

Using web-based videoconferencing to support part-time students

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1. Introduction

The School of Art and Design at the University of Wolverhampton is currently supporting creative industries in central England as part of a Government-funded project to regenerate the region. It aims to achieve this by offering continuing professional development for those who are working in the creative industries. However, since the beneficiaries of the project include self-employed, employed and unemployed, access to the professional development may be problematic in many of the cases.

At the Universities of Warwick and Kent, the ANNIE project (Accessing and Networking with National and International Expertise) has been exploring the use of remote access for students on face-to-face courses. Among the activities at a distance trialled within the project were several using videoconferencing to provide mentoring and tutorial support. Further work is currently being established to transfer the outcomes of the project to further institutions and to different subject disciplines.

The objectives of both projects can therefore be met via a collaboration in which the ANNIE project provides support and training for tutors and tutees in the University of Wolverhampton's project. This will also provide an opportunity for both institutions to research further into effective methods for tutorial support via videoconferencing. The paper will focus on the following areas:

- brief descriptions of the current projects
- completed research into effective use of technology for tutorial support and mentoring
- recommendations for promoting collaboration
- outline of the future research to be carried out jointly by the Universities of Warwick and Wolverhampton.

2. Descriptions of the projects

The ANNIE project

The ANNIE project was an FDTL3 (Fund for Development of Teaching and Learning) project that ran from January 2001 to March 2003 and collaborated with several institutions in the UK, the rest of Europe and North America. The project aimed to enhance students' learning by enabling access to remote experts and to develop best practice for delivering this access. Various technologies were used to achieve this, particularly videoconferencing, computer-mediated communication and the Internet. Throughout the project close to 20 activities took place, involving lectures, performance-based workshops, vivas, seminars and tutorials, as well as two distance-learning based modules.

The Creative Industries Programme

The creative industry sector is projected as one of the stronger emerging parts of the economy. In 2001, The Government's Department for Culture Media and Sport, commissioned a report, which revealed that:

The creative industries in the UK generate revenues of around £112.5 billion and employ some 1.3 million people. Exports contribute around £10.3 billion to the balance of trade and the industries account for over 5% of GDP (Creative Industries mapping document, 2001)

This ranges from people who are practising artists and sculptors to employees from small and large multimedia organisations. Information and communication technology is constantly changing with new

software and hardware developments that must be harnessed to ensure organisations continue to be competitive.

There has already been much research and published papers from European, central and local government stating that there is a need to support the creative industry sector as one of the key expanding areas of the national and international economy. This has been reflected in the considerable amounts of funding that have been made available and targeted at this key area of the economy.

Ensuring continuing professional development has also been identified as essential and strongly correlated to the success of business enterprise. The Creative Industry Project at the University of Wolverhampton has placed its emphasis on enabling this professional development through mentoring, upskilling and reskilling. This initiative is a 3-year European Social Funded (ESF) project that started in November 2002 and will give support to the creative industry sector throughout the West Midlands region. The project is to give assistance to the employed, unemployed and help companies such as small and medium-sized enterprises (SMEs).

The project leaders have sought a long-term and flexible solution that is innovative, and also provides a wider access to training and development. The project has thus developed a menu of training provision, which potential beneficiaries can sign up to with flexibility being an important issue. The programme will provide formal training courses at NVQ Levels 3, 4 and 5 coupled with mentoring support and the provision of professional advice. Areas such as marketing, finance and ICT provision are available to eligible beneficiaries (i.e. those who live in the West Midlands region).

Collaborative colleges links

As part of the Creative Industry Project there is a requirement to assist beneficiaries via the University of Wolverhampton's partners throughout the region so it has also been decided to link web cameras to a couple of local colleges. Staff from the University and the Collaborative Colleges will develop distance support provision in two areas: -

- University staff with Collaborative College Staff
- University staff with College Students

Since the West Midlands is a highly populated area with associated related transport issues it desperately needs to evaluate alternative means of communication, thus the use of Internet webcams as a support mechanism within the project. The relatively low cost and improved technology makes this a realistic alternative for many businesses. Apart from the obvious saving in transport costs, there is the potential saving in time for employees who have to make journeys. However, business needs to see real economic benefit, as well as social and environmental improvements, before they would consider signing up to new ideas and methods of operation.

3. The ANNIE experience of e-tutoring

The ANNIE project has already developed expertise in two areas that overlap with the requirements of the Creative Industries Project, that is asynchronous and synchronous e-tutoring. The ANNIE project's findings are summarised below.

Asynchronous e-tutoring

The platforms used for asynchronous e-tutoring were:

- web-based fora
- email

- hyperlinked web-pages

Although the decision to use asynchronous tuition was primarily to enable communication between participants who could not always attend at the same time, the mode had other advantages over synchronous communication. These were:

- allowing period for reflection,
- recording ideas for further review,
- enabling peer-to-peer tuition,
- personal detachment.

Participation in the fora was low. This matches other work (Akers, 1997 and Kock, Jenkins and Wellington, 1999) that indicates that students' participation in online discussion is problematic. Tutors also reported that asynchronous communication also has the problem of identifying, addressing the needs of, and communicating with students that have difficulties. For these reasons, there can be severe disadvantages to running a course entirely through asynchronous discussion, and so lecturers on the ANNIE project have elected to supplement their asynchronous work with synchronous tuition.

Synchronous e-tutoring

There are several hardware and software platforms that can support synchronous communication, and these use different combinations of video, audio and text. Of the various learning activities it is possible to conduct through videoconferencing, tutorials have been found to be the most suitable. This is because the technology is weakest at supporting simultaneous communication with large groups of people. Technological limitations such as audio echo, restricted video view and time delay also are an impediment to effectively working with large groups. Engaging students with purely didactic sessions is far more difficult with videoconferencing; the lack of physical presence of the lecturer, and their reduction to an image on a screen is even more demanding on the degree and duration of students' attention than is a face-to-face session. For this reason, too, tutorials and supervisions tend to work better via videoconferencing than lectures and software demonstrations, since they are customarily more interactive and student-centred and are with small groups of students. Working with small groups also enables desktop PC-based videoconferencing to be used, which is more user-friendly, less expensive and are more inclusive and flexible than room-based videoconferences.

Guidance can be provided from any office in the world to any student in the world, limited only by the availability of the people involved.

4. Dissemination of the ANNIE project

The aims of the ANNIE project were a set of principles that would guide good practice in the provision of remote access to expertise. The specific outputs of the project were a range of different methods for disseminating these ideas, that is:

1. a series of stand-alone documents providing guidance in setting up remote access to experts
2. a project website (<http://www.warwick.ac.uk/ETS/ANNIE/>)
3. one-to-one consultancy and advice
4. formal training workshops
5. active participation and support of work conducted at other institutions

To further promote this dissemination process, a 'transferability' project will enable the project to work alongside other institutions and contribute to work that is being developed there. This, in turn, will apply the findings of the project across a wider spectrum of environments (testing the external validity of the results) and enable the ANNIE team to develop the guidance and support offered.

The criteria dictated by the funding programme, which were fulfilled by the University of Wolverhampton, were that:

- no completely original work could be carried out, simply transfer of already developed methods and technologies,
- the partners had to be institutions delivering higher education,
- they were based in the UK, and
- they were not partners in the original project.

Partners sought by the ANNIE project team also tended to have the following features:

- they had already identified a need for remote access to experts,
- they were institutions or people with whom the members of the project team had already collaborated in some manner,
- the involvement would extend the parameters of the original ANNIE project, either by taking place in a subject discipline outside of performing arts, or testing the ANNIE methods in different circumstances.

The second of these features arises, not just from the convenience of identifying partners through existing connections, but also because research into collaborative practice indicates that these forms of collaboration are far more likely to succeed (Galaskiewicz & Shatin, 1981; quoted in Ring & Van de Ven, 1994; p101: and Dempster, J.A. & Blackmore, P., 2002 pp 135-6)

The third feature arises from the interest in the ANNIE project team members to further develop their principles of good practice. The end products of the ANNIE project were not intended to be a finished set of documents, but will instead be continually updated as further work takes place. This process of reflection, testing and evaluating (i.e. an action research cycle) is intended to make best use of the transferability phase of the project, i.e. it is anticipated that the act of transferring good practice will provide an opportunity to further develop that practice.

The University of Wolverhampton was also interested in working with the ANNIE team because:

- the ANNIE project had already explored many of the issues to be faced in the Creative Industries programme, providing experiences that could act as a platform for further development
- the ANNIE project had already used and evaluated a range of different software and hardware, which would reduce the development lead-in time for their own project.

In addition, the two agendas for the two teams complement each other, the University of Wolverhampton requires assistance in its remote tuition programme, and the Universities of Warwick and Kent need institutions to which they can transfer their experiences. This should preclude any of the conflicts of interest, which often reduce the effectiveness of collaborations (noted by Mastenbroek, 1993; p52)

5. Planned activities

Within the Creative Industries Project, webcams will be used to provide distance support to project beneficiaries through videoconferenced tutorials as well as specific advice in matters of finance, legal issues and any other areas of concern that may need personal advice as well as chat and shared work documents. Furthermore, it is anticipated that using these technologies for professional development for some employees may become embedded as standard communication methods within the companies.

The links between colleges involved in the collaborative links project and the University of Wolverhampton will also provide support via web cameras to beneficiaries and students from staff at the University. It is envisaged that tutorial support will be available as well as improving other areas of distance support to staff and students. Training material and course notes can be shared via the Internet

with discussions taking place on suitability and appropriateness of such material. Student work can also be evaluated and assessed with feedback to student via the Internet.

6. Research to inform future practice

The collaboration on the Creative Industries Project provides the ANNIE project and the University of Wolverhampton with an opportunity to evaluate a range of different aspects of e-tutoring.

Economic and environmental

This research will assess the financial saving in transport costs, the added environmental benefits of reducing travel and the associated savings in pollution and energy.

Connectivity

Dial-up and broadband links will be assessed, compared and evaluated.

Different technology platforms

The research will also cover the use of different software packages and the use of broadband technology compared with ordinary telephone dial up facility. Different types of Internet programme software will be explored and evaluated but it is essential to ensure a stable and tested base infrastructure, which can be utilised throughout the project.

Blending of distance and face-to-face tuition

The experience of both partners in the project is that distance support to students and beneficiaries via the Internet is most effective as a supportive and complementary role to the traditional teaching and tutorial face-to-face provision, rather than as the sole medium for learning. However, identifying good practice in mixing the two effectively has not been an area either partner has explored fully. The importance of face-to-face meetings before beginning e-tuition and the appropriate blend of the two modes will be further evaluated and researched.

Communication via videoconferencing

Another important ingredient is human behaviour patterns over the Internet and body language of people using the Internet web cameras. This has already been researched within the University of Wolverhampton and the ANNIE project and it is planned to build upon this throughout the collaboration.

IT infrastructure v. learning and teaching

The technology issues such as firewall security will have to be addressed and evaluated in terms of the benefits versus potential compromise of security in both universities and businesses.

Currently the University of Wolverhampton has a number of beneficiaries willing to partake in this research and this will be developed during the next two years of the collaboration. The use of a series of questionnaires and focus groups will be used to produce data to inform the research.

The "Links with Collaborative Colleges" programme will also enable these same areas to be evaluated but in an ICT environment that is far more sophisticated. Since the local colleges are on a local broadband infrastructure the speed of access will be at higher levels and thus enable more technology-rich learning opportunities, as well as staff-to-staff computer-mediated communication. In this part of the project, the gathering of data will be via questionnaires and feedback from students and a range of focus groups including student and staff separately and together. Staff will be able to both assess the usefulness and problems associated with distance support over the Internet.

7. Summary of project working

Although the part of the project evaluation that deals with learning via videoconferencing is still to take place, there are some preliminary statements we can make about effective project working, from our experiences of the collaboration to date.

Project planning

The Creative Industries conducted a sector analysis and training needs analysis, as well as anticipating additional needs. It was these needs that lead the development of the project.

One of the strengths of the ANNIE project was that it had very clear-cut outputs, i.e. the creation and dissemination of a set of guidelines for good practice. This clarified not only the objectives of the project as it was progressing, and the direction of the internal evaluation, but also the purpose of any continuation work, in this case the further development of those guidelines. The guidelines have also formed an effective platform for the dissemination work of the project.

Project collaboration

Although the core set of criteria for project partners in the transferability phase of the ANNIE project were laid down by the funding body, the additional set of preferences identified by the ANNIE project have also proved useful in selecting partners that are making the collaboration process simpler.

The Creative Industries project team was aware of the tendency of projects to ‘re-invent the wheel’ and sought to avoid this by engaging with other projects that had already conducted some of the exploration of the technology they were considering.

Task co-ordination between partners

Both partners in the collaboration have also a very specific reason to be collaborating, and both agendas complement the other. This should clarify the allocation of tasks within the collaboration, and also avoid confusion as to aims and objectives of the collaborative part of the work.

The process of collaboration will continue to be the subject of further evaluation within the project as part of the process of improving our own professional practice in project management.

8. References

Akers, R. (1997) http://horizon.unc.edu/projects/monograph/CD/Technological_Tools/Akers.asp, accessed on 8th April 2003

Creative Industries mapping document (2001) Department for Culture Media and Sport, 2-4 Cockspur Street, London SW1Y 5DH

Dempster, J.A. & Blackmore, P. (2002) ‘Developing Research-Based Learning Using ICT in Higher Education Curricula: The Role of Research and Evaluation, Chapter 11, pp. 129-139’, in Macdonald, R. and Wisdom, J. (Eds.) *Academic and Educational Development: Research, Evaluation and Changing Practice in Higher Education*. London: Kogan Page.

Kock, N., Jenkins, A. and Wellington, R. (1999) ‘A Field Study of Success and Failure Factors in Asynchronous Groupware’ *Business Process Management Journal*, Vol 5 No 3 pp 238 - 253

Mastenbroek, W.F.G. (1993) *Conflict management and organization development, Expanded ed.*, Chichester: John Wiley

Ring, P.S and Van de Ven, A.H. (1994) 'Developmental processes of cooperative interorganizational relationships', *Academy of Management Review*, 19 (1): 90-118