Borderless Supervision in Higher Degree Research: Consolidating International Pedagogies and Web-Conferencing Technologies

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Abstract: Intercultural learning has many meanings in the digital age of the 21st Century. The expansion of international and global education has impacted on collaborative knowledge production between students and their academic supervisors in more sophisticated ways than ever before. Doctoral studies are conducted across national borders in real time and with real participants facilitated by virtual environments and sustained by web-based technologies. This article reports on a funded trial of using web-conferencing technologies to support collaborative research supervision. The research work, the project supervision and the collaborative pedagogy produced by the international scholarly teams are enhanced by the use of web conferencing technology. Based on an evaluation of the software, this paper offers implications for enhancing the quality of joint research supervision in international contexts through the use of new technologies.

Keywords: International Pedagogy, Comparative Education, Research Supervision, Intercultural Learning, Web-conferencing Technologies

Introduction

The Internationalization of higher education has offered many opportunities for trialing new technologies to better implement the pedagogic arena of research and scholarship (Hellstén & Reid, 2008). In the 21st century students are increasingly located at considerable distance from their academic supervisors, and thus synchronous communication tools can become central to a successful collaborative relationship. The need is further exacerbated by the recent global economic changes affecting academic work conditions and task management agendas – people from geographically disperse locations are required to meet more often for less cost. Academics involved in pedagogic innovation in the context of distance education have sought solutions from available web-conferencing tools (Fuest, 2007; Pettigrew, Villardier, Sauvé & Keating, 2008; among others). One of the main rewards of implementing web-conferencing technology in distance education is provided in its capacity to offer connectivity within the community of scholars.

The innovation of web-conferencing technology aims generally at meeting the needs for scholarship that is both interactive and collaborative, synchronous and of high enough quality to sustain variation in provider quality and resources (see e.g. Kreher, 2008). Of most interest seems to be the issue of how to best accomplish interaction in real-time, by utilizing a series of software tools such as video/audio, chat, whiteboard annotation etc., which are manifest in activities such as collaborative authoring and are characteristic of a real classroom or team-authoring environment.
Web-conferencing software facilitates remote collaboration through the following features:

- documents can be broadcast between remote locations
- collaborative authoring of texts is facilitated
- documents can be shared and simultaneously discussed using VoIP
- PowerPoint presentations can be delivered for instructional or assessment purposes
- computer-based demonstrations and technical troubleshooting can be facilitated using desktop sharing
- interactive whiteboards can be used to perform collaborative mind-mapping and note taking
- video-feeds can be setup between the remote locations to allow visual-kinaesthetic information to be shared.

In this paper we present a case study of a funded trial of the Adobe Connect web-conferencing software conducted at Macquarie University, Sydney (see Figure 1., for a screenshot of the Adobe Connect interface). The software trial involved academic and professional research groups and focused particularly on the pedagogical applicability across a range of academic discipline areas.

![Figure 1: Screenshot of Web-Conferencing System Showing Pods (Clockwise from Top-left) ‘Camera and Voice’, ‘Share’, ‘File Share’, ‘Chat’, ‘Note’ and ‘Attendees List’](image)

The field investigating the use of web-conferencing software in the framework of research supervision and collaboration is still somewhat young, but a number of recent studies are noteworthy. For example, Kreher (2008) suggests that web-conferencing software provides a platform upon which to base more frequent meetings between research collaborators when limitations are at issue due to remote geographical distances. This prevents the stalling of the research progress that otherwise depends on physical presence. Fuest (2007) reports on a trial of the software applied in university settings in Germany. The recommendations highlight a number of points, among them the argument that efficient use of online tools in
teaching requires independent learners and a move away from traditional views on pedagogy limited to the boundaries of ‘the classroom’. Thinking away from the entire concept of ‘classrooms’ might be necessary, according to Fuest, in order to fully take advantage of a range of web-conferencing tools. This requires initiative and innovation on the part of teachers, as well as increased time demands and organizational resources on behalf of teaching and research institutions.

As a pedagogical model, web-based learning is linked to cognitive learning theories adapted from constructivism and social constructivism (e.g. Vygotsky, 1978). These models refer to the process whereby computer-based technologies allow for the learner to become an active agent in constructing new knowledge, which is further enhanced by online peer interaction and team work through ‘real-time’ collaboration (Hollan, Hutchins & Kirsh, 2000; Reushle & Loch, 2008). While the adoption of web-conferencing software is widely endorsed in higher education, Reushle and Loch (2008) point out the need for institutional resources such as training of software, continuation of user support and extending the availability of the software to allow for user skills to fully develop. They claim that this would counteract the fear expressed by some staff members, in redundantly investing in time to learn technology that changes all too frequently.

**Comments on Aim and Method**

The current web-conferencing software trial emerged from the author’s interest in enhancing online teaching applied particularly in borderless learning contexts. Of particular interest is the facilitation of internet based, collaborative learning that would deliver positive effects on work/study time without requiring additional hardware demands.

A trial funded by the University’s internal funding scheme was implemented over a seven-month period. The trial had both pedagogical and software evaluation aspirations. A feedback survey was administered to students and lecturers interested in trialing the software over an extended six-month period. Students were enrolled in undergraduate and postgraduate degrees both on and off campus. However, for the purpose of this study, our findings respond mainly to off-campus research students’ and their lecturers’ commentary.

Face to face and online training sessions were provided at the start of the trial and at regular intervals during the trial. Users were provided with additional technical support throughout the trial.

**Evaluation of Software Capability**

Overall, the participant survey indicated a positive response to the use of the software. The training provided at the beginning and during the trial period was particularly appreciated by participants as were some of the online technological support tools.

“It was great to have the tech support for students already compiled to add to the unit. Having access to these types of docs to add into the unit (without having to develop them myself) is great.”

The software was rated as predominantly ‘satisfactory’ for teaching and learning purposes. It lends particularly useful for ease of use, reliability, speed and connectivity. Comments
about the functions that were experienced as most satisfying were ‘chat’, ‘the whiteboard’, ‘note pods’, and ‘breakout rooms’, for example:

“I find the system great for enabling a learning community between traditional separate cohorts; on campus and off campus.”
“The advantages for the system are the ease of access (no downloading of applets etc.) each time you enter a meeting room.”
“I think that at the moment, the system is working well and I would be more than happy to use this system in the future for both supervision of doctoral students and running of doctoral seminars.”

Other functions of the software that were appreciated by users allowed for teacher student communication through the sharing of desktops for demonstrating documents and software. This also allowed for synchronous co-authoring of academic text. Users indicated benefiting from the elements provided by the software in utilizing virtual seminar sessions, integrating participation in a face-to-face environment whilst synchronously sharing the session through online remote access. Users saw advantages in the software providing elements similar to real-life seminar rooms (e.g. whiteboard and audio functions). A requirement of utilizing this function is the application of a roving microphone to capture dialogue in the face-to-face environment. This increased the attentiveness of lecturers in ensuring that all users can hear all speakers during the audio session.

Some of the technical difficulties reported on highlighted ‘broken links’, and consequent ‘difficulty to only partly record a presentation’. Users found it difficult to combine the simultaneous application of both the audio and video recordings that caused intermittent session breakage. The study was unable to ascertain as to whether such technical problems are the result of hardware configurations on local terminals, or is attributable to the software. It is plausible that many of the issues related to internet provider quality involving off-shore students.

**Evaluation Relating to Pedagogy**

Pedagogy applied to borderless education contexts using asynchronous technology (e.g. Skype, email) delivery relies in part on the ability to communicate effectively through text (ie. written form). Problems may arise in online international learning contexts due to limited language proficiency and intercultural understanding (e.g. Bretag & Hannon, 2008). It is possible to circumvent multilingual proficiency problems by the use of web-conferencing software as a complementary resource. The audio-recording function allows participants to replay recorded sessions and thus complement written learning materials. The ‘Voice’ (audio) tool was rated as a pleasing feature, particularly by student participants in the trial. However, the technical problems (e.g. breaking of links) encountered with the audio function prevented many from taking full advantage of its use.

The overall pedagogical advantages of the software related to the broad range of functions and variability of features. The pedagogies that were rated by participants related to the following advantages of the software:
• Incorporation of peer learning activities
• Collaborative learning and co-authoring
• Group discussions involving both on and off campus users
• Delivery of high quality online presentations
• Simulated virtual seminar sessions involving face to face and online participants
• Provides flexible learning through archiving presentations, materials and learning activities
• Creating of an international learning community through effective online collaboration
• Allows students to interact not merely with their supervisor but also with each other
• Supports mentoring relationship between supervisors and research candidates
• Facilitates better time- and task management
• Encourages independent learning through the built-in technical support.

In summary, the pedagogical implications of the software are reflective of constructivism by encouraging learner activity through participatory engagement and scaffolding of the learning process. Context sensitive pedagogic scaffolding can be provided in real time by the synchronous communication tools and also by the archiving of presentations that makes review and repetition of the curriculum possible at any time. This is especially relevant in borderless learning contexts that encompass the additional constraints of global time differences, and variations in logistics such as internet provider capacity.

From an intercultural perspective, there were several benefits derived from using web-conferencing. In a group setting the web-conferencing system filtered out cultural bias supporting open and equitable interaction in groups. Not only did ‘text-chat’ allow several people to communicate simultaneously, but in cases where users were communicating in their second language the immediate access to text-chat provided a low risk means of collaboration minimizing language output related variations. Furthermore, the availability of the text-chat transcript allowed users to back-track any unclear spoken interactions at readers’ preferred speed. The ability to record sessions meant that any comprehension issues could be addressed upon review of session archives.

The fact that most students are relatively unfamiliar with learning using web-conferencing provides an opportunity to establish new online cultures of collaboration. Teachers can set expectations about how and when to collaborate, combining the best aspects of international learning cultures and discouraging those behaviors that are deemed unproductive. For instance, students can be encouraged to contribute text chat while the presenter is talking in order to establish a feedback cycle and sub-narrative that augments the learning process. Student ownership over the learning process can thus be promoted by encouraging them to suggest the most effective ways of using the web-conferencing modalities in online collaboration.

Potential pedagogical disadvantages of using web-conferencing in intercultural settings are limitations imposed by the physical learning environment. Some extra-linguistic cues used in face-to-face communication may become redundant, such as the ability to pick up signals from facial expressions, such as communicative misunderstandings and double meanings. Similarly, it may not be obvious which part of a whiteboard is referred to for communicative reference points and discussion. To this extent, participants need to be encouraged and perhaps trained in the use of explicit intercultural communication (either words or insignias built into the web-conferencing system) to indicate their understanding and the focus of the discourse.
Our study highlighted that any implementation of software requires skills training and competencies to develop over time. There is some reluctance especially among lecturers in undertaking a pedagogical shift to using web-conferencing technologies for fear of its initial time demands. Some respondents commented on the initial setting up of the online learning environment as being time-consuming, and in some cases adding somewhat to the workload. We assume that such ‘teething problems’ may be due to inadequate training and limited use of the software prior to teaching launch. The survey gave indications that not all participants took advantage of the many training opportunities provided by the project team prior to or during the trial period. Our reservation is that consideration should be given to the initial time afforded pre-launch preparation and training in a new learning environment regardless of the variety of tools adopted.

Conclusion

There are several inherent issues associated with teaching and learning using web-conferencing, including mastering the functionality of the tools, determining the most effective ways to collaborate, and overcoming technical hurdles associated with software and bandwidth. However, the potential benefits for international and cross-cultural pedagogy are significant – effective synchronous communication across vast geographical distances, the capacity to negotiate new meanings and collaboratively author using multiple modalities, and the ability to establish new and more efficient patterns of collaboration that transcend intercultural barriers provide considerable incentives to adopt such approaches. The degree to which students will benefit from the opportunities afforded by contemporary learning technologies such as web-conferencing will depend on teachers’ ability to leverage these potentials and circumvent the associated complexities.

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References


Davidson Iver. (2007). Using Adobe Connect to Transform a Live On-Campus Course into a Streamed (Live and Recorded) Online Distance Course. Chesapeake, VA: AACE.


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Meeri is a senior lecturer in education. Her current research involves comparative analyses of international student learning in Europe and Australia. Meeri lectures in pedagogy and language and literacy areas of education. She has a keen interest in the application of ICT for enhancing teaching and learning especially in intercultural contexts. She is co-editor of a new book “Researching International Pedagogies: sustainable practice for teaching and learning in higher education”, published by Springer in 2008.

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After beginning professional life as an actuary, I soon decided that my true passion was education. After returning to Macquarie University to complete a diploma of education, I taught high school Mathematics for several years in Sydney, Alice Springs, and the UK. With an interest in applying IT to educational contexts, I completed a Bachelor of Science in Computing and a Masters degree in Education (online education) and soon after joined Macquarie University's Postgraduate Professional Development Programs to develop and teach in their new online Graduate Diploma of IT program. I completed my PhD thesis titled "Designing for Interactive and Collaborative Learning in a Web-Conferencing Environment" and have recently commenced as a K-12 ICT in Education lecturer for the School of Education at Macquarie University.