CREATING A RICH LEARNING ENVIRONMENT FOR REMOTE POSTGRADUATE LEARNERS

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ABSTRACT

At Rangelands Australia, a centre in the School of Natural and Rural Systems Management at the University of Queensland, we have recently trialled virtual classroom technology for the delivery of postgraduate support courses. We wanted to explore the capacity of this learning modality to provide collaborative, interactive, synchronous learning environments for our target market — geographically isolated, rural students whose access to rich learning environments was limited by distance. We found that the virtual classroom platforms had considerable capacity to enhance the learning experiences of remote students while achieving the desired learning outcomes. However, we noted the demands and challenges that managing a virtual classroom placed on the facilitator, involving roles and responsibilities which are likely to be unfamiliar. We concluded that, if the facilitator is technically and pedagogically prepared for the virtual classroom platform, this learning approach can realistically provide an active and collaborative learning experience for geographically remote students.

BACKGROUND

Rangelands Australia (RA) is a centre in the School of Natural and Rural Systems Management at the University of Queensland, established in 2003. The RA vision is to provide quality postgraduate coursework programmes and supporting courses in rangeland management and agriculture. Our target market is based on rural and remote rangelands clients who normally have difficulty in accessing quality tertiary education programmes relevant to their needs. RA students are overwhelmingly rural-based or geographically isolated business people who are studying part-time, across Australia. Their professional situations include private producers, corporate staff, government agency officers, educators, and natural resource management devotees.

The importance of educational access for rural and remote Australian communities has been widely discussed (Eversole, 2002). The 2000 HREOC Inquiry into Rural and Remote Education in Rural Australia indicated that access to education was a key concern of rural communities, as they felt that the viability of their communities was dependent on successful participation in education and skilling programmes (HREOC, 2000). The Rural Education Forum Australia (REFA) noted in its 2007 Election Charter that:

> People living in rural Australia are entitled to, and urgently need, better access to quality education and training so they can achieve their potential and contribute towards the social, economic, political and cultural life of our nation. (REFA, 2007, p. 2)

There is little doubt that education is critical for rural communities to participate in the Australian economy and lifestyle (McSwann, 2003).

The reality, however, is that rural areas have substantially fewer workers with post-school qualifications, particularly at the tertiary level (OACDT, 2005), and that rural Australians are under-represented in tertiary study (Godden, 2008). There may be many reasons for this, the most obvious being that completion of traditional tertiary programmes is unfeasible for rural people due to the problems of what d'Plesse (1993) defined as 'resistance': the geographical, logistic and temporal limitations on their movement to tertiary centres.

For many years, in an effort to lessen this 'resistance', distance education has been a major strategy utilised by tertiary institutions in attempting to provide educational products to remote students, and it has certainly allowed rural or geographically isolated students to access programmes and courses which would otherwise be unavailable to them. Agricultural courses, in particular, are of interest to students who are frequently located away from large urban centres, and institutions have depended on distance education. For example, within the School of Natural and Rural Systems Management at the University of Queensland, all courses are offered externally and over 50% of students study at least one course in this mode (Baxter, 2008).

However, tertiary distance education, until as recently as ten years ago, has depended overwhelmingly on print-based courses, relying on the mailing out of large amounts of printed course materials. This mode of delivery, with little personal interaction between learner and teacher or learner and learner, can result in alienated, demotivated and disenfranchised learners (Galusha, 1997) or disadvantaged visual and audible learners (Sankey, 2006). Paper-based tertiary distance programmes, while critical to the provision of education in rural areas, have not always been perceived as an equitable substitute for a face-to-face classroom (Meyer & Downs, 2008). The 'Bush Talks' report (Sidoti, 1998) noted that rural people felt that this form of distance education, although it may be acceptable in primary education, could not substitute for the interactive approach important for higher level subjects. Although the report was specifically concerned with secondary education, the "capacity of learners to actively construct their own perspectives which they can communicate to a small group" has even higher significance in tertiary education (Wilson & Stacey, 2004, p. 34).

For some years now, tertiary institutions have attempted to address this deficiency by offering programmes via a blended learning modality, which combines a range of learning and teaching approaches, including information and communication technologies. While there is no doubt that in most learning institutions, information technology-supported modes of learning are increasingly replacing solely print-based approaches, there is some question about the actual proportion of interactive, collaborative learning being incorporated into the courses. Beldarrain (2006) notes that the uptake of collaborative learning experiences has not been widespread, in either synchronous or asynchronous learning environments. Anecdotal evidence would indicate that many higher education learning experiences for this demographic still rely heavily on paper-based materials and residential schools. Even courses marketed as totally online may, in reality, consist of posting

textual material on the course website. Online interactive support or assessment activities are often asynchronous, relying again on text as the underlying means of communication. Mioduser, Nachmas, Lahav, and Oren (2000) and Ladyshewsky (2004) concluded that the majority of e-learning programmes were based on the same pedagogical approaches espoused in text and CD multimedia programmes: individual learning, teacher-focused instruction, automated feedback and memorisation.

Online collaborative learning platforms, such as web-conferencing and virtual classrooms, have for some time now been accepted as an engaging, synchronous approach for remote students, although there has not been an overwhelming take-up in remote areas, partly due to technological limitations. As far back as 1994, the South Australian Open Access College was trialling a project to use distance education as a delivery medium for its school-based curriculum (Edmonds, 1994). Kavanagh, Baron, and Carrington (2004) discuss the use of the virtual classrooms to facilitate the delivery of tertiary programmes. They note that:

> The virtual classroom framework and tools reflect contemporary practice and have enabled the learning expectations of engagement, informative content and relevance to be exceeded in a cost effective and efficient manner. (Kavanagh *et al.*, 2004, p. 291)

Online collaborative learning overcomes the a-synchronicity of most online courses by offering the interactive experiences which are associated with typical classroom interaction (Kelly, 2008). It provides the opportunity of interaction among students and facilitator, and enables group interaction, which is difficult in traditional distance courses.

RA EXPERIENCE

RA continually seeks opportunities to try to compensate for the educational disadvantage of isolation; for example, by introducing group presentation and discussion activities delivered via teleconferences. We recognise the importance of stimulating cooperative and collaborative learning for remote students. In light of this goal, we recently delivered two of our support courses to students in remote areas via virtual classroom platforms. The first was in April 2007, when we participated in a trial managed by the South Australian Outback Areas Community Development Trust, in conjunction with the South Australian Farmers Federation, to test virtual classroom technology in the delivery of remote short training courses to adults (Meyer & Downs, 2008). We delivered one of the short courses which we offer as auxiliary support products for our postgraduate courses. The course, called 'Introduction to Monitoring for Management in the Rangelands' was successfully taken by nine students located in remote areas in South Australia via a virtual classroom platform (Centra, see: http://www.saba.com/products/centra/).

Our second virtual classroom experience was in August 2007, with a pre-postgraduate skills development course (Getting into Further Study, or GIFS), designed for new postgraduate students with little tertiary experience (for example, students who enter the course through Recognition of Prior Learning). An online collaborative learning platform (Wimba Classroom, see: http://www.wimba.com/products/wimbaclassroom/) was being trialled by the

University, so we decided to test this platform by running the course with students located at their homes in remote locations of three different states (QLD, NSW and NT).

Our aim with both of these courses was to assess the adaptability of these courses to web-conferencing and the value of web-conferencing instruction for RA courses in general, particularly with a view to providing increased opportunities for interaction and collaboration. Informal student surveys prior to the trials (Wallis, 2007a) indicated that our students considered a virtual classroom environment a viable option for providing the interpersonal interaction and communication which is so important in education, and which is so logistically difficult to provide for our target market.

COURSE DESIGN

Tertiary education facilitators are increasingly being asked to undertake responsibility for flexible learning and e-learning activities within higher education programmes. Academics must adapt to a rapidly evolving higher educational scene (Ellis, Sawyer, Dollard & Boxall, 2002), in addition to dealing with greater numbers of students, increased emphasis on course work and more skills-based assessment with more structured, detailed feedback. Wilson and Stacey (2004), in their analysis of professional development requirements to effectively teach on-line, note that "a competent, confident online teacher is a new and different role for academic staff" (p. 38).

As the facilitator was the author of the original course, the task of redeveloping the course for virtual classroom delivery fell mainly upon her. Redesigning paper-based distance courses for virtual classroom delivery requires considerable rewriting. Adapting a course, which is designed for face-to-face delivery means re-thinking and adapting some of the pedagogical practices to best suit the on-line platform, although PowerPoint slides can be directly imported. Irlbecka, Kaysa, Jones, and Sims (2006) argue that on-line programmes require specialised educational design roles and processes. For example, the increased concentration and mental stress of on-line learning prohibits sessions longer than two hours, which required redesign of our course structure and of the proportion of self-directed and student activities. Many of the collaborative learning activities were converted to facilitator-led activities which were introduced in class and then completed as part of individual self-directed study between the sessions. Reflective activities were also rescheduled as individual study between on-line sessions. Due to bandwidth issues, facilitator presentation materials were best presented as HTML files, which required time and expertise in the content authoring tool which converted content documents into HTML format support materials. Other users of this learning modality have noted the increased teacher preparation time required (Boylan, Wallace, & Richmond, 2000).

COURSE DELIVERY

Both virtual classroom platforms (Wimba Classroom and Centra) offer a range of features designed to support interaction and collaboration, including:

- Multi-point video and VoIP
- Content, chat and participant areas
- Interactive class whiteboard
- Polling and survey capabilities
- Breakout rooms for small group work
- Support of content including multimedia
- Live application sharing (e.g., internet, slides, text documents, images) (Wimba, 2008; Saba, 2008)

In 2003, McSwann recommended that: "Access to state-of-the-art information and communications infrastructure is a prerequisite for effective delivery of educational services to rural areas…" (2003, p. 23). In 2005, the SA Outback Connect project concluded that there has been considerable Government and private investment in ICTs for remote areas, including mobile phone access, broadband and satellite internet infrastructure, although the up-take of on-line technologies by people living in this area has been slow (OACTD, 2005). The speed and quality of internet connection has always been a vital factor in the success of on-line programmes for rural areas, and in a synchronous environment such as this, with video streaming, it is a critical factor. Fortunately, all RA students must have internet access as part of external student pre-requisites, although the speed and quality of connection varies in different areas and conditions. However, all the students completing the two courses had sufficient quality of access to participate in the sessions successfully; even with home internet connections of 560/128 mb/s (none relied on dial-up). Moreover, both platforms were designed to adapt to varying internet speeds and access, including the provision of telephone links if internet access was unavailable. The GIFS course was delivered over the Blackboard Collaboration webpage, making it simple for students to access, and was administered and given technical support by the university. The Introduction to Monitoring course was delivered via the Centra virtual classroom platform, with technical support supplied by Rural Solutions SA. The only equipment requirements for our students, apart from access to the internet and Blackboard, were headsets and microphones, and, ideally, webcams, which RA supplied.

Students were supplied with the hard copy course materials well prior to the delivery of the courses, to use as a reference and resource for self-directed and reflective learning activities. The timing of the sessions was negotiated with the students, allowing sufficient time between sessions to complete follow-up activities, but to maintain constancy of delivery. (This is particularly important in on-line courses because often the original content has been compressed into fewer hours of instruction and, therefore, students will have to spend reflective time and time working on activities alone.) We also ran an introductory session to allow learners to explore and learn about the platform. Sessions were able to be recorded and archived, so that students had the opportunity to revisit the materials as often as desired.

SUCCESS OF THE LEARNING EXPERIENCE

Ideally, we were looking for the virtual classroom to enable our remote students to collaborate in a learning community. We desired that it should enable student-centred active learning, and that it should cater for different learning styles. Finally, we required that it should be able to provide rapid, meaningful feedback for both the learners and facilitator. The student surveys and facilitator observations provide preliminary indications that all of these expectations were met, although the aspect of feedback needs further discussion and will be covered in greater depth in the next section.

Due to the low number of students involved with the two trials, we examined qualitative feedback, in the form of question and answer evaluations, in preference to statistics. A more formal evaluation process has been planned for the next course, which will be based on higher student numbers. The feedback we received indicated that the virtual classroom was successful in providing a participatory, real time, interactive teaching and learning environment for our students. We were able to give students an "available, accessible, affordable, acceptable, and adaptable form of learning facilitation" (HREOC, 2000, pp. 9-22). Both facilitator and students found it easy to use, and student reviews were very positive. Eighty per cent of students indicated in the course evaluations that this type of on-line delivery was strongly preferable to other forms of delivery, given their particular circumstances and abilities. Comments included the following:

> *"Where we live almost prohibits attending courses due to travel and other commitments – online is a terrific way to do a course."*
>
> *"Because I live in the remote part of Australia, this is a more desirable way of learning"*
>
> *"Can do it from home and don't need to travel. Great to be able to talk to other students and lecturer at same time!"*
>
> (Lonie, 2007)

Kelly (2008) notes that the success of an e-learning activity should be measured by how well it enables the learning goals of the activity to be achieved. The GIFS course did not require any formal summative assessment, but it did incorporate a number of formative peer-reviewed consolidation activities, which were used by the facilitator to adjust the pace of the learning. Thus, the facilitator ensured that she did not introduce new material until she was confident that each learner had achieved a minimal level of competency of learning outcomes (with some achieving higher levels of competency). All learners were able to successfully complete the activities, and have since gone on successfully to tertiary study.

The virtual classroom enabled many of the traditional tertiary teaching techniques: lecturing; open discourse; reading and writing; and display of visual material. However, the major advantage of using the virtual classroom was its ability to support peer interaction, collaboration and learning (Wilson & Stacey, 2004; Kavanagh *et al.*, 2004). Application sharing enabled the sharing of student assignments and the creation of collaborative activities. For example, in the first session of the GIFs course, students and facilitator created a class concept map using

the interactive whiteboard; in the final session, students were required to prepare and deliver an on-line presentation to each other, including dealing with questions from the class. Both of these are standard postgraduate learning activities, but this type of collaborative learner-centred activities would have been less effective or impossible in other distance learning environments. The various elements of interaction — through audio, text, graphics and video — meant that the learning could be meaningful for different learner preferences, such as visual and audible learners (Clark, 2000).

The GIFS course was particularly suited to collaborative education — much of the subject matter called for interactive and collaborative learning approaches: for example, sessions on personality type, learning styles, and managing study (Wallis, 2007b). The facilitator was able to foster class discussion and reflection in order to enhance understanding of these concepts. They could share stories and examples, and invite student input. The video streaming of other participants was very much appreciated by the students as it added a visual element to the learning community and enriched the bond between them.

IMPORTANCE OF FEEDBACK

While we had no reservations regarding the success of the courses, there are a range of advantages and limitations to the successful implementation of this learning mode. It is worth mentioning two of the pedagogical strengths and weaknesses which arose, and how they were managed.

While we have noted the ability of the virtual classroom to enable traditional classroom practices, some aspects of the classroom are beyond the scope of the platform to reproduce. The non-verbal elements of face-to-face learning such as facial expressions, physical gestures, stance and vocal intonations of students and facilitators can be lost or diminished, even with 'follow-the-speaker' video and excellent audio lines of connection. On the other hand, facilitator facial expressions can also be over-read, as this is the only element of body language that the participants have, and they tend to give it great significance — a slight grimace or a distracted look can deliver an unintended message.

These limitations impacted on the feedback available to both groups: for example, teachers use a variety of techniques to informally evaluate classroom learning (University of Idaho, 2008), such as asking questions, listening to questions and comments, and monitoring body language and facial expressions. This informal feedback enables the teacher to assess the level of engagement, assimilation and understanding, and adjust the pace of the facilitation accordingly. In the same way, students in traditional classroom settings interpret their teachers' body language, the order in which they are called on and the intensity with which they are listened to as signs of their teachers' attitudes and opinions. They will assess their progress and the value of the content based, in part, on the non-verbal cues of the facilitator.

In the virtual classroom environment, the facilitator had to deal with seeing only one student at a time, or not seeing the students at all, and relying on text, voice and icons for feedback. Because traditional feedback mechanisms were not easily or quickly available, we had to find ways to compensate for them and provide an inclusive environment. We found it critical that both facilitator and students put

extra effort into engaging in dialogue and providing immediate descriptive (general) and prescriptive (specific) feedback for each other. While frequent questions, or calls for comments could seem intrusive at first, it meant that understanding was not reduced through lack of opportunity to clear up misunderstandings and clarify points immediately. All of our students were mature learners who were unaccustomed to web-conferencing environments, and sometimes seemed reluctant to interrupt the flow of the lesson with audio or text input, especially in the first sessions. We had to ensure that the students who may have been shy or uncertain of speaking/texting understood the importance of their feedback — we ensured that we discussed this as part of an initial, introductory session. We offered as many interactive exercises as possible, and provided them with frequent opportunities for sharing answers or their assignments.

ROLE OF THE FACILITATOR

In our trial courses, we found that the success of the learning experience was largely dependent on a number of factors which were fully or partly the responsibility of the facilitator. Thus, the input of the facilitator was critical to the effectiveness of the learning, and to the learners' acceptance of this mode of knowledge and skills development.

Online teaching brings some challenges to those who are unfamiliar with the technology of these new learning modalities, and our trial demonstrated that it was essential to provide facilitator training, and opportunity for practice, in the technical aspects of the virtual classroom platform prior to the delivery. However, mastering the technical demands of the delivery alone will not assure the success of the facilitation. Goodyear, Salmon, Spector, Steeples and Tickner (2001) listed the important roles of a competent online teacher as:

- Content facilitator
- Technology consultant
- Educational Designer
- Course administrator and record keeper
- Process facilitator
- Learner adviser and counsellor
- Learning assessor
- Content researcher

We found that there were certainly a number of elements to the facilitation of virtual classroom courses which would not have been encountered in a traditional classroom setting, and the facilitator had to ensure that he/she was able to cope with these requirements, in order to create a successful learning community.

It is evident that an essential facilitator skill is to be able to *engage* with learners who were now remote from the learning experience in which they were participating. This is important — many tertiary educators are not trained or often comfortable in delivering via a virtual classroom, and need to develop skills in this area. Rather than the various elements of facilitation being all enmeshed into a single

seamless performance, as in a traditional workshop setting, we had to manage a number of different facets separately—the order of content presentation, the speaking, the visual aspects, the reading of text, dealing with presentation material, and reading and interpreting interactive tools. We found that, ideally, two facilitators are needed: one to deliver content, and the other to handle any technical issues and monitor student texting and use of the icons, even with small classes.

CONCLUSION

> Emerging technologies are changing online distance learning because they offer new solutions, add flexibility to integrate student interaction, and evoke real-life collaboration opportunities.
>
> (Beldarrain, 2006, p. 149).

Squires (2003), in discussing the aspects of physical and psychological isolation in rural and remote Australia, notes that educational institutions need to be supportive of isolated communities. It is certainly true that the rural drop-out rate can be influenced by the ability of the institution to reduce the isolation of its students. Access to learning opportunities in the rangelands is limited, and participation rates in TAFE and university courses are very low compared with metropolitan Australia (Bureau of Regional Sciences, 2008). While on-line training has been somewhat accepted in many industries, it is not yet common in training for agriculture. However, computers are becoming increasingly important in rural regions and related industries — for business applications, e-banking, shopping, information provision and communication, and additionally, people in remote areas are becoming increasingly computer literate (Meyer & Downs, 2008). Web-conferencing and virtual classroom platforms can enhance the learning experiences of distance students considerably. Our trial courses demonstrated that rural students are enthusiastic about opportunities to participate in educational experiences which can provide collaborative, interactive, synchronous learning environments without logistic upheaval. If the facilitators are technically and pedagogically prepared for the demands and challenges of a virtual classroom platform, this learning approach can provide an active and collaborative learning experience and has the potential to reduce the discrepancy between urban and rural education participation.

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