



Video conferencing in the Classroom

Case Studies of Effective Practice

Case Study Four
Applemore Technology College

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School background

Situated in the outlying suburbs of a large coastal city in the south, Applemore is an 11-18 mixed Technology College of 850 students and 53 staff FTEs. There is a significant minority of second language speakers, drawn from five ethnic groups. There are two full-time ICT technicians employed by the school. The school is ICT-rich with approximately 200 PCs and 55 laptops available for students. All of the teachers have laptops supplied. There is also a wireless network in the school.

History of video conferencing in the school

The school has been video conferencing since 1994. The use of video conferencing arose from a DfES-funded Virtual Classroom project, in which the focus tended to be on a number of technical problems. After the end of the project, the school wanted to continue to use video conferencing as a teaching tool, rather than just testing the technology. This was driven forward by the principal and the vice-principal, who drew together a core of about seven interested staff, although other teachers were attracted into using it. The key to its success here was that it was the school leadership who commended its use to the staff, who might have been put off by the technical problems they had experienced during the initial project.

Philosophy of video conferencing use

The key to success in video conferencing from the school's point of view is that it gives students an audience for their work. It motivates students by giving them a purpose such as sharing information with their partners. This encourages students to prepare well for video conference exchanges and to see them as a 'window on the world'. From the teacher's point of view, it also brings another element into teaching and provides another, distinct learning style for students. It is an easy, if innovative, way of bringing a variety of teaching and learning styles into lessons. In looking to the future of education, the management believe that schools will need to have a flexible approach and this will necessarily include video conferencing to provide an element of distance learning in its programmes. If the government is serious about introducing personalised learning, the school believes that video conferencing is a technology that must be deployed, if this is to be delivered.

Video conferencing equipment and location

There is a rich mix of video conferencing equipment available in the school, including Marratech, Zydacron and videophone. Transmission is by both ISDN and IP. There is a dedicated video conferencing suite that can hold 30 people, a laptop system based on Marratech and a mobile webcam. Video conferences can be displayed on a variety of screens, from a TV monitor, through interactive whiteboard to a large projection screen. Other ICT capability is frequently employed with

the video conferencing equipment, including the wireless network, applications sharing, email, PowerPoint etc. This mix was not developed as a matter of a formal written policy, but the principle that underpins its use was that video conferencing should be in a classroom rather than a dedicated suite, so that it would be used frequently as part of planned schemes of work, rather than an extra 'treat' for students.

Current patterns of use

Video conferencing is used in a systematic and frequent way in a significant number of departments in the school, including geography, history, English, PE and languages. The equipment is used as a minimum once a week, but often more than this. The remote partners involved range from secondary and primary schools in the same LEA, from other areas of the UK and non-European schools, doing things such as swapping coursework information and doing joint projects. Conferences have been held with partners in Argentina, France and South Africa. In addition, conferences have been done with commercial companies and higher education establishments, such as Massachusetts University and the University of Southampton. National organisations such as the Imperial War Museum, the National Archives, National Armoury Museum, the Wellcome Museum and National Science Museum have delivered sessions to school students. International organisations such as NASA have also been used. Lessons in Maths and geography have been delivered to a hospital school and assemblies given to feeder schools.

The types of use cover a wide range of possibilities, from one-to-one teacher and student, through single class to single class, to remote teaching of whole classes. Conferencing also takes place between managers in different locations and for training for teachers, including initial teacher training. Mentoring of PGCE students takes place remotely, as well as the observation of teachers by PGCE students. Plans are in place for the observation of teacher trainees by tutors through video conferencing.

Examples of effective practice

Students are prepared for video conferencing through a process of rehearsal and reiteration of key messages. For example, it is emphasised that they can be heard by the far end from the moment of connection and therefore they should be speaking clearly from the offset. They are also told that 'off-stage' noise is easily picked up at the remote end and therefore those students not participating directly at any moment need to keep quiet. Even conferences that are internal to the school, such as debates between classes, generate much greater preparation and adherence to these principles than 'ordinary' classroom experience.

'The teacher gets someone to start off and the questions sort of lead on one from another and we sort of jump in with our own questions and stuff and if we get stuck she sort of moves us along and then she sort of wraps up at the end.'

Year 11 female student

The school is involved in the Gemini Project, a collaborative project with many schools across the world looking at global environmental issues. The focus here is on Africa and the project aims to develop a website on issues connected to the environment. Communication about the development of the website is through a variety of means and will include video conferencing. This will also include a multi-site conference that will include Stephen Twigg MP. The video conferencing element of the project began with a familiarisation session for Year 9, in which each individual student presented a profile of him or herself to a far end listener (an ex-Army teacher) and asked questions of him. The far end tutor commented on each contribution, for example, that the voice used was too loud or too fast, that the contributor should look at the camera rather than their script etc.

This feedback increased the students' confidence in speaking to the far end and this was confirmed by increased willingness to volunteer to speak. While the noise levels at the end of the session were high, with the students enthusiastically engaging and even shouting out answers to the far end, the near end teacher did not intervene. In discussing the rationale for the session afterwards, the teacher identified that noise was a problem at the end, but wanted the students themselves to work out whether it had been a successful conference or not and what factors might impact upon communication through video conference. This was done in a follow up session. The near end students then interacted with South African students in a later session, in which they introduced themselves in a more formal way. The excitement of both groups of students was highly evident as they competed with each other to offer contributions and interact with each other. These contacts would be leading to projects organised between the two schools on global environmental issues.

The humanities department has been a central user of the equipment, so that its deployment is dense and widespread. The students' experience is based on an interactive use of video conferencing, in which students take the lead in devising aspects of the project with their remote peers. However, the department also uses more formal contributions from experts in a particular field. For example, the National Archive presented an hour-long presentation on the slave trade to Year 8 students, using a document camera to show pictures and documents relating to this period of history. While the document camera did not always show manuscripts clearly, given the fragile nature and early script of many of the documents shown, they added real value to the students' experience. In observing this session, it was interesting to see that the presenters were also learning as they went along. The far end speaker talked for quite a long time and the students were very eager to ask her questions. However, she was not responding to their polite waiting with hands up. The near end teacher therefore intervened to ask if they could ask some questions and the presenter immediately agreed.

The sophistication of the students' questions was very impressive and they had clearly been paying very close attention. From that moment, the far end speaker was careful to provide more opportunities for students to contribute and was more alert to when they had their hands up to ask questions. In discussing with the near end teacher afterwards how the session went, she saw it as important that the far end presenter should be debriefed on her performance, so that more interaction could be included in any future sessions.

'Our teacher emailed ahead and told her what we were doing and what we would expect from the exam paper and then she would choose sources that would be useful for us.'

Year 12 about their Year 11 experiences

In PE sessions, use has been made of wireless technology and video conferencing as a way of training PE teachers remotely. With a fixed camera in the sports area and the far end teacher in charge of a PE class, a remote 'expert' can offer instant advice on how to deal with aspects of the session. Though a fixed camera limits the contributions that can be made about specific physical movements, the immediate nature of the feedback allows the far end teacher to try out strategies instantly to see their effect. It also has the advantage of keeping a remote eye out on those students who might be tempted to misbehave! Because the camera is unobtrusive, it allows for a more natural PE situation to develop, without the feeling that someone is watching every move that is made.

The school also uses video conferencing to deliver A-level lessons in 'minority' subjects, using the Marratech application. This involves small numbers of students interacting with a far end tutor. In one session, there was a one-to-one situation, in which the student was able to contribute to the session through the medium of the application, as well as video conferencing itself. While most of the session was an oral interaction between the far end tutor and the students, the application also allowed shared written contributions, with, for example, the far end tutor typing in headings, which then appeared on the near end screen for the student to print off or add her own notes to.

The quality of the video and audio links here was very good indeed and the skill of the far end tutor as a teacher was evident. She was able to use the video conference in a way that kept the student involved at all times, but which left her with a 'product' at the end, so that she could see what had been achieved. The tutor gave the student time to think and compose here answers, while scaffolding further questions to assist her in reaching an understanding. The student was an experienced video conferencer and had a good understanding of the rules of engagement, for example, knowing when it was fine to ask questions. This meant that she could maximise her learning through interacting in appropriate ways with the tutor.

'In our AS psychology, we had very different experiences because we had different tutors. It depends really on how competent the tutor is in using video conferencing and on how big the group is. It is better when you have one-to-one tuition.'

Year 12 psychology students

A vice-principal of the school uses video conferencing as a form of professional development by having regular fortnightly conferences with another VP from a school at the other end of the country. The advantage of this 'meeting without moving', as articulated by both VPs is that they can raise and discuss areas of concern and challenge with each other, that they would not do so with local equivalents. They use each other as sounding boards, not only for ideas in ICT and video conferencing but for wider school issues. They share information (verbally and in written form through Marratech) and good practice. For example, in one observed session, the near end VP offered ideas on how to save money on supply teachers through his experience of the workforce reform pilot in the school and the use of class serve to deliver cover lessons through a VLE. The advantage of having a video conferencing relationship over a phone call is that documents, video clips, photos, audio clips etc can be instantly shared and form the basis of discussions. In addition, the video element helps to forge a more personal relationship between participants.

Management of video conferencing

Co-ordination

A senior vice principal has overall responsibility for managing and coordinating activity, but he is supported by a team of teachers, who are relatively independent and adept at developing their own experiences. They are assisted in this by a number of support staff, who help out with preparation and technical support during the actual conferences.

Integration into the curriculum

It is a central aspect of several departments' provision, especially humanities and science. There is a requirement that ICT is built into the schemes of work of all departments and video conferencing should be a part of this. Each department has its own priorities, but many have targeted video conferencing as a priority. Ofsted commented positively on the way that video conferencing was used as a way of introducing variety into subjects.

Mainstreaming

Access for other departments is completely open, though it has to be negotiated in terms of room swaps with the habitual user of the rooms where any video conferencing equipment is housed.

The main barrier to mainstreaming, identified by the school, is fear and ignorance. Management believe that the technology is so easy that it should be widespread once that fear is dissipated. Resistance has been limited and the school tries to overcome this by identifying champions to push forward video conferencing activity within a department.

Video conferencing is mainstreamed because the school has encouraged all departments to use it is a variety of ways so that it meets the curriculum needs of the subject. This comes from the school leadership privileging and enabling video conferencing to go on. This is contained within the ICT three-year development plan, which is linked to the specialist schools and training school plans. All contain plans for video conferencing. The school has used the device of an innovations group (which emerged from the technology specialist group), which examines opportunities for new initiatives including video conferencing that feeds into departmental developments.

Technical issues

The main technical issue for the school is getting a national protocol that everyone can use, so that there are no barriers because of different technologies, connectivity, going across networks or firewalls. We need to get the regional consortia to deliver joined up thinking on this and provide national standards so that we can speak together.

The school has a relationship with a local IT firm that has provided some technical support especially where more innovative technologies have been used. This has been successful in keeping technical problems to a minimum.

Future plans

With new IP provision, the plan is to extend video conferencing opportunities out from a mainly class-to-class situation to more student-to-student interaction. This would over the next five years take over from ISDN, although the latter has provided good quality video conferencing capability, even in lessons such as dance and PE, where movement is a central feature. This replacement is largely due to cost factors. Budgets for developments would come from a variety of sources, including projects, the government and business.

The school is developing a new media suite, in which all 12 computers would have webcam capability and which would be used by a number of departments. This would be focused on peer-to-peer languages capability, but would include video conferencing in drama, performances and role-plays as part of a bid for dual specialist school status in the performing arts as well as technology.