Flex and inflexibility: The impact of real-time collaborative technologies in highly customisable video-linked teaching spaces

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This paper introduces a major investment in 'state of the art' video-linked teaching (VLT) facilities aimed at supporting collaborative teaching and learning across and beyond the campuses of Massey University. It reports how the design and development of the VLT spaces have resulted in unexpected challenges that are occasionally counter to the flexible teaching philosophy that has informed the design of the rooms. Some initial feedback is shared from the early experiences of staff and students, indicating several lessons for other institutions wishing to exploit the potential of VLT and related new 'hybrid' learning spaces. Overall the poster offers a glimpse into an engaging, tactile learning environment which goes beyond traditional video conferencing and highlights some of the pedagogical implications that have arisen through the project pilot phase.

Keywords: Video linked teaching, video conferencing, synchronous, flexible, learning spaces

Background

Massey is New Zealand's largest provider of tertiary level distance education with campuses spread across three North Island locations. The distributed nature of Massey's students and physical infrastructure has provided the impetus behind a rapidly accelerating use of synchronous teaching tools. Until recently, this has mostly taken the form of desktop conferencing applications such as Adobe Connect, Scopia and Skype. Video conference meeting rooms have also been pushed into service as a means of linking simultaneous face-to-face classes on different campuses. Whilst online learning technologies have increasingly blurred the boundaries between modalities, the virtual-physical, distance-internal divides still remain. Video-linked teaching has been envisioned as a means to, as far as is currently possible, remove the barriers of physical teaching space in order to bring together classes of distributed learners.

The VLT project mirrors a sector-wide focus on re-imagining 21st century learning spaces in order to realise "the power of *built pedagogy*" (Oblinger 2006). Traditional teaching facilities continue to be employed across the tertiary sector, many of which encourage transmissional or linear approaches to teaching and learning. It has been suggested that "pedagogical innovation demands a space that enables exploration by both teacher and student" (Neill & Etheridge 2008) and it was with this ethos of innovative teaching and active learning that three hi-tech, flexibly designed VLT spaces were proposed. Envisioned as 'nodes' that would enable distributed learners and teachers to come together in highly interactive, media-rich, real-time collaborative environments, a pilot project was given the go ahead and facilities that support classes of up to 50 students were constructed through the first half of 2012 in Auckland and Palmerston North. Several 'ad hoc' video conferencing rooms have been adapted as linked facilities on the Wellington campus making it possible to link all 3 campuses. 3 classes were taught within the rooms through semester 1 2012.

Spatial design and effect on teaching

VLT spaces have been designed for use with modular, mobile furniture and enable classes to be set up in a wide variety of formats. The amount and flexibility of cameras, displays and inputs, as well as whole-room audio coverage mean that teaching staff have a staggering number of options to consider prior to teaching. This puts a great emphasis not only on technical knowledge of the spaces, but on pedagogical approaches and how these are

integrated with the technology to facilitate effective classes. Initial observations indicate that the flexible format of the rooms offers huge scope prior to classes but can be disruptive and disorientating for students if altered mid-class. Prior planning and 'scripting', as well as on-demand technical and academic support have proven to help mitigate these issues. Students have also reported that familiarity of room layout plays a major part in their ability to engage successfully in VLT classes; that knowing where information and camera feeds will appear is essential to the navigation of their learning environment and ultimately to their learning experience. Repeated manipulation of a class's learning environment is not necessarily desirable or effective.

Academic development

Academic support was built in to the project as part of the initial funding application and has proven to be of value through both the design and implementation phases of the pilot. A series of on demand web-based/mobile resources, planning materials and guides have been produced to support academic staff. These resources along with one-to-one consultations, monthly hands-on professional development sessions and heuristic opportunities for academics to review and re-imagine their VLT classes, are enabling teaching staff to more fully exploit the interactive and collaborative potential that the rooms offer (Steel & Andrews 2012).

Teaching consultants worked closely with academic staff to gather lesson plans, layout diagrams and feedback from semester 1 classes. This information informed the design of a series of 'presets' that can be used as one-touch starting points for the setup of classes. Room planning documentation, preset guides and 'visual planners' have also proved valuable aids in the design of VLT lessons.

Initial observations

The three pilot classes were all team taught, with academic staff facilitating in each location. Students acknowledge the benefit of multiple perspectives and the variety of expertise this has brought to their classes, whilst staff have welcomed the opportunity to 'team teach' and co-develop their papers. Students are wary of the potential for 'remote' teaching, but enjoyed the increased intimacy that the rooms have brought to their learning experience and have pointed out the contrast to other classes held in more 'authoritarian' teaching spaces. Students appreciate the opportunity to develop closer relationships with their teachers, the subject matter and the learning process itself.

Staff and students alike require extended initiation to these new spaces, with students citing familiarity and comfort with the technology as major factors in their ability to successfully learn within the VLT rooms. There appear to be some concerns from staff and students about the potential for sensory overload if too many data sources, cameras and other locations are introduced. Anecdotal evidence suggests that a 'busy' environment is more tiring and leads to shorter periods of engagement. The effect of a prolonged and overwhelming sensory barrage on working memory and how this might affect cognitive load is as yet unknown, and this is an area that will require further study if these teaching spaces are to fully benefit, not hinder the learning experience.

What next?

A formal evaluation of the semester 1 classes is in progress. Student focus group interviews, teacher and academic support staff interviews, and a quantitative survey have been conducted. Data analysis is underway and it is expected that a pilot phase evaluation report will be available before the end of the year. Evaluation will be ongoing, with more focused research planned once a broader evaluation has been conducted.

Proposals to extend the pilot and build a third VLT facility on Massey's Wellington campus are underway. Integration of existing synchronous and asynchronous rich media, collaborative technologies (Adobe Connect, Mediasite) are also being investigated to allow distance students to participate in VLT classes.

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