants. Users are provided with HTML code for inserting their personal webpages. The whiteboard is easy to use, and provides basic drawing tools, text tools, and freehand scripting. A limited number of background files and images can be uploaded, and the whiteboards archived for continued use. The layout and control features are easy to navigate, and the browser window can be minimized to occupy approximately one quarter of a 17" monitor at 1024 x 768 resolution, allowing for other applications to be viewed simultaneously. The whiteboard is relatively stable, with perceptible delays depending on user bandwidth and the amount of traffic on the *Groupboard* server. Compression rates are adequate, though distortions and illegibility can occur when many users attempt to write on the whiteboard simultaneously. The freeware's whiteboard space cannot be customized, and its banner advertising can be distracting. *Groupboard* support is available via an online helpdesk, an administrator's manual explaining the moderator functions and tagging commands, and a user's manual.

Moderators can restrict access to *Groupboard* via administrative and participant passwords; display a log of users at a given time; bar certain users based on IP addresses or names; disable features such as clear, load, and draw, delete saved images; and upload background images. Moderators can also alter the HTML and Javascript functions, though in the freeware version they cannot run simultaneous conferences. Users can host their own *Groupboard* websites using the freeware version, with the applets hosted on the *Groupboard* server, and can save whiteboard data to the server for later use, although not to their own hard drives. Users are prevented from restricting other participants' access. Although the software is interoperable on both PC and Mac platforms, connectivity difficulties were experienced in our tests between the *MacIntosh G4* (OS 9) and a *Pentium III* (*Win/ XP Pro*, running Microsoft's Internet Information Services Web server software).

2. ***vClass*** (an *Illuminate* product: see Report #19 in this series) provides a password-protected learning environment that provides the moderator with extensive control in the set up of the group, as well as the facilitation of online sessions. It does not have a free version, and levies charges depending on the number of concurrent learners. Initial fee for each learner is US \$100, with a yearly US \$18 fee for maintenance and upgrades. If an organization has four classes each containing 35 learners, it must purchase 35 learner slots, as long as the classes are scheduled at different times. The *Vclass* whiteboard includes draw and application sharing functions, and is easy to navigate by both learners and instructors, even when there are many simultaneous participants. *PowerPoint* and other pre-loaded images do not distort while images are being manipulated. The learner and instructor screens contain easily identifiable icons to guide users; and displays can be customised with their individual windows enlarged or hidden from view.

The *vClass* moderator's control features are modelled on those of the face-to-face classroom. Teachers can enable and disable privileges on a participant-by-participant basis throughout a session; delegate certain moderator privileges to participants; record and pre-record sessions for later access; and block participant interactions so as to prevent distracting or unproductive activity; and ensure that all view the same display simultaneously. This feature is particularly useful when sharing and demonstrating applications, and can be enabled/ disabled by switching between moderator-lead and participant-lead approaches within the same session. *vClass* provides comprehensive support options including an online helpdesk and on-site instructor

orientation sessions. The product uses compression technology, requiring minimal system capacity and basic 28K dial-up connectivity for basic operations. As with similar products, these minimal requirements involve extended download times and operating delays in attempts to use multiple features of the product simultaneously. *vClass* runs on both PC and Macintosh platforms.

3. **WebCT** whiteboard (version 3.6.2) is a component of the integrated learning management system *WebCT*, considered to be one of the industry standards, although it is expensive to acquire and maintain. Unlimited site licenses cost up to US \$50,000, which is evidently problematic for educational institutions in countries experiencing times of fiscal restraint. Reduced license charges are available for restricted numbers of learners. Third party hosting is not available. Although most of *WebCT*'s other applications utilise the Perl programming language, its whiteboard uses Java applet technology. It is password protected, and can be used simultaneously with other audio software such as *Yahoo Messenger*, although not with other *WebCT* features such as its chat and bulletin board. The whiteboard provides drawing tools, text and freehand scripting on a somewhat restrictive single page, and can be maximized to a full screen. Screen layout is easy to navigate and can be customised for aesthetic effect. It is uncluttered by advertising banners, and can be added to any page in the online course content, or made available as an external link. Course designers can allow or prevent users from uploading images and saving whiteboards. The whiteboard allows a portion of its image to be erased without the need to erase the entire board. In this manner, student errors can be highlighted and corrected without disrupting the rest of the display. *WebCT*'s learning management system provides manuals and online support for all its features, including the whiteboard.

WebCT and its whiteboard can run on any computer that supports a Web browser and a virtual java machine (*Windows, Macintosh, Unix*). The whiteboard requires no changes to browser configuration, although, as with *WebCT* generally, *Internet Explorer* is recommended over *Netscape* to maximize stability. The stated product's minimal equipment requirements are *Windows 98* (64/ 128 Mb RAM), and *Windows 2000/ NT/ XP* (128/256 Mb RAM), although users with lower-end systems are unlikely to be able to use multiple features of the product simultaneously. With lower-speed Internet connections, slow image-loading times and software navigation are experienced. The product's sampling rate is high, producing clear images, but when the display is minimized considerable delays can occur when the whiteboard is updated. In our tests, using *Pentium 4* systems and high-speed connections, these delays ranged from 25 - 40 seconds. Inconsistencies in performance, indicated by frequent error messages, were noted in our attempts to upload images and save whiteboard palettes from remote sites.

Conclusions

Whiteboard techniques provide a unique perspective in collaborative learning, and are being increasingly used to convey online information that cannot easily be transmitted in text or image form – e.g., mathematical equations and visual design concepts. Each of the three products reviewed has advantages and limitations in the extent to which it performs these functions. All products can be used on lesser-capacity computer systems and over lower-speed Internet connections. By virtue of their nature, however, whiteboards need to be used in conjunction with other online applications (e.g., text-chat or audio tools), and each of these products – whether the freeware *Groupboard*, or the license-based *vClass* and *WebCT* – requires more than minimal system specifications in order to function smoothly alongside other applications. In selecting a whiteboard product for a specific situation, the user must decide whether it is preferable to use a 'stand-alone' product such as *Groupboard* in conjunction with

independent tools, or to purchase a larger package such as *vClass* and *WebCT*, which integrates numerous applications in a single framework.

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