7. Desktop Video Conferencing in Higher Education – the Potential and the Reality

Ray Potter and Deborah Roberts, St Martin's College

Summary

This paper reviews some preliminary experiences of the use of Desktop Video Conferencing (DVC) within a multi-site Initial Teacher Training Institution. The limitations of asynchronous communication such as email and the potential of synchronous communications such as DVC are appraised. Examples of actual and potential DVC are described alongside the attendant benefits derived from both practical experience and research evidence. Consideration is also given to the realities of setting up DVC, such as firewall issues and resource implications including hardware and software.

Keywords

Bandwidth/ 'blended' learning/ Desktop Video Conferencing/ e-learning/ firewall/ teaching practice.

Introduction

St Martin's College is currently the largest provider of Teacher Education in the country and yet is mainly located in areas of relatively low population density. It is a multi-site institution with campuses in Ambleside, Carlisle, Lancaster and London (Tower Hamlets). The college draws 'local' non-resident students from an extensive catchment area and frequently places students in schools over a very wide geographical range. The College also offers an established distance-learning programme. Improving the quality of communications between students and their base campus and between staff on different campuses is therefore a critical issue for the college.

While the more familiar asynchronous e-learning tools such as websites, email and the BlackBoard virtual learning environment have all been utilised, none of these alone fully met the communications needs of staff and students of the college. It was felt that a synchronous audio and video communication system, where participants meet in 'real time', would offer greater immediacy and interactivity. This article discusses our initial experiences in the field of Desktop Video Conferencing (DVC) - an exciting area which has the potential to revolutionise communications between tutors and students at dispersed locations.

E-Learning?

E-learning, facilitated by the rapid growth in personal computer ownership and internet access is sometimes cited as a panacea for the challenges of distance learning. E-technology, in its many forms such as email, virtual learning environments, web-sites and video-streaming certainly has much to offer in enabling learning to take place for those students who are situated some distance from tutors. However, teaching and learning are essentially social activities and our education system has been constructed around this social reality. As Palmer (1995:282), argues:

> Face to face communication, the standard of the traditional classroom, is the 'paradigmatic social context and medium' and it is critical for interpersonal processes.

Whilst such technologies do enhance the opportunities for communication, it can be argued that such communication is qualitatively poor. Russell (2005:3) for example, contends that in low-bandwidth communications such as email, the affective domain is compromised:

> Teachers and students interacting via computer have little access to the body language, social subtext, and relational cues that abound in face-to-face communication.

He proposes 'blended' learning solutions that combine programmes of face-to-face and online learning and high-band width solutions that allow for synchronous video, audio and text communication. Desktop video conferencing is one such electronic solution.

Introducing DVC

DVC provides audio and visual communication in real time from a standard personal computer and allows one to one and multiple user conferences by participants in different physical locations. A decade ago, Coventry (1995:5) claimed:

> It is only recently that the technology has reached a level of stability, usability and affordability which permits its use in real teaching scenarios rather than research projects.

More recently, Furr & Ragsdale's (2002) US university study demonstrated that, although DVC technologies had existed for some time, their use was still frequently hampered by a lack of bandwidth. This resulted in audio and video delays of few seconds to several minutes and gave rise to student and staff frustration.

As we move into the 21st Century, more and more schools and homes in the UK have access to Broadband, meaning that this is a technology that may finally have come of age. In addition to a high bandwidth connection (Broadband or LAN), users require a modern computer with a USB port, DVC software, webcam and headset. Typically, participants sit in the comfort of their own office or home and experience live video and audio from other participants via their computer. Some software features a 'whiteboard' for information exchange and the option to show or share documents and websites between the participants.

There are currently a number of DVC software packages available, ranging from the entirely free, such as Microsoft's Netmeeting to commercial products. Netmeeting can be problematic to set up for more than simple 'point to point' contact and, in common with all free services, it uses a public remote server which inevitably raises issues of speed and security for college business. St Martin's College makes use of the 'Marratech' software which, although having a relatively high initial purchase cost, is then free to use with no per minute or per hour charges. The 'client software' can be installed on numerous computers and the only limitation is the number of concurrent users which is limited by the number of 'seats' purchased. The benefits of the Marratech software are that it is fast and secure and delivers high quality video and audio. It also allows users to share applications and web pages as well as giving participants the opportunity to record the meeting for later analysis. Staff and students need only to download the free client software, be equipped with a simple web-camera and headset and they are ready to communicate.

The potential and the reality

Within the context of Higher Education and in particular Initial Teacher Training, there is huge latent potential for the application of DVC. Communication between tutors, between students and staff and also student to student might all be enhanced. In the context of a multi-site institution, cross-campus meetings, for example, to plan courses or moderate assessment, can be time-consuming and problematic to co-ordinate. DVC is already being used within the organization for tutor meetings between distant campuses. Benefits accruing from this use of technology include the elimination of travel costs and time saving (of up to two hours); and an

increased availability to meet (because only meeting time rather than travel and meeting time is required). In the wider context, a reduction in the stress of modern travel and the environmental benefits should also be acknowledged.

Staff – student DVC interactions might include individual or small group tutorials. A number of the institution's students, whilst considered 'local' might commute a round trip of eighty miles or more to college. In the longer term it is envisaged that DVC might allow a more student-focused approach to tutorials; with students accessing the system from their own home, should this better meet their needs. BECTA (2003:2) also suggests that video conferencing promotes participation within the session:

> Students who normally stay in the background participate more; they are motivated to take part in video-conferencing.

Students are also geographically distanced from college whilst on school placements and although academic staff, acting as 'Link Tutors', liaise with students on placement; this is usually limited to one or two visits and can result in feelings of student isolation. DVC, in this context, might diminish the feeling of remoteness, provide support and enhance links between the college course and school-based learning. A related finding by Sharpe (2000:62) was that DVC led to more frank discussion between students and HE staff:

> Students on teaching practice feel 'a safety in distance' when using video conferencing to communicate with their supervisors, resulting in a more frank interaction.

Students on placement might be further supported by their peers, via student to student DVC. This might be particularly appropriate where students are grouped in the same classroom and are required to plan collaboratively outside the normal school day; or where there is a lone student in an individual school. Hearnshaw (1997:57) found that DVC:

> Supports distance learning by linking up students, and also offers a means of reassurance and social contact for schools.

Other possible applications of DVC might include keynote lectures given on one campus, for example by programme leaders or external experts, transmitted via DVC to groups of students at other campuses (Gilbert, 1999, Carville and Mitchell, 2000). The convenience for external experts to provide input to one or more campuses from a distant location might facilitate greater exploitation of such resources.

Whilst DVC is successfully used by a number of staff, the potential of the emerging technology to be utilised

more widely in some of the ways described is still limited, largely, by access to hardware. It is not yet commonplace to find staff or students with webcams and headsets; in the same way that a decade ago students were unlikely to have access to email prior to entering Higher Education. Anecdotal evidence suggests that many students now arrive at college with their own email account. Similarly, with the affordability of the hardware and availability of internet communication systems, it might be anticipated that in the near future, ownership/access to such hardware will increasingly be the norm. An interim solution might be to instigate a library loan system where staff and students would borrow hardware for the duration of a project or placement.

It is not envisaged that DVC will totally replace the more traditional video-conferencing, where participants might meet in a designated video-conference room with large screen display. Rather it is a case of fitness for purpose; meetings of larger groups might be better catered for in video-conference suites whilst smaller meetings of one or two individuals at each location might enjoy the benefits of desktop video-conferencing.

As with any online course environment, DVC does raise a number of issues, both pedagogical and technical. Salmon (2003), although not writing specifically about video conferencing, proposed a five stage developmental process for describing and managing the online experience. While previous literature (Cloke and Sharif, 2001) has made a clear distinction between learning about ICT and learning with or through ICT, Salmon (2003) asserts that the most efficient strategy is to integrate the two so that, after very brief initial training, participants learn both technological and pedagogical aspects in parallel. The early stages of Salmon's (2003) model involve setting up, accessing the system and familiarisation while also undergoing a period of online socialisation. It is only in the later stages that course-related group discussions occur and the interaction becomes more collaborative.

In addition to the technical skills that users require there are other issues of which project leaders should be aware. Students will need relatively modern personal computers and, depending on the individual level of proficiency, possibly assistance to install any hardware and software. Also, firewalls which can be both hardware or software based, and act to protect computers and networks from unauthorised access, can be a source of frustration. Although the required configuration changes are relatively straightforward and swift, it is possible that some Regional Broadband Consortia, understandably concerned about the security of their networks, may view any modification requests with suspicion and consequently make access to schools problematic.

Conclusion

Broberg (2000) listed three classical motives for the use of IT in learning. He argued that IT was 'economical' – learning more at less cost; it promoted 'learning efficiency' – learning more in less time; and thirdly, it 'bridges distance in time and space' – learning at anytime from anywhere. Whilst Broberg was writing about IT in general terms, rather than DVC specifically, we would argue that DVC offers all those advantages.

DVC is a promising, if still embryonic, technology that can be used to complement both existing face-to-face and distant learning techniques. The compelling nature of synchronous communication with video and audio offers a glittering opportunity to enhance the quality and breadth of teaching and learning in Higher Education.

Biographical note

Ray Potter is a Senior Lecturer in the Division of ICT Education at St Martin's College, Lancaster. Having taught in primary schools in the midlands he moved into higher education, where he now works with undergraduate and postgraduate students as well as providing continuing professional development for teachers. His curriculum expertise lies in the fields of primary professional studies and primary ICT.

Deborah Roberts is a Senior Lecturer in the Division of Education Studies St Martin's College, Lancaster. She is an experienced practitioner in both primary education and initial teacher training, with expertise in the areas of primary ICT and primary professional studies.

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