**National Foundation for Educational Research**

# REVIEW OF THE VIDEO SERVICES NETWORK

**Final Report**

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# ACKNOWLEDGEMENTS

# EXECUTIVE SUMMARY

### Introduction

This summary presents the findings of the review of the Welsh Video Services Network [1] project (VSN) carried out by a team at the National Foundation for Educational Research (NFER) between February and May 2005.

### Background

In 2001, The Higher Education Funding Council for Wales (HEFCW) and Education and Learning Wales (ELWa) established a project to provide all Further and Higher Education Institutions in Wales with video conferencing studios through the Welsh Video Services Network (VSN). The project was partly financed by ERDF Objective 1 funding and has provided 80 studios across 37 institutions (Now reduced to 35 through mergers). HEFCW and ELWa commissioned an evaluative review of the Video Service Network.

### Methods

The project was undertaken in five clear phases:

Phase 1:      Documentation Review
Phase 2:      Strategic Level Interviews
Phase 3:      Collection of User and Learner Views through
      a)      Focus Group Discussions
      b)      E-mail surveys of lecturing staff
      c)      Online bilingual Learner Survey
Phase 4       Analysis of studio use from September 2003 onwards based on data received from the Janet Video Conferencing Service Booking Service system.
Phase 5       Analysis and Reporting.

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[1] The full title 'Welsh Video Services Network' has been shortened differently in the two sectors. HE and UKERNA generally refer to the Welsh Video Network (WVN) while the FE sector usually uses the term Video Services Network (VSN). The terms are synonymous.

## Key Findings

The key benefits of the VSN, as reported by participants in focus groups, face-to-face interviews and e-mail surveys can be summarised as follows:

### For management

- Savings in terms of cost, travel time and administration time
- Attendance at internal and inter-institutional meetings which would be impossible without the Network
- Linking with worldwide markets and attracting new target groups of students
- Raising the profile of the institutions as users of cutting-edge technology.

### For teaching staff

- Working with staff on other sites or in other institutions
- Saving travel time and cost
- Transferring skills between institutions.

### For students these included

- Access to subject specialists
- Provision of previously unviable courses
- Expanding communities of students
- Widening participation in FE and HE courses for those learners in rural areas

The main factors which led to lower usage of video conferencing for teaching and learning than for management purposes are summarised below:

- ➢ A lack of training for the pedagogy required for teaching and learning by video conferencing
- ➢ In some institutions, a lack of high profile senior management support for the use of the technology for teaching and learning
- ➢ Lack of time for teaching and learning staff to adopt the new technology and integrate it into curriculum delivery
- ➢ A need for partners with whom to link in order to maximise the benefit of the technology
- ➢ The fixed and therefore inflexible nature of the studios, and their inconvenient locations for some departments in many institutions
- ➢ Differing levels of confidence of teaching staff when using video conferencing for teaching and learning
- ➢ A lack of awareness of the potential benefits of using video conferencing, particularly for teaching and learning
- ➢ Less advanced systems in other institutions outside Wales.

## The value of the Video Services Network to institutions in Wales

The value placed on the VSN by an individual institution or lecturer depended largely on how much use they made of it. The most frequent users rated the system most highly, although they recognised that even greater benefit could be obtained from it. In summary, the VSN was considered to be a highly useful additional resource for institutions and its use, especially for teaching and learning is predicted to grow in the coming years.

## The value of the Support Centre to institutions in Wales

The Support Centre was viewed as central to the robustness of the Network. Without it, institutions and lecturing staff would be less willing to use the technology.

## Future Investment

The majority of interviewees believed strongly that there should be a continued investment in the VSN to ensure that Wales remains at the cutting edge of provision of dual-sector integrated video networking. The cost benefit analysis showed that the future costs of provision were justified by the expected savings from avoided travel to the current levels of meetings in Wales alone.

## Use of the Video Services Network

In the period 1 September 2003 to 28 February 2005 the main reported use of the Network was for meetings and administration, which accounted for 67.3% of the studio use whilst teaching and learning accounted for 32.7% in the same period.

## Quality of Experience

Interviewees indicated a high level of satisfaction when using the VSN for administrative and teaching and learning purposes.

## Training

Throughout the research project the respondents requested greater levels of training in the pedagogy of video conferencing for teaching and learning. Additionally, the identification and dissemination of good practice across both sectors was considered to be essential in raising the profile of the facility.

## Conclusions

The data collected by the NFER evaluation team suggested that, after four years, the recommendations made by UKERNA have provided FE and HE institutions in Wales with a robust VSN which facilitated meetings very effectively and had potential to impact further on teaching and learning. The use of the VSN had confirmed the anticipated demand for the technology.

The compatibility of all its studios underpinned the success of the VSN. The move to IP video conferencing would continue to offer cost savings for

institutions. The establishment of a Support Centre managed by UKERNA had been crucial in ensuring the robustness of the network.

The VSN was continually attracting attention from other bodies who wished to join the Network and was also viewed as being at the forefront of video conferencing technology

# 1. INTRODUCTION

## 1.1 Background

### Definition and type

Video conferencing is a form of electronic communication which 'allows people at different remote locations to talk to each other live via electronically linked telephones while seeing each other on a video screen' (De Cicco 1997). According to Coventry (n.d.) the term 'video conferencing' is a confusing one because it is a function that can be hosted on a variety of technologies and is not a technology in itself. The term can be applied to a range of situations from live video lecturing to sizeable audiences to point to point, individual to individual desktop PC chats.

Video conferencing systems vary in type and functionality, although research from BECTA (2003) indicates that the distinctions are becoming increasingly blurred. The main types of systems are:

- **Desktop Video Conferencing Systems** where the participants sit at desks and call up individuals via their personal computers. They are generally suitable for short distance transmission only and are effective when the number of learners at remote sites is less than five

- **Roll-about Video Conferencing Systems** which are complete video conferencing packages in wheeled cabinets. They are designed for small to medium groups and are the most common type of system used in commerce. They are more expensive than desktop systems, but offer better quality

- **Room/Studio Systems** which use the same equipment as a roll-about, but are installed in a permanent or semi-permanent form. They are more likely to be used for a one-to-many interaction activity such as traditional teaching methods. This is the most expensive option but provides higher quality audio and video facilities. As a result of the equipment being fixed in one location, usually purpose-built rooms/classrooms, advanced booking of the system may be necessary.

### The development and increasing use of video conferencing systems

Video conferencing has been available for some time, but more recently 'educational institutions and commercial organisations are taking a fresh look at it' (TechLearn n.d.). It has been reported that the causes of this renewed interest are due to (TechLearn n.d.):

- Video conferencing systems becoming more widely available - all Scottish, Welsh and Northern Ireland and many English HE (HE)

Institutions, as well as all Welsh FE (FE) Institutions have customer built video conference rooms

- Changing technology – the development of SuperJANET4 has meant that real time applications such as video conferencing have become a reality

- Decreasing costs – equipment is cheaper and internet-based systems are cheaper to run than ISDN based systems

- Increasing functionality – multi-site video conferencing is becoming easier to carry out and equipment is available which enables participants to share PowerPoint slides, look at web pages together and work on the same databases and spreadsheets.

The potential of video conferencing within learning is also being increasingly recognised.

According to TechLearn (n.d.) video conferencing has a variety of functions. On-campus it can be used for guest speakers, small group tutorials or seminars, sharing teaching sessions between outreach centres or associate institutions and inter-institutional collaboration. Off-campus video conferencing can assist non-traditional learners who may not be able to attend campus-based courses, geographically isolated learners and work-based learners.

De Cicco (1997) suggests that, in addition to the above possibilities, video conferencing can be used to:

- offer classes outside normal college hours

- team up businesses to offer employer training on work premises

- work collaboratively with other education staff and experts on joint projects

- observe and support student teachers

- allow students to take courses not on offer in their region

- allow students to observe and learn specialist skills delivered by experts based hundreds and maybe thousands of miles away

- support staff in sharing teaching methods and curriculum materials.

The benefits of video conferencing therefore appear to extend across whole institutions. It can support students, distance learners and staff by extending the reach of education, expertise and support.

In summary:

> *'Video conferencing systems have an important role to play in bringing together staff and students across different institutions, bringing in outside experts from industry and reaching and supporting remote students, either in the local community or those based overseas. In*

*particular they can be used to aid widening participation and enhance retention rates through better support for off-campus learners and assist with increasing overseas market share.'*

(TechLearn n.d.).

## Issues

Although many benefits are associated with video conferencing, its use is not unproblematic. The cost and quality of service depends on the type of system and network employed, there are issues of accessibility, ease of use and training for staff and students and there is a need for preparation because video conferencing is not the same as face-to-face communication. There is often a loss of synchronisation between the received audio and movement of the speaker's lips, it can be difficult to see who is speaking and who would like to speak next and sessions may be dominated by a few more confident participants and others may be less willing to make a contribution (TechLearn n.d.).

Report findings have identified the need for certain issues to be addressed if the use of video conferencing is to be effective in institutions. These include:

- Facilities that are reliable and easy to use (UKERNA 1999)
- Affordable usage costs (UKERNA 1999)
- Good quality equipment (BECTA 2003)
- Rules governing interaction should be established from the start (BECTA 2003)
- An appropriate teaching style to suit the medium (BECTA 2003).

## Video conferencing in Wales

Research undertaken in HE and FE in Wales, such as a report commissioned by Heads of HE (1998) and a further study carried out by the United Kingdom Education and Research Network Association (UKERNA 1999) for ELWa and HEFCW highlighted the demand for a video conferencing network.

As a result, the VSN project part-funded by ELWa, HEFCW and the European Regional Development Fund was established as the first of its kind to involve both HE and FE sectors. The aim of the project was to provide at least 80 high quality networked video studios for all institutions in Wales. The Welsh Video Network Support Centre has been established and all institutions within the network have received equipment and funding to enable them to furnish new video conferencing studios. All Further and Higher Education institutions in Wales are now part of the Video Services Network.

## 1.2 The Final Project Report

This Final Report describes the methodology followed and the outcomes of the research undertaken between the project inception meeting on 7 February, 2005 and 6 May 2005. The chapters of the report present:

- the methodology adopted for the project
- a documentation review
- the evidence and findings from the strategic interviews, focus groups and survey of lecturing staff
- the findings from interviews with a sample of senior management staff
- four case studies of users of the Video Services Network
- the findings from the survey of students
- the findings of the analysis of Video Services Network studio usage
- a cost benefit analysis
- the key project findings in relation to the project's aims and objectives

## 1.3 Aims and Methodology

The aims of the project were to:

- explore the impact of the implementation of the recommendations made by UKERNA
- explore the extent to which video conferencing facilities have a positive impact on institutions and students
- explore obstacles to effective implementation of video conferencing
- explore the desirability of further investment in the Video Services Network.

### Main Research Issues

The main research issues for this project were:

- the extent to which the studios are used and the type and frequency of use
- any barriers experienced by institutions that reduce the effectiveness of studios
- the quality of experience of video conferencing for participants – teachers, students and those participating in meetings
- perceptions of the quality of equipment and the value of additional facilities such as whiteboards and PCs
- the value and effectiveness of the Support Centre
- the usefulness of training and briefing days.

The National Foundation for Educational Research (NFER) was commissioned by National Council – ELWA and HEFCW to conduct this research project through a methodology which included five phases as indicated:

Phase 1:     Documentation Review

Phase 2:     Strategic Level Interviews

Phase 3:     Collection of User and Learner Views through
        a)     Focus Group Discussions
        b)     E-mail surveys of lecturing staff
        c)     Learner Survey

Phase 4:     Analysis of studio use from September 2003 onwards based on data received from the Janet Video Conferencing Service Booking Service system.

Phase 5:     Analysis and Reporting.

# 2. DOCUMENTATION REVIEW

## 2.1 Establishment of Need for a Video Services Network

The Welsh Video Services Network [2] project has established an integrated national video network in which all Further Education (FE) and Higher Education (HE) Institutions in Wales participate.

The demand for a national videoconferencing network for HE was highlighted in a report commissioned by the Heads of Higher Education in Wales in 1998. Subsequently The United Kingdom Education and Research Network Association (UKERNA) undertook a further detailed study of both the FE and HE sectors in 1999 for the Welsh Funding Councils. This study provided further evidence of the demand for an integrated national video network embracing both Further and Higher Education.

The UKERNA study highlighted that video conference use at the time varied greatly across the FE and HE sectors in Wales but that *'individual organisations view video conferencing as strategic and are investing in the technology. It is clear that there is a strong forward looking culture in both the FE and HE sectors in relation to the adoption of new technology.'* (UKERNA 1999)

The study reported that 'Institutions in both sectors, FE and HE, are keen to develop and/or extend their use of videoconferencing, particularly for teaching and learning purposes. They see opportunities in a number of directions: in-house for teaching between sites and for distance learning; and within and across sectors for collaborative work, including research collaboration. (UKERNA 1999)

At the time of the study five HE institutions were part of the C5C system that had been in existence since 1990. This system had created dedicated video conferencing suites within these institutions and the use of these studios was reported as being

### C5C Network Usage 1998/99

| Category of usage | Video conferencing hours | Number of video conferences |
|---|---|---|
| Administration | 1,344.5 | 674 |
| Teaching | 1,246.5 | 651 |
| Other | 257.5 | 168 |
| Total | 2,848.5 | 1,493 |

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[2] The full title 'Welsh Video Services Network' has been shortened differently in the two sectors. HE and UKERNA generally refer to the Welsh Video Network (WVN) while the FE sector usually uses the term Video Services Network (VSN). The terms are synonymous.

Examples of usage by category:

**Administration**: Meetings between different departments or groups in different institutions.
**Teaching**: Teaching/seminars between institutions.
**Others**: Demonstrations or testing.

<div align="right">(UKERNA 1999)</div>

The C5C system was judged to have been ' *leading edge when commissioned in 1990, the C5C network is now substantially obsolete'* (UKERNA 1999).

A number of other HE institutions had invested in a range of small scale developments in video conferencing. However, these were of a low quality and were not judged to be sufficiently robust for teaching and learning across a networked system. Only two HE institutions did not have any video conferencing facilities at the time of the study.

The study also found that within the FE sector 13 out of 25 institutions had some video conferencing facilities although these were mostly basic desk-top facilities. It was recommended that institutions provide a dedicated room for the video conferencing suites, but, some institutions indicated that they did not have the facilities to be able to provide this. Where this occurred the use of the room for video conferencing took precedence over any other use of the room.

The study concluded that both sectors were keen to develop their use of video conferencing, particularly for distance learning and teaching purposes. Therefore, a specification was developed for a project to provide high quality networked video studios for all the FE and HE institutions in Wales. The study also highlighted that

> *Three concerns in particular run alongside the general interest and enthusiasm for video development: the facilities should be reliable and easy to use; that there should be an efficient and effective booking system; again easy to use; and last, but not last, that usage costs should be affordable. In this last context, the cost of calls for digital telephone based (ISDN) services was a matter of general concern.*

<div align="right">(UKERNA 1999)</div>

A number of recommendations were made by the UKERNA study in relation to the establishment of a high quality, value for money video network encompassing all Higher and Further Education Institutions in Wales. These were:

**Technology and Supporting Equipment**

1) The video network established is a hybrid, using both ISDN and IP technologies.

2) In relation to ISDN, facilities are provided to support ISDN6.

3) Equipment support (Multipoint Control Units) for the ISDN service is provided from the JANET Videoconferencing Service; and parallel

support for the IP service is provided from a Welsh Videoconferencing Centre.

4) Gateways to link the two service networks are co-located with the ISDN support equipment at the JANET Videoconferencing Service.

**Studio Environment and Equipment**

5) Studios on the Welsh Video Service Network should successfully complete quality assurance tests when commissioned and at regular intervals afterwards.

6) Equipment for each studio is provided in the form of a standard basic package according to the size of the studio and its intended use.

7) Equipment is centrally purchased in accordance with standard EU procedures for public procurement.

**Management and Support**

8) A Welsh Videoconferencing Management Centre is established to manage the IP based video service; and the continuing requirement for the Centre is assessed 18 months from the start of service operation.

9) The JANET Videoconferencing Service provides management support for the ISDN service.

10) An additional member of staff is appointed at each of the two existing FE Support Centres for up to two years in the first instance to serve the deployment and operation of the video network in both the FE and HE communities; and the continuing requirement for both posts is reviewed 18 months from the start of service operation.

11) An overall Project Manager is appointed on a fixed term basis for approximately two years at the outset of the project.

12) The Welsh Videoconferencing Network should use the JANET Web based videoconferencing booking service.

**Other**

13) A central call charge budget is established for Further Education Colleges with a budget quota allocation for each college.

(UKERNA 1999)

## 2.2  Development of the Video Services Network

The Welsh Funding Councils adopted UKERNA's recommendations and in September 2001 the VSN was launched.  In November 2000, both sectors were informed that  FEFCW (together with HEFCW) had been successful in sponsoring a bid for ERDF Objective 1 funding to enable the expansion of the VSN through, inter alia, the establishment of additional studios in institutions with sites in the areas with Objective 1 status.  This led to the establishment of

81 studios (including one at the Councils' office) as part of the Video Services Network.

The VSN was therefore funded to £3.1 million by Education and Learning Wales (ELWa) and the Higher Education Funding Council for Wales (HEFCW) and to £2.4 million by the European Regional Development Fund (ERDF) and was the first of its kind in the UK to involve both the FE and HE sectors. According to a letter from the Welsh Funding Councils to all institutions in early 2001, the funding provided by the European Regional Development Fund covered

*48.25% of costs in studios in Objective 1 areas and the Welsh Learning Network (ERDF) comprises of three strands:*

♦ *The Video Services Network*

♦ *LAN consultancy (FE only)*

♦ *The provision of internet connected PCs (FE only).*

The network was supported by two support centres (Welsh Video Network (WVN) Support Centres) based at Swansea and Aberystwyth and managed by UKERNA. The original contract for the management of the support centres was for two years from 2000 onwards and was renewed in 2002. At that time ELWa and HEFCW stated that it wished to retain UKERNA's services until November 2005 and maintenance until 31 March 2006 to protect the investment, to ensure smooth operation in the critical early years and maintain growth in its usage. ELWa and HEFCW produced a specification of the service required from UKERNA which included

♦ Overseeing the work of the WVN support centre

♦ Advising the councils on the status of the network to ensure it remained fit for purpose and evolved technically and operationally to meet demand

♦ Managing any required procurement

♦ Advising on and organising such events as may be appropriate from time to time to support the operation and use of network

♦ Acting as the Council's agent for payment for the support centre and any equipment and events associated with the maintenance and development of the network and its operation and use

♦ Maintaining the Network's website

♦ Developing and maintaining effective working relationships with appropriate bodies within Wales and with bodies in the higher and post-16 education communities more widely, particularly in respect of network technology and operation

The remit of the support centre included:

♦ Training and support

♦ Commissioning and maintenance of the studio facilities

♦ Video Conferencing management and development

Two types of studios could be found as part of the Video Services Network: small and large; a small studio could accommodate up to ten people.

The project steering group considered how to allocate the studios to each institution and proposed to provide one large studio for each institution and one small studio for each geographical site. A final decision was taken to provide each institution with one studio but provide additional studios where sites were over 25 miles or more than one hour's travelling time apart.

Institutions were provided with the following equipment for the studios as and when they had their studio room(s) prepared. The equipment was procured through European Procurement processes and provided

♦ A studio equipment controller

♦ A videoconferencing CODEC incorporating both ISDN and IP

♦ Two remote control cameras and a document camera

♦ Monitors, microphones and a VCR

♦ Data and application sharing facilities

♦ A projector and an interactive electronic whiteboard

WVN (n.d.a)

The environment for video conferencing requires particular attention if the highest quality sound and vision signals are to be transmitted and received. Every institution received funds for furnishing new studios, in 2000 the Welsh Funding Councils wrote to each FE and HE institution and awarded them £10,000 per studio. The WVN support centres provided advice and guidance in writing (http://www.wvn.ac.uk/support/studios.pdf) and through staff visits to each institution regarding the selection and furnishing of rooms for video conferencing.

The VSN was established as a hybrid ISDN (2 or 6) and IP (Internet Protocol) system. This system was proposed because it was cost effective and would provide an integrated solution which would operate over JANET. Furthermore, it would avoid the expense of call charges and the Welsh institutions would be at the forefront of technological developments. Initially, most video conferencing calls used ISDN (ISDN2 or ISDN6). A call charge budget with an allocation for each institution was established within the FE sector to allow video conferencing to develop. All ISDN conferences were managed by and booked through the well-established JANET Videoconferencing Service (JVCS). In order to use the JVCS, VSN studios

must regularly pass a Quality Assurance test. As the project progressed a transition was made towards the use of IP for videoconferencing, supported locally through the Welsh Video Network Support Centre.

The UKERNA survey and original costings for the project anticipated that in the third year of the project there would be no call charges as it was anticipated that by then IP protocol video conferencing would have become the national standard across the UK. (UKERNA, 1999) According to the WVN website '*JVCS-IP was launched on 17 February 2003, and supports videoconferencing over IP at speeds up to 2Mbs.*' (WVN, 2003)

## 2.3 Technical Developments

As a result of the UK wide remit of UKERNA, UKERNA and Welsh Video Network Support Centre staff had been involved in a number of developments in the course of the project. Many of these were technical developments focusing upon the development of Internet Protocol (IP) video conferencing and the UKERNA team constantly strove to ensure that the Welsh Video Network is at the forefront of technological changes. The WVN website listed a number of projects in which staff were involved including:

♦ Developing equipment monitoring tools and network monitoring tools, so that they can react quickly to any problems that may occur;

♦ Refining, developing and testing the touchscreen interface to incorporate feedback from users;

♦ Further developing the in-house help-desk database to ensure that fault reports and queries are handled quickly and professionally;

♦ Assisting UKERNA with the procurement of IP videoconferencing equipment for the JANET backbone;

♦ Close liaison with developers of other Internet based videoconferencing networks, to ensure that there is compatibility, inter-operability, and no re-inventing of the wheel!

♦ Testing and trialling new versions of software used in the studios, and giving feedback to manufacturers based on the tests and users' experiences;

♦ Training technical support personnel and teaching staff (with the JISC Regional Support Centre);

♦ The core activity of giving technical support to studios and providing an office hours help-desk.

WVN (n.d. b)

## 2.4 Developments in Wales

Additionally, there were a number of Wales specific developments, amongst which has been the development of simultaneous translation facilities.

In July 2001, UKERNA submitted a proposal for a translation pilot project which recognised the need for translation facilities and active encouragement of the wider adoption of the Welsh language, for example by the Welsh Assembly Government's Iaith Pawb strategy. In 2001, UKERNA requested funding for a pilot project to investigate and recommend a suitable means of transmitting a translation to participating studios and distributing the translation to individuals within those studios.

This pilot was successful and by early 2005 one studio at each institution had been provided with simultaneous translation equipment.

The issue of staff training for teaching and learning via video conferencing was discussed in the steering group meetings. This fell outside the remit of UKERNA but the importance of training and development was recognised by the steering group and in October 2000 it was agreed that this should be considered internally by the Welsh Funding Councils. The steering group noted that '*If the use of video conferencing for teaching and learning was promoted more effectively, with improved training and supporting documentation, the take-up of video conferencing by educational practitioners would increase'.* The JISC Regional Support was able to provide some promotion and training for video conferencing. However, this was limited because of the wide range of curriculum areas that JISC supported.

A number of other institutions have joined the VSN including; the National Library of Wales and Fforwm. In 2004, Cymdeithas Ysgolion Dros Addysg Gymraeg (CYDAG - the Society of Schools for Welsh Medium Education) successfully applied to join the Welsh Video Network. CYDAG has developed video conferencing teaching through the medium of Welsh for teaching in six schools:

♦ Caereinion High School in Llanfair Caereinion

♦ Ysgol Tryfan in Bangor

♦ Ysgol Maes Garmon in Mold

♦ Ysgol Morgan Llwyd in Wrexham

♦ Ysgol Aberteifi in Cardigan

♦ Ysgol Glantaf in Cardiff

This £500,000 pilot project was funded by ELWa's Learning challenge fund and

> *Sheila Drury, Chairman of ELWa, applauded the schools' initiative after visiting Ysgol Maes Garmon to see a videoconferencing lesson. "These video links open up many exciting possibilities for learners of all ages," she said. Expanding the use of video conferencing into schools is an important step in the development of collaboration and partnership between providers of learning that will create much wider choice for learners. This is at the very heart of ELWa's mission to*

*modernise Wales' learning network. At our recent collaboration conferences around Wales, it was highlighted that the Welsh-medium sector in particular stands to benefit considerably from video conferencing given that learning providers tend to be some distance apart, especially in rural areas."*

ELWa (2005)

# 3. PERSPECTIVES OF STRATEGIC INTERVIEWEES, FOCUS GROUP PARTICIPANTS AND LECTURING STAFF

This chapter reports the findings of the strategic interviews, focus groups, and the e-mail survey of lecturing staff.

## 3.1 Strategic Interviewees

Members of the research team interviewed staff and former members of staff of the following bodies

- National Council – Education and Learning Wales (ELWa)
- HE Funding Council for Wales (HEFCW)
- UKERNA
- The Welsh Video Network Support Centre

## 3.2 Focus Group Participants

All 35 FE and HE institutions were invited to send representatives of teaching, management and IT staff to one of three focus groups at the following times and venues:

| | |
|---|---|
| Wednesday, 2 March: | Holiday Inn, Pentwyn, Cardiff, |
| Friday, 4 March: | Ramada Jarvis Hotel, Swansea, |
| Wednesday, 9 March: | Waterloo Hotel, Betws-y-Coed. |

The tables in Appendix 1 show the breakdown of job titles of attendees at each of the focus groups. A total of 23 institutions attended. The research team made contact with the non-participating institutions and invited them to provide feedback through e-mail. A number of these institutions were able to provide feedback to the research team.

## 3.3 Survey of Lecturing Staff

Throughout the course of the project the NFER research team sought to identify lecturing staff who made use of the VSN for teaching and learning purposes. Through participants in the focus groups a number of contacts were

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made. In order to obtain views of teaching staff an e-mail survey was designed and agreed with ELWa/ HEFCW. This incorporated many of the questions covered in the focus groups. Participants were invited to respond to those questions that they identified as relevant to their experience.

To widen the sample of lecturing staff a request was made by the research team to include the survey online in the WVN users mailing list which is administered by the WVN Support Centre. This request was agreed by the Support Centre who arranged for the document to be included in the mailing list. The Welsh Video Network Manager attached a covering e-mail which is included as Appendix 2.

Appendix 3 shows the job title of the respondents and a brief description of their use of the Video Services Network.

## 3.4 Aims and Objectives of the Video Services Network

The provision of video conferencing studios through the VSN to all FE and HE institutions was felt to offer an important resource for teaching and learning, research and administration, which were said to be '*the three core areas of FE and HE institutions.*' The VSN was described as taking '*account of the geography of Wales and therefore has currency and validity.*'

## 3.5 Training for Video Conferencing

Training and briefing days were provided at the start of the project for IT staff across both the FE and HE sectors, who then cascaded support and training for the managerial and teaching staff in their institutions. The initial IT training for teaching and learning was praised generally by focus group participants. However within institutions the impact of training for other staff was mixed.

It was reported by FE IT staff that the VSN had been incorporated into the work of ILT champions who had cascaded training and served as role models for colleagues on the use of video conferencing. A member of staff stated: '*Training falls under the ILT champions in FE. We have a video conferencing champion who can raise its profile.*' It was recognised by some strategic interviewees that although a number of awareness-raising sessions had been held and had proved valuable in raising the profile of the VSN, the lack of attendance by senior management staff had held back progress in adopting the technology in some institutions. Where training had taken place it was not always followed up and according to one respondent this had been '*an opportunity missed*.' A number of strategic interviewees felt that a new training programme was now required as a result of staff turnover in IT departments. The concept of video conferencing was also felt to require re-launching to teaching and learning staff. One strategic interviewee remarked that:

> *It has been very frustrating trying to open the eyes of others to those opportunities and it would be a sad day if the network collapsed, as it is cutting edge. You can lead a horse to water but you cannot make it drink. The issue we have now is a training issue and an awareness-raising issue.*

Lecturing staff who were non-users of the network were unable to report participation in any training in the use of the studios but were unable to indicate if such opportunities had been presented. Users of the network reported receiving differing levels of training. In one FE institution training in the use of the VSN studios was incorporated within staff training days and feedback from staff at that institution was positive. Staff felt reasonably confident in using the studios after training and this was identified as essential because

> *Staff have the added responsibility of working the equipment as well as trying to keep pace and deliver a class - staff need more encouragement in this area to ensure the video conference session involves plenty of interaction and engagement - this can be quite challenging for staff who are used to traditional methods of teaching.*

In other institutions staff had received training from IT staff or other staff with responsibility for the studios. These sessions were usually delivered on a one-to-one basis and were therefore arranged as and when need arose. A number of lecturing staff felt the need to have local technical support during conferences and there was limited reported awareness of the WVN support centre.

A major current need was considered to be central training to support teaching and learning through video conferencing. There was recognition that this was available from a number of outside sources, but a number of focus group participants felt that a central Welsh source would provide more coherent and targeted training. The need for continuous training arose from staff turnover and the pace of technological change. There appeared to be an inconsistency in the amount and type of training for the technical side of video conferencing and guidance for teaching and learning. A member of staff in an FE college suggested: *'the technical side in the college is good, but there is room for other support.'* However, a number of staff voiced concerns about their existing workload and subsequent limited time available to participate in training.

A number of focus group participants and lecturing staff suggested that peer-to-peer training could be a useful strategy within overall training provision. They felt that the use of staff members with experience of the technology in the teaching and learning arena could offer added value to the training programmes provided by outside agencies. Such use of role models was viewed as potentially very effective in persuading teaching staff to adopt the technology for teaching and learning.

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One concern was that not all teaching staff chose to take up the training which is available as '*they do not perceive that video conferencing will enhance their lessons and so there is no need to undertake training.*'

Several focus group participants suggested that the video conferencing studios should be included with general IT facilities within induction procedures for new staff.

## 3.6 Contact Points at Institutions

Some respondents thought that the lines of communication in relation to the VSN were often '*blurred*'. The main points of contact in many institutions were IT staff who had close contact with the studio(s), but a number of interviewees felt a need to develop contact with an identified member of teaching staff as well.

## 3.7 Main Current Uses of Video Conferencing

According to strategic interviewees, the three main purposes of video conferencing in Wales were intra-institutional use, then inter-institutional use, and external communication. These uses encompassed the following activities:

- Administration
- Meetings
- Teaching and Learning
- Events
- Research and development

Research participants reported a steady increase in use for teaching and learning since the inception of the Video Services Network, although in a number of institutions there was limited use of the VSN for teaching and learning. During this first phase of the VSN the greatest use has undoubtedly been for administration and meetings whereas '*It takes longer to integrate video conferencing into the curriculum.*'

Regarding the use of video conferencing studios for meetings and administration several institutions highlighted the savings for them in both time and travel costs. For example, one FE institution had three sites, across a 60 mile area. Before the VSN, many staff had to travel to the '*middle*' institution for meetings which was not considered an effective use of time. Video conferencing equipment had replaced the need for face-to-face meetings. Other respondents confirmed that video conferencing had improved the attendance at inter-institutional meetings which some personnel would otherwise not have attended. It had also enabled key staff to '*pop into*' distant

meetings for a half hour or so, which would not have occurred previously. The VSN had reduced travel pressures and stress on staff. One focus group member commented that

> *I am heavily involved in several 'communities' which use video conferencing. HEWIT has 2 meetings per year by video conferencing. Increasingly meetings of this type are going out via video conferencing as opposed to driving.*

Although neither HEW nor Fforwm meetings were conducted through video conferencing, it was noted that working groups of these bodies did employ the technology.

Administration both within and external to the institution was seen as the second major use of the facilities. Teaching and learning followed as the next most frequent use with research being the least common.

The two main factors influencing the degree of use of the Network were considered to be:

a)   prior experience of the institution in video conferencing;
b)   the support for video conferencing from senior management.

The focus group discussions revealed a marked difference in the approach of institutions to video conferencing and patterns of use for teaching and learning. Institutions could be characterised as falling into one of four distinct groups:

1.  Those HE Institutions who were part of the C5C network

2.  Those HE Institutions who were not part of the C5C network

3.  Those FE Institutions who had adopted video conferencing as a teaching and learning tool

4.  Those FE Institutions who had found it challenging to adopt video conferencing as a teaching and learning tool

Those HE Institutions which were part of the C5C network tended to use video conferencing heavily for administration, teaching and learning as well as research. The use of video conferencing for teaching and learning tended to be confined to particular departments with staff who had successfully adopted the technology for that purpose. Although most staff were aware of the potential of video conferencing as a teaching tool it was recognised that more could be done to further raise its profile.

In those HE institutions who were not part of the C5C network there was a need for awareness raising of video conferencing. In some of these institutions considerable use was made of the facilities for administration, and teaching and learning was developing. There was a need to support users through training and profile raising.

A number of FE institutions had successfully adopted video conferencing as a teaching and learning tool and in many cases this was attributed to the support given by senior management. This was in addition to the use of video conferencing for administrative and meeting purposes. In these institutions ILT champions worked closely with teaching staff to support them in their use of the technology.

In other FE institutions video conferencing was used mainly for administrative purposes and meetings, and the use of the technology for teaching and learning remained underdeveloped. This may be because studios had been placed into storage and were now being relocated, sometimes through a reconfiguration of staff responsibilities for video conferencing. These institutions were keen to network with other participants in the focus groups to gain contacts and anticipated an increase in future use.

There was some evidence of collaborative working between FE institutions as a means of sharing expertise. One lecturer stated: '*We all have bodies of expertise in our institutions and it may be useful to tap into these experts and utilise this expertise.*' For example, one institution collaborated with an institution in Holland in order to develop courses between them. In another, part of a sociology course was delivered by linking to a conference in Virginia. Learning support students were also brought together to be taught via the video conferencing system more informally for a '*meet and greet.*' To date in FE the focus had been on point-to-point conferencing and had yet to develop and include the use of multipoint conferencing. There were also reports of HE institutions using video conferencing to teach courses collaboratively, especially Welsh-medium teaching and subjects with small student numbers.

Some HE institutions used video conferencing to enable staff to work alongside colleagues in other institutions or countries for research purposes. One institution noted that its engineering department used the facility to work with other HE institutions and private companies across the world. For example, in one HE institution a module of an MSc in Oceanography was provided by a subject expert based in South Africa.

There was also some limited evidence of FE and HE collaboration in the form of franchised courses, designed in one institution and delivered in another.

It was felt that the provision of video conferencing facilities through a centrally-funded system had meant that take up of the technology had been greater than if the technology had been introduced by each institution individually. One participant stated that '*video conferencing is as vital as the telephone.*'

All participants considered that the use of video conferencing would continue to increase for both administration and teaching and learning provided that the Network system remained in place.

Concerns were raised by some strategic interviewees about the low level of use in some institutions where there was potential to employ video conferencing to overcome particular challenges. However, one strategic interviewee appreciated that '*for some colleges and institutions there is so much else that they have to do, it may not be on their agenda and the powers that be do not see it as an agenda item.*'

## 3.8   The Support Centre

Research participants were extremely positive about the role played by the Support Centre within the VSN, which ensured that the system is available to institutions when needed.  This required the Centre to ensure that the studio equipment was robust and kept pace with technological advancements.  It was reported that '*A lot of the users may not realise how proactive the Support Centre is as they will spot a problem and fix it before it becomes a problem for the users.*'  A number of strategic interviewees felt that without the Support Centre the progress towards the adoption of video conferencing for teaching and learning would have been slower.

Focus group members reported very few technical problems with the system and the VSN across Wales and the role of the staff at the Support Centre was seen as crucial in its success. .  A number of focus group respondents referred to the value of the support line to assist if problems occurred in the course of a video conference.  This was contrasted to the unsupported nature of desktop video conferencing and the old C5C system where:

> *You would not be 100% certain that everyone could participate.  Now that does not occur and you assume that it will be serviced properly and available to everybody and my experience is that that is the case.*

The acknowledgement of the Support Centres was also by both IT and lecturing staff.  One member of IT staff noted that since the introduction of the Network there has been '*a decrease in the amount of support that we have to provide now.*'

## 3.9   Impact of the Video Services Network on Teaching and Learning

The less frequent use of the VSN for teaching and learning meant that the focus groups made fewer references to this aspect.  Although video conferencing may overcome some barriers it was felt that that it may not be appropriate as a teaching strategy for all subject areas.  Teaching styles needed to be modified when using video conferencing as one strategic interviewee noted:

> *You need to think about how you package and present information when dealing with disparate audiences.  There need to be a way to*

> *keep the audience engaged and that is a skill to be mastered as with all teaching methods.*

The perceived impact of the VSN on teaching and learning varied across lecturing staff. When were asked to consider how teaching and learning by video conferencing differed to other forms of teaching and learning, some respondents did not perceive a difference and one stated that

> *I don't perceive barriers here and it does need discussing in relation to impact on learning. What this (video conferencing) presents is an opportunity for "authentic" communication and as such it has a significant value to participants. It somehow elevates the role of communication to the conscious forefront of the learning agenda (where it has traditionally been marginalised and seen as a remedial issue).*

Another lecturer felt that the key difference was the delivery of the teaching session with the need to ensure that the remote groups participate fully. This called for particular skills from the lead lecturer and may present a possible area for future training development. Teaching and learning through video conferencing was felt to be a more structured environment and for a lecturer who teaches ESOL students, video conferencing provided *'another medium that aids variety and gets learners out of the classroom in a different environment and learning experience.'*

A further lecturer summarised the characteristics of the technology as follows:

> *Only one person can speak at once (Can be an advantage!) but this cuts down on the interaction between students. Tutor and distant students should preferably meet face to face before video conferencing sessions then it works. Video conferencing will never replace face- to-face but is a useful addition to "teacher's toolbox".*

A number of lecturing staff felt that the provision of the VSN and its technology had led to greater enthusiasm for technology in teaching and greater links with other institutions. An ILT champion felt that within their college '*we still have a long way to go to realise any significant impact on teaching and learning.'*

Lecturing staff who used the VSN for teaching and learning were able to identify impacts on the students who had experienced it. These included opportunities to talk directly to native speakers of a variety of languages. One lecturer reported that as a result of the video conference links their students were *'much more happy to speak French.'* Another lecturer who used the VSN to link with outside bodies when teaching art reported that *'In termly talking questionnaires students have indicated that the video conferencing experience was fun and that they want to do it again in future projects'*. Some students found the experience '*difficult'* at the beginning but had adapted to the medium through experience. One member of staff reported a mixed impact on the students who have participated in video conferencing at their institution

> *It has proved beneficial in linking our students with students studying the same course at another college (Early Years students linked with another institution). We used it very successfully to link up profoundly deaf students here with other profoundly deaf students at two other institutions. Students were able to communicate using BSL but we used it last year to deliver a unit on BTEC Fine Art across two campuses but feedback led us not to repeat this.*

Some staff who had used the Network less frequently for teaching and learning reported that it would be difficult to comment on the impact of the Network to date on students. However, other staff were able to identify benefits for students which included access to experts in their subject area through video conferencing and through the provision of franchised courses.

A number of lecturing staff identified the use of video conferencing as an additional teaching and learning tool but none believed that it was integral. As one lecturer noted *'I would say that teaching staff could still operate without it'* whilst another stated that there is *'next to no application for learning and teaching.'*

A representative comment was that that video conferencing is '*a useful tool for management meetings but very underdeveloped for teaching and learning.*' One frequent user of the network noted that

> *I personally would be able to drop it from my course and future students would be none the wiser. Something would be missing though, so it is worth the difficulties of getting it going.*

The VSN was used for teaching and learning where there had been an identified need, for example, the provision of a franchised course or in the case of one institution where student numbers had exceeded lecture theatre capacity and consequently the lectures were delivered to a local group of students in the main lecture theatre and to a further group of students at a remote studio. One lecturer did note that video conferencing is '*a solution for a problem the majority do not have*' but '*I remain convinced that video conferencing will become a much valued medium for teaching and learning.*'

Several number of lecturing staff hoped to be able to expand their own use of the VSN in the future but this would depend on the number of possible partner organisations and institutions willing to participate and increased staff confidence in using the technology. A user who taught the Welsh Baccalaureate considered that the introduction of this qualification will lead to increased use because '*we are trying to encourage students to make greater use of the facilities and lecturers to embed these into their teaching.*' An ILT champion reported that

> *I can't imagine being without the video conferencing suite now however it would be great to see the upgraded and working more reliably as this will give staff the confidence to integrate this into their teaching and learning which is one of my main goals for 05/06.*

## 3.10 The Current Benefits of Video Conferencing

Although video conferencing was seen by most respondents as a powerful tool for institutions, its use across institutions could be described as variable. However, the following benefits were identified for management, teaching staff and students:

**For management**

♦ Savings in terms of cost, travel time and administration time

♦ Attendance at internal and inter-institutional meetings which would be impossible without the Network

♦ Linking with worldwide markets and attracting new target groups of students

♦ Raising the profile of the institutions as users of cutting edge technology.

**For teaching staff**

♦ Working with staff on other sites or in other institutions

♦ Saving travel time and cost

♦ Transferring skills between institutions.

**For students these included**

♦ Access to subject specialists

♦ Provision of previously unviable courses

♦ Expanding communities of students

♦ Widening participation to FE and HE courses for those in rural areas

The first stage of the VSN project was described as having provided a solution which was *'robust and reliable and available to all institutions'*. A number of examples of how the VSN had allowed institutions to widen their links were identified alongside other acknowledged benefits such as reduced travel time and the access to world experts in academic fields. This was not felt to be a consistent picture across the whole of Wales and video conferencing was said to *'have not reached its potential.'* One respondent felt that *'In some colleges the video conferencing is pivotal to what they do and in some it is off the radar for the majority of staff.'* A further interviewee stated that this was a frustration particularly '*When you see what can be done and then people do not use it.'*

Despite this, most respondents felt that interest in the concept of video conferencing for teaching and learning was growing and that this interest needed to be harnessed and translated into actual use.

Staff from most institutions believed that the Network provided in Wales was ahead of the '*ad hoc*' nature of the systems offered elsewhere both in terms of robustness and in the compatibility of a single standard system across two educational sectors. The lack of compatibility with some systems outside Wales was not seen as a reason to abandon the Network, which would be considered a backward step in view of the anticipated increase in the use of the technology for teaching and learning as well as administrative purposes in the near future.

Video conferencing was already seen as central to many institutions. In addition to benefits mentioned above, one HE institution noted that the use of video conferencing had saved a considerable amount of money per year when conducting examination board meetings with some of its franchised courses in the rest of the world.

## 3.11 Factors that Inhibit Use

A number of factors were identified by research interviewees as barriers to the use of video conferencing technology in Wales. These included:

♦ Insufficient awareness of the studios in institutions

♦ Lack of training

♦ Personal resistance to technological change, particularly among older staff

♦ Lack of time

♦ Lack of personal, face-to-face contact when using the technology

♦ Lack of support from Senior Management.

♦ Limitations on collaboration

♦ Type of video conferencing systems.

A number of strategic interviewees said that a lack of awareness both of the facility and its potential could inhibit its use. There was recognition, however, that staff in both FE and HE institutions were invariably busy, and that consequently it would be unrealistic to expect every member of staff to adopt every new technological advance immediately. One interviewee explained that video conferencing was an additional teaching tool for teaching staff and they had to decide when best to employ it, as with any teaching technique.

As has been identified in section 3.5 a lack of training in how to fully maximise the potential of video conferencing for teaching and learning was recognised by all respondents as a further barrier to use. An experienced user of the VSN, stated that there '*were not enough practical guidelines for teaching and learning.*' '

Many of the interviewees acknowledged that once a person has used the technology and can see the benefits then they are 'hooked.' However, this

required confidence on the part of all staff and personal resistance to technological change was also acknowledged to be a barrier. One interviewee recognised '.. *the perennial problem of hard-pressed staff adopting a new style of working as it requires a change of mindset and a whole range of new techniques.*'

A member of staff in one institution experienced difficulties when lecturing by video conferencing because '.. *he got no expression back from the students and he likes to walk around and he is stuck in one place. That is against his usual style.*'

The control of pupils in remote sites was also considered an issue by some. The unruly behaviour of pupils could make the video conferencing experience less positive and could require additional staffing requirements. One member of staff stated: '*...student management can be a problem where there are a number of lively pupils. I have had one remote group which tried to turn off all the equipment and if that had happened in my first ever conference I may not have wanted to use video conferencing again.*'

One interviewee stated that in some institutions '*The teaching done by video conferencing is done by younger lecturers and we are inhibited by the age profile of the staff in Higher Education.*' Another respondent stated that

> '*The perceived wisdom is that video conferencing does not work as effectively if participants have not met face-to-face and that it is less successful than working with staff who students know.*'

A further inhibiting factor that was felt by interviewees to inhibit the use of video conferencing across institutions was the need for support from senior management for the technology which, in practice, varied considerable across institutions. It was important that senior management were committed to the technology and could '.. *cascade the benefits of the technology to all staff.*' In one institution the head of ICT was also a member of the Senior Management Team which he said maintained a high profile for the Network in that institution.

The lesser use made of the Network for teaching and research than for meetings was attributed to a number of factors, which were not common to each institution, but which included

- ♦ Fear of the technology
- ♦ The need for new and different pedagogical techniques to be learnt and adopted
- ♦ The need for another worthwhile partner with whom to communicate and the time required to develop partner links
- ♦ The design and size of the studios, and their location within the institution
- ♦ Time for teaching and learning staff to adopt the technology

♦ Lack of promotion of video conferencing to staff.

## Fear of the Technology

Although the majority of participants felt that the video conferencing studios were easy to operate one stated that '*What cannot be assimilated in five minutes is the technique of teaching with video conferencing.*' Focus group participants described the importance of breaking down the barrier which video conferencing may pose by showing that it could be:

> '*More efficient, beneficial and provide other dividends and it is hard to do that as they are too busy working through their normal workload. There are many reasons why people do not see the benefits, they see the drawbacks and they see the extra preparation as a burden.*

Lecturing staff also recognised that the use of video conferencing in teaching and learning was a result of staff's personal initiative and that this often reflected the confidence of lecturing staff in using technology and to '*accept change*'. One ILT champion reported that '*staff lack confidence in themselves to try this new technology.*' In some cases this was felt to possibly inhibit the use of the technology but one lecturer stated

> *the claim that academic staff are reluctant to come to terms with the technology involved is simply untrue. In recent years academic staff have already had to deal with e-mails, voice-mails, word processing, spreadsheets, Powerpoint presentations, photocopiers, hifi systems, video cameras, etc. The operation of video conferencing resources can be assimilated in five minutes but what cannot be assimilated in five minutes is the technique of teaching with video conferencing. This can only be delivered by other, experienced academics and this is usually absent from staff training programmes.*

A number of FE institutions had timetabled training sessions on the use of video conferencing for teaching and learning into staff development days. However, in some HE institutions where training had been offered as part of general staff training programmes take-up rates were reported to be very low.

Some respondents believed that the technology should be 'transparent' and therefore to not present a barrier to use in order for take up rates to be maximised in the future. The present VSN was felt to offer this 'transparency' and this was viewed as a positive aspect.

## Working with others

Video conferencing required partners in other institutions / companies to share the technology and be prepared to use its advantages. A number of staff indicated that identifying people or institutions to collaborate with was often a challenge.

It was felt that the development of links with partners required time, which was limited, particularly for teaching staff. Some respondents in FE and HE

called for some form of central resource whereby links to willing partners could be shared and disseminated throughout the two sectors. During the research project a new Welsh based internet resource was launched. This resource developed by three FE institutions was internet based and *'launches videoconferencing possibilities on a world wide scale.'* The resource was aimed at:

> *Teachers, lecturing staff, support workers, and indeed anyone who may benefit from videoconferencing opportunities, are invited to append their details to the system, which enables contacts to be made, and conferences to be established. This network of practitioners will prove to be a very valuable resource for today's learners, enabling a more enriched curriculum to be delivered.*

In one FE college, an ILT champion worked solely on video conferencing and had recently established links with institutions in Spain and France to promote modern language learning with native speakers.

However, communication with sites beyond Wales was problematic where there were fewer such advanced systems. Some institutions reported beginning links with institutions outside Wales that could not be fully exploited due to technical issues.

## Location, design and size of studios

The fixed locations of the studios was the subject of comment. Because video conferencing had been an unknown quantity at its introduction, and possibly because of financial and spatial pressures, studios may have been placed in rooms that were recognised as no longer suitable for such facilities. With hindsight, a number of participants thought that the studios might be re-sited if an examination of their locations were conducted today.

The size and style of room was also felt to inhibit usage by lecturing staff. In some cases it was felt that the '*Layout of studios could be more conducive to a learning environment rather than a meeting room*.' Other lecturing staff noted that studios at their institutions were not large enough to accommodate the student groups that they wished to teach.

Some respondents said that certain departments were dissuaded from using the studios because of their inconvenient location within campuses.

A further issue was that of the differing teaching styles in the FE and HE sectors. FE staff felt that their pedagogy made greater use of small group work whereas many HE staff employed more formal lecturing techniques to large classes. This may require a differentiation in the design of future studios in each sector. Staff from an institution which had a focus on two specific subjects stated that the provision of a fixed studio did not meet its current or future need and greater mobility of the technology would be welcome. It was also felt that '*Some teachers find the environment of the studios alien and if*

*you could get some way of getting them in a comfortable environment then that may increase take up.'*

### Time

The time needed to adopt video conferencing was the subject of some discussion and one focus group member recognised that the system

> *was not cheap and when you throw that much money at something then it must produce results. The expectations of WVN were very high and although the results may not be as high as expected, the value bar is much higher and it will move forward and develop so long as we actually have the facility. Some technologies take a long time to get going.*

The time required to prepare materials for discussion and to distribute these to video conference participants in advance was acknowledged as a challenge to hard-pressed lecturing staff. Lecturing staff noted that preparation was essential to the success of a video conference but that time was limited and so this could present a barrier to increased uptake. One member of staff who had made limited use of the network to date noted that it could be challenging to

> *develop a programme of learning sessions delivered by the network that students and lecturers want to participate in. There needs to be some central support for this, busy lecturers do not have the time to develop, coordinate and promote such programmes.*

A further respondent noted that in one video conference in which they had participated *'insufficient thought to preparation meant those at the distant studio often did not have access to the same resources (handouts) as those at the home studio.'*

A number of focus group members felt that use of the VSN for teaching and learning would increase although it was currently lower than anticipated. It was noted that '*You have to ensure that it is being used for the right purposes and not force people to use it just to use it.*'

In order to raise levels of use, a number of respondents suggested undertaking a profile-raising campaign. This would emphasise the existence of the system in both FE and HE institutions as well as the potential benefits for staff. One proposal was:

> *Perhaps what is needed is another event to highlight twenty good practice ideas and it could be done with the launch of the translation project. Let's see some examples of good practice. It would be periodically good to see what others are doing. They need to be twenty small ideas and to talk to people about how they did it and the process.*

**Promotion**

Although the VSN studios had been in existence for several years, focus group members did not feel that all staff, particularly part-time staff, in each institution would be aware of them. In one institution one department had purchased its own video conferencing equipment because it was unaware of the central facility available. The need for continuous promotion of the studios was recognised by all respondents, and it was felt that personal contact and the development of '*video conferencing champions*' aided the process. It was felt that in some institutions and for some departments interest in the facility only appeared when they were required to use it. This may also reflect the ongoing pressure on teaching staff who viewed video conferencing as one teaching and learning strategy to be used as and when appropriate.

**Limitations on collaboration**

Staff in several FE and HE institutions suggested that the innovative nature of the VSN sometimes limited opportunities to link with appropriate partners. Although all FE and HE institutions had the same equipment and were able to communicate between each other, the video conferencing facilities used by other providers, bodies and organisations were often not as advanced as the Video Services Network.

**Type of video conferencing systems**

Several staff questioned the type of video conferencing system made available to them and the suitability of these systems for their institutions. For some, limited use could be made of a static facility in a designated room. According to one member of staff: '*There is a need for some flexibility in the design which is more specific to our use, takes on board the experiences of all staff who use or look after the equipment and puts it into a blend to customise the studios.*' It was also suggested that moveable facilities such as '*roll-about video conferencing units*' should be available for those institutions undertaking activities that require space.

## 3.12 Promotion of Video Conferencing to staff in HE and FE Institutions

The promotion of video conferencing to HE and FE staff was the subject of considerable comment. It was felt that this lay outside the remit of the Support Centre because of the number of specific technological roles it played in the VSN. However Support Centre staff had considerable contact with the institutions and '*would welcome the opportunity to work with the institutions to promote the use of the technology.*' It was recognised that profile raising lay outside the remit of the funding councils. Several respondents felt that '*clearly from the patterns of use there are some institutions who are raising awareness better than others*.' The different relationships that the two funding councils have with their institutions may also play a role as it was felt that ELWa could have greater scope for encouraging institutions to arrange training for video conferencing.

Lecturing staff's responses regarding the promotion of the VSN within their institution reflected to an extent their institution's background in video conferencing and the support of senior management for the technology. In a number of FE institutions promotion was carried out by ILT champions, and in one college an identified member of the ILT champions team had responsibility for this. Colleagues reported that this member of staff used global e-mails and identification of possible partners for conferences as key methods of promotion. As a result, staff in this institution felt that all full-time staff were aware of the studios. In an FE institution with low use for teaching and learning there was felt to be little promotion of the VSN to staff. One HE member of staff noted the frustration that

> *I have been responsible for promoting the Video Services Network and spent three years doing so, running regular workshops. There has been very limited interest and even less actual use despite putting significant resource and effort into promoting it this is because it is seen as off-putting technology and perceived as complicated.*

In other institutions, newsletters and staff meetings were used to disseminate information about the VSN. However, there was recognition that many staff may not be aware of the studios, especially part-time staff. Even with successful promotion one respondent noted '*all staff are aware, but a number are more techno phobic [sic] and claim no knowledge.*' An experienced user in a HE institution with high usage of the VSN for teaching and learning stated that staff

> *know it exists, but do not generally know of its relevance as a classroom option. Facilities should not be seen as being in the hands of an elite group who know about them. Universities often see ownership of technology as the measure of development rather than how the technology is used.*

Staff suggested strategies for improving promotion. Suggestions included

- Dissemination of examples of good practice (5)
- Creating a programme of video conferencing events with willing participants (2)
- More publicised and free events from national institutions (3)
- Specific continuous professional developments events focussing on the use of video conferencing for teaching and learning (6)
- Training to be incorporated into staff induction (4)
- Showcasing the uses of video conferencing as currently used in Wales (3)

## 3.13  Challenges of Video Conferencing for Institutions

It was recognised that one of the greatest challenges *'.. is to promote the use and to change the culture to accept the use of video conferencing.'* This magnitude of this task was summarised by one respondent who felt that

> *Culture is a key issue. A lack of support or drive from a senior level may impact on uptake. It is key for senior management to experience video conferencing and be convinced of its benefits so that they are willing for staff to change their teaching styles for video conferencing and teaching materials to be suitable for video conferencing. Generally the research would indicate that senior management support is fairly key and people across the institution have to have experience of using it and be comfortable with it and that may link to marketing.*

The support at a senior management level linked with the challenge posed by awareness-raising in institutions. Interviewees were uncertain as to the most effective ways to develop awareness across institutions. However, it was acknowledged that currently this was within the remit of each individual institution and neither the funding councils nor the support centres.

## 3.14  Value of the Video Services Network to institutions in Wales

The value of the VSN in Wales was judged to be high by strategic interviewees and focus group participants because of the tangible benefits already experienced. There was reported to be substantial potential for growth with other organisations in Wales who wanted to be part of the Network. A considerable level of interest in the VSN was also reported from agencies outside Wales and this was felt *'to benefit Wales and ELWa and HEFCW as well.'*

The VSN was also felt to have the potential to assist in collaboration between FE and HE institutions. This requirement had been placed on the HE institutions by the Welsh Assembly Government, and video conferencing could support this strategic aim.

Strategic interviewees were all extremely positive about the value of the VSN and one stated that it has '*been an unqualified success so far because neither sector could collaborate as effectively without some means of easy communication and Video Conferencing does that for them.*' Another interviewee felt that the provision of the VSN has been '*one of the best things we ever did in making this resource available. It is the largest resource of its type in Europe and it is an extremely powerful resource too*'.

The value attached to the VSN by lecturing staff varies according to the use made of the network within the institution. Where use was limited to mainly administrative tasks, the main benefit was the saving of staff time and money.

The current value of the VSN to a single campus institution was felt to be limited at present.  However, it was considered that '*this has not been fully explored*' to date.  In another institution the ILT Champion noted that the VSN is '*invaluable now I am trying to spread this enthusiasm to other staff.*'

Within institutions that made greater use of the VSN for teaching it was more highly valued.  This was based on the benefits which accrue through, for example, the provision of franchised courses, reduction in travelling time, increased opportunities for students.  One lecturer in a Higher Education institution noted that

> *the value of video conferencing has been demonstrated to the department and accepted.  More people have used it this year for teaching because of large classes (which are split across two campuses) and transport difficulties between the two campuses.'*

A current non-user of the system who anticipated use for teaching and learning in the next academic year asked whether the value was being measured through

> *Cost or benefit? - could be of significant use if we could establish competitive projects with other design courses.*

## 3.15  Lessons Learnt

The need for centralised support and centralised procurement to support video conferencing across the two educational sectors was felt to be amongst the lessons learnt from the first phase of the VSN.  European funding had presented some challenges, but the benefits which had accrued to the project were felt to have outweighed the problems.  A number of interviewees felt that the main lesson was the need for training in using video conferencing for teaching and learning due to the different pedagogical styles required by the medium.  One interviewee felt that there '*needs to be a resource in the funding councils to coordinate efforts to promote usage.*'

## 3.16  Future Developments

A number of specific technological issues were raised, for example, the possible need to replace some of the studio equipment such as the CODECs in the near future.  This was felt to be important to maintain the much-valued robustness of the system and also to keep pace with technological advances, for example, plasma screens in place of the current monitors.

One concern in the case of further expansion of the Network was that the Support Centre may be expected to maintain the current level of service to an increased number of studios without a similar increase in funding.  This may pose challenges for the Support Centre.

A number of LEAs, schools and other bodies, such as Wales Broadband, were reported to be interested in joining the Network, as the National Library of Wales had done. This interest followed the successful launch of the CYDAG project with six Welsh-medium schools.

Regarding training for teaching staff in the use of video conferencing in their subject areas, a number of interviewees suggested that the demand for such training should be assessed and the best providers and form of provision identified. There was a recognition that

> *Staff have such overloaded agendas at present and may not take it on board and some who are slow adopters may jump at this chance. I am not sure how much the current climate is affecting their ability to do anything other than just keep it running.*

Staff identified a need to encourage institutions to work in partnership in the use of video conferencing and to raise awareness levels across institutions. One comment was: *'We are getting to those who will use it and we need to tackle how we reach those who will not use video conferencing .'* This was felt to be the case in some institutions where *'.. different faculties/ departments are very independent. You have to get video conferencing to permeate through the institutions as a whole. That is the challenge. We need training and awareness raising to go hand in hand. The technology is proven and now we need someone to raise the profile.'*

However, some respondents did not feel a need to expand the VSN in light of current usage patterns but there was felt to be a greater *'need to develop the network further for teaching and learning and administration and to tap into the worldwide markets.'* This was balanced by the recognition that *'The funding councils themselves should not be telling the institutions how they should be using the video conferencing we should encourage use from the centre where that is appropriate but also we have to be wary of not putting money into something the institutions do not want.'*

HE and FE staff called for consultation with themselves on their individual requirements should a further round of centrally funded systems be considered. This could include consultation regarding greater flexibility of the system. Many institutions see flexibility as a future priority in order to extend the potential of video conferencing as a teaching and learning tool. It was noted, however, that mobile systems would have different implications for the Quality Assurance in the Network and would also place a greater workload on individual institution's IT support staff.

Video conferencing was also seen by a number of institutions as a method of encouraging FE and HE collaboration and the sharing of experts via video conferencing was thought to be one possible way in which video conferencing for teaching and learning could be extended across both FE and HE.

A number of respondents noted that future students would expect to encounter the latest technology in their FE or HE institution because of the rapid pace of technological change, such as their personal video-enabled mobile phones and the use of video conferencing in schools.

It was suggested that ISDN conferencing should be retained as many of the *'free providers'* only use the ISDN video conferencing technology. Despite the benefits of reduced call charges through the increased use of Internet Protocol (IP) video conferencing, it was felt important that institutions could work with the widest possible range of other video conference users.

## 3.17 Quality of Experience

The quality of experience for all participants in video conferencing events was felt to differ from face-to-face meetings or lectures.

The conduct of a meeting through video conferencing also required some additional preparation and prior distribution of documents to aid discussion. A strong chairperson at the main site is important, as well as local chairmen to ensure that all sites are fully involved and the use of the mute button was seen as key. Although the medium may at first be unfamiliar, it was felt that once staff have learnt the protocols, video conference meetings can be far more purposeful and structured than face-to-face meetings.

For lecturing staff, teaching by video conference was considered to be a different experience due to the demands of ensuring that remote groups are as involved as possible in the teaching. One focus group member noted that they had spent two hours preparing a one-and-a-half-hour teaching session with another member of staff. However, all staff did recognise the benefits that can be derived for teaching and learning, even on a point-to-point basis. Multi-point conferencing was thought to present greater organisational challenges but to also offer greater benefit to the learner. One comment was:

> *You cannot deliver a video conference to groups that are in two different locations as you have to ensure involvement from both the local and remote groups. That is key with meetings and there are different techniques to include remote groups.*

All lecturing staff who currently used the VSN rated the quality of experience as good or better and three stated that it was excellent. However, the quality of experience when linking to other sites and countries was less highly rated. One lecturer who used the network to link with institutions in France noted that '*The French technology is not as advanced as ours.*' A less frequent user stated that '*The equipment is good. The only problem is that, when conferencing with two or more other centres, we can only see the centre that is 'talking', so it is more difficult to have multiple discussions.*'

All lecturing staff reported that the experience was good or better for their students who participated in video conferences. This was exemplified by the following statement:

> *The realism of the scope of the communication is liberating and people see the benefits whatever their personal learning agenda. They don't always see this with other skills-based training.*

## 3.18 Quality of Equipment

The VSN system was reported to be very robust, reliable and easy to operate. These aspects of the network were seen as '*fundamental*' to its success. For example, several staff from FE and HE reported that although they had video conferencing facilities prior to the Welsh Video Network, whether through the C5C system or through systems supported by individual institutions, use was limited because of the poor quality of the equipment and therefore experience. One member of staff from an FE institution described their previous video conference equipment as '*more of a toy.*' After a period of four years, participants recognised that technology had moved forward and that consequently there was a need to consider upgrading the hardware. One FE institution noted that the video conferencing equipment is 'the oldest IT kit we have' as this institution had a two-year rolling programme of updating IT equipment. Participants felt a particular need to replace the CODECs, as well as the PCs, which belonged to the institutions. Suggested improvements to the studios included the incorporation of DVD players as well as a move to the use of SMART whiteboards as these were the most commonly used whiteboards across FE and HE institutions. Participants noted that '*newer*' studios had recently been equipped with plasma screens and had heard some discussions surrounding some of the upgrades noted above.

## 3.19 Future Investment

The need for further investment was discussed with all interviewees. In light of the value which the video conferencing facilities actually or potentially provided, all respondents agreed on the need for further investment in the system. In the words of one interviewee '*We need to stay ahead of the wave and future-proof it.*' However, the exact nature of the required investment was unclear. A number of options were outlined which included:

- Individual institutions reinvesting in order to upgrade the studios and Network
- The withdrawal of the Support Centre; if the institutions wanted to retain this, they may have to fund it
- Central funding to promote collaboration between the 12 HE and 24 FE institutions.

One interviewee felt that:

> *'It is more likely to be efficient to do it centrally via UKERNA. We expected some funding from the institutions to create the studios and that was the right stance. We will facilitate but not do it for them.'*

Future investment decisions, at the time of the fieldwork, were clouded by the overarching issue of the integration of NC-ELWa into the National Assembly for Wales. The need for investment in both FE and HE sectors was emphasised because of the collaboration agenda and the original decision to establish the Network as a pan-Wales FE and HE project. One interviewee considered that '*It is too valuable a resource not to consider investing in it*' while another stated that '*I think if one institution uses it for five hours a week then it is worth it. Those who are not using it are in the minority*.'

However, one respondent did state that *'Money cannot be invested in the system in if it sits as a wasted resource.'*

All respondents felt that the termination of the C5C network which had become obsolete was a lesson to ensure that the VSN was adequately funded. An 'exit strategy' should be considered at some point which may require funding for the networks to be provided by the individual institutions. However, the current level of use meant that the full value of video conferencing for teaching and learning had yet to be proven to all institutions.

## 3.20 Key Findings

1   Users and non-users of the Video Services Network identified training and preparation as key elements in ensuring successful video conferences

2   Teaching via video conferencing required a different pedagogy to face-to-face teaching

3   Although video conferencing may never replace traditional face-to-face teaching it was an increasing part of an overall range of teaching strategies available to staff and current users felt that there would be a negative impact if the facility were withdrawn

4   The majority of lecturing staff reported a high quality of experience when using the Video Services Network and perceived the same high quality of experience for their students

5   Students participating in learning via the Video Services Network had largely benefited from the experience, particularly when they had been able to access experts in their subject area and native speakers of foreign languages

6   Video conferencing was not seen as an integral teaching and learning tool at present but current users feared a negative impact if the facility were withdrawn

7   The majority of lecturing staff reported that increased use of video conferencing was an aim of their institutions in the future

8   The value of the Video Services Network varied across institutions and most respondents felt that it was to date undervalued for teaching and learning purposes

9   Lecturing staff reported that most staff would be aware of the Video Services Network but that a range of factors may limit take-up of the technology including

  ➢ Lack of time
  ➢ Availability of partners
  ➢ Insufficient training in the pedagogy
  ➢ A limited level of Senior Management support for the use of the technology
  ➢ Less advanced systems in other institutions
  ➢ Staff confidence
  ➢ Awareness of the potential value of the technology.

# 4. PERSPECTIVES OF SENIOR MANAGEMENT

This chapter describes the key findings of a small number of interviews conducted in order to obtain further views from members of senior management teams. Three interviews were undertaken with an assistant director and ILT champion, a principal of a HE institution and vice principal of a FE institution.

## Use

In all three institutions the VSN was predominantly used for administration, meetings with other colleges and committee meetings. There was also evidence that the video conferencing facilities were used for teaching and learning, although to a varying degree across the institutions. For example, in one institution video conferencing was used by the nursing department in the delivery of courses, it featured in collaborative joint teaching schemes in archaeology and aided development work by linking partner organisations in Wales and the US. In another, links had been forged between the college and the National Museum of Wales and archives. However, those interviewed agreed that the colleges were not using the VSN to its full potential. Video conferencing was not yet considered to be an integral part of teaching and learning strategies and it was felt that the VSN could be employed more fully in curriculum development and curriculum innovation.

The staff interviewed suggested a number of reasons for the limited use of video conferencing in teaching and learning. All three agreed that there had not been enough emphasis placed on the use of video conferencing in this specific area and there had been no structured approach to embed it within pedagogical practice. For example, one interviewee stated: *'Much of the focus was on setting up the technical network and insufficient thought was given to the teaching and learning network that would have to sit alongside it.'* Other suggestions included limited support and training, the inflexibility of timetabling which made it difficult to find the time to train staff and introduce video conferencing into the curriculum, apprehension on the part of staff about using new technologies, the perception of some staff that video conferencing was a *'second rate experience'* when compared to face to face lecturing and for one institution [in an Objective 3 area] which only had one video conferencing suite on another site, the logistics of moving students from one site to another. The quality of equipment was also highlighted by one interviewee as a factor which discouraged use.

Staff in one institution had been developing an ESF-funded project, in collaboration with other institutions and partners, in order to address training issues and encourage the use of video conferencing within teaching and learning. The 'Clever' project involved partnerships with two other Welsh FE

colleges and five European institutions and aimed to develop training for teachers and lecturers in using video conferencing facilities. The project would also provide funding for staff time to be covered within the institution so that they were free to be trained and have the opportunity to develop materials for effective video conferencing. It was anticipated that the Clever project would '*kick start*' the use of video conferencing within the institution because it was to be piloted within the PSHE curriculum as part of the Welsh Baccalaureate.

All three interviewees considered the VSN to be valuable, particularly in terms of its potential. It was perceived as having practical benefits such as saving time and cost by reducing the need to travel and in terms of finance by supporting institutions in accessing global markets where expertise could be bought and sold. Video conferencing also provided greater opportunities for students by widening their access to learning in general and more specifically to subject experts and resources. The VSN was thought to also have the potential to broaden the student experience and enhance learning opportunities.

## Impact

The VSN was felt to have had an impact where used, but because use was limited the overall impact was restricted. According to one interviewee: '*Where people have used it they have found it a useful and a valuable experience. It just hasn't been used enough so we can say it has changed the way we deliver teaching and the way students actually learn.*'

## Support and promotion

The task of promoting video conferencing in the institutions had been given to a range of staff including ILT Champions, ICT coordinators, learning support advisors and managers and undertaken through a number of methods including training sessions, emails, paper-based promotions and word of mouth. One institution, however, highlighted the difficulty of allocating the responsibility of video conferencing to certain types of staff, particularly ILT champions. It was suggested that although video conferencing tended to come under the remit of ILT champions, as a group, these had a variety of roles which differed across institutions. As a result, video conferencing was rarely a priority and more attention was given to the greater concerns of inspections and the impact of ILT on teaching and learning. More recently, ILT champions have been responsible for developing virtual learning environments which have taken precedence.

There appeared to be some senior management commitment to the promotion and use of the VSN in the institutions. To a certain degree the support focused on the potential of video conferencing in aiding teaching and learning and facilitating the management of the institutions, but in one college there was a discrepancy between theory and practice. The interviewee explained: '*Video conferencing is part of the college's strategic vision, but in practice the college is limited in terms of finances to provide time for lecturers to develop their skills…there is an intellectual commitment to it but you have to be pragmatic about the availability of time for it.*'

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**Future**

Those interviewed proposed a number of suggestions to encourage the use of the VSN. These included:

♦ An enhanced focus on training for teaching staff in order to embed video conferencing in pedagogy and curriculum

♦ Increased collaboration between institutions or the establishment of a cross-institutional network in order to develop and undertake training and share ideas and resources

♦ Training events organised with other colleges

**Future Developments**

The importance of regularly upgrading all video conferencing facilities was stressed because institutions would be less inclined to use the system if the technology became outdated. In addition, it was felt that if the financial responsibility for the improvements were left to the institutions, video conferencing would probably be put to one side in favour of equipment that would have wider benefits. According to one interviewee:

> *If the colleges are going to have to fund it themselves, in a college like this, given the choice between thirty interactive whiteboards and upgrading the video conferencing suite I know where the choice will lie. It would be the whiteboards because you are going to enhance the learning experience of all those students in thirty different classrooms.*

# 5. CASE STUDIES OF VIDEO SERVICES NETWORK USERS

This chapter presents four case studies of users of the Video Services across a range of institutions.

## Case Study 1

This member of staff was a Senior Lecturer in Education teaching at a Higher Education Institution in South Wales. Having previously been unfamiliar with video conferencing, he began to use the VSN in February 2004 to teach a group of students at a partner institution in North Wales. This use of the Network was seen as invaluable by the lecturer for this group of students because it had enabled them to access a module in Social Psychology which would have been impossible otherwise. This was because the students were studying at a college without staff with the prerequisite subject experience.

The lecturer had received one-to-one support in learning to teach via video conferencing from the University Media Technician. This gave the lecturer some initial confidence although this grew through using the equipment. Having gained confidence in using the technology, the lecturer was now reluctant to lose it and therefore planned to use the VSN more in the 2005/06 academic year. He intended to visit the other institution first in order to meet the students face-to-face prior to the first video conference. He considered that this would be useful to avoid the difficulties encountered when he had first used video conferencing.

On that occasion he had experienced slight time delays in the interaction during the teaching sessions and had occasionally had trouble in recognising students. The lecturer reported that the success of the course had been due to the support from the University media technician in providing initial training and the handouts sent to students prior to each teaching session.

The lecturer viewed the VSN as *'a valuable additional resource which adds to our potential service to students.'*

### Case Study 2

This lecturer taught Religious Studies at a Further Education Institution in North Wales which had a number of sites. She had not used video conferencing prior to the establishment of the VSN. The college also used or had used the VSN to teach Law, Spanish, French and Accountancy.

This lecturer used the VSN to teach Religious Studies to A Level students across two sites of her institution and has also used the Network to teach Religious Studies at A Level to a group of Welsh-medium students at a school in the South of Wales. In addition to teaching, the lecturer also conducted consultations with parents across the VSN.

The use of the VSN was seen as invaluable by the lecturer and her college because Religious Studies had not been available for three years at one of the college's sites due to staffing issues but through the VSN the subject had been offered to students again. The subject also experienced *'low'* intakes of students, with thirteen students in the first year and five in the second year of study that academic year. The groups were taught via video conference and are split in the first year with eleven students in the local studio and two in the remote studio and in the second year four students in the local studio and one at the remote studio. The lecturer considered that for effectiveness of course delivery and manageability a maximum of five students at the remote studio and no more than eight at the local studio would be ideal. In order to maximise the effectiveness of the teaching and learning experience the lecturer considered it important that they taught via video conferencing from the remote sites on a periodic basis.

The lecturer had received some technical training in the use of the VSN but considered there to be a real need for training in the pedagogy required by teaching through video conferencing. She felt that it had not taken her long to become confident in teaching by video conferencing. Local technical support was provided during conferences and it was considered essential that the room and system were in operation in good time prior to the start of the teaching session. The technical support provided '*is crucial for teaching to be effective.'*

The lecturer reported that her pedagogical style had changed during her three years of using the Network and reported that to preparation of materials beforehand was a key aspect of ensuring a positive experience for herself and her learners. Netmeeting was used extensively to share documents and other materials relating to the teaching sessions and students were encouraged to interact for group work purposes between the local and remote studios. However, the lecturer did state that '*a lot of time can and does get eaten up by the technology.'* The nature of the group was also a key factor in how teaching is delivered, for example, use of the cameras.

She felt that in order to maximise the experience for students and lecturing staff some focused training was required to demonstrate to lecturing staff how to teach through video conferencing, for example, training in the effective use

of the document camera, effective use of the cameras in the studios etc. Examples of how other staff use the system would be beneficial. Additionally, there is a need for a facilitator at the 'remote' sites to ensure full and active participation from the students located at the remote site. This was considered to be important at an early stage of use when students may be intrigued by the equipment.

The lecturer suggested several possible refinements and innovations to the system which included changing the location of microphones from desk tops to ceiling-suspended microphones due to the nature of the group work in her subject and possibly investigating whether the studios could be linked up through e-mail to allow documents to be transferred quickly between studios during conferences if required.

She stated that *'Now I would be very upset if I was not teaching through video conferencing. During a recent inspection this type of teaching was given a good report. The Network should be used primarily for teaching and learning.'*

## Case Study 3

This member of staff was an ICT Development Manager at a Further Education Institution in South West Wales that currently made considerable use of the VSN studio for teaching and learning. The institution had a number of campuses and the VSN studio was used by the Development Manager to participate in intra-institutional meetings as well as linking with both Higher Education and Further Education partner institutions. It was also used to record discussions for student NVQ assessments.

The studio had been used to participate in a number of multi-point conferences, one of which was entitled recently *'Raising your Game'* and featured a guest speaker at one site and a number of audiences at four remote sites across Wales.

The studio was also used by staff to deliver courses and modules to partner institutions, including business studies, and this allowed other institutions to access the skilled staff of the institution without retaining them as full-time employees. The VSN was described as a force multiplier like any other technology. However, the development manager noted that it was more challenging to integrate video conferencing into curriculum delivery as the normal routine of a course is disrupted and it is seen as an 'event' that may require an additional outcome above and beyond what may usually be achieved. Other challenging factors included the time required to prepare, and the booking procedures. It was also felt that in those subject areas where the greatest benefits could be achieved, for example, in modern foreign languages, teaching staff tended to be less ICT/computer aware than in other subject areas.

Within the college a member of the ILT Champions team was responsible for developing the use of video conferencing across the institution. This

coordination role was felt to have enhanced use across the college as the member of staff was able to pursue possible partners and links for video conferencing. There was, however felt to be a need to highlight types of video conferencing events that have been successful and to disseminate these examples to teaching staff.

One area for future development within the college was the use of the studios for Welsh medium teaching which had been highlighted as an area for development in a recent ESTYN inspection. The VSN was felt to be a landmark project that represented an excellent example of large-scale investment in the Further Education sector and there was a need to continue to invest in it to allow other countries across the world to catch up. The development manager had recently returned from a visit to Germany where he was surprised to find that their use of video conferencing was far lower than in Wales, which indicated a potential for collaborative growth across Europe.

Overall, the VSN was identified as an extremely effective addition to the teaching and learning strategies within the college and one that was supported strongly by senior management. It was recognised that there was a need to further develop its use for teaching and learning in the future and one key factor in expanding this use was through the identification and dissemination of examples of effective video conferences.

## Case Study 4

This member of staff was an ILT Manager at a Further Education Institution in South West Wales that currently made very limited use of its one VSN studio for teaching and learning. The ILT Manager had recently been given responsibility for the studio within the institution, which had previously been the responsibility of the IT department, and had attended a focus group discussing the impact of the studios across Wales.

The studio at this institution was currently used mainly for administrative meetings by senior management. The ILT Manager recognised that the room itself was capable of holding between four and six people for meetings, but due to its layout it was not conducive to teaching and learning.

The ILT Manager wished to see use of the studio increase for teaching and learning. However, the design and layout of the studio would have to be reviewed for this purpose. The ILT champion had been discussing how this process could be advanced with senior management, who were supportive of the video conferencing concept and its benefits. Currently there was an ongoing review of teaching and learning across the institution. As part of this review the design of facilities within the Learning Resource Centre were being evaluated. The ILT Manager hopes that in order to raise the profile of the VSN studio it may be relocated within the redesigned Learning Resource Centre and with a greater capacity.

The ILT Manager considered that the studio should be relocated into a more prominent position within the college and with an expanded capacity before he

would be able to promote the use of the studio for teaching and learning to lecturing staff.  It was recognised, through previous experience with ILT developments, such as Virtual Learning Environments, that not all lecturing staff would take up new teaching techniques at the same speed.

The ILT Manager had therefore identified, through discussion with other ILT champions at local colleges, a number of subject areas where the use of video conferencing could enhance students' learning experiences.  These areas included History and Modern Foreign Languages.  It was anticipated that a number of staff would be targeted to develop use and then a rolling programme of profile raising and support would be provided to lecturing staff.  It was acknowledged that the development of video conferencing in the institution was dependent on the relocation of the studio and ensuring that video conferencing was seen as a teaching tool.  This process might take some time but was an aim of the ILT Manager and the college for the coming years.

# 6.   FINDINGS OF THE STUDENT SURVEY

This chapter presents the findings of the online survey of students.  The survey questionnaire, as included in Appendix 4, was designed to capture the views of both current users and non-users of the Video Services Network. The survey therefore comprised three separate sections:

> Section A:     For all participants
> Section B:     For current users
> Section C:     For current non-users

Respondents were routed to either Section B or C of the survey according to their response to Question 5 in Section A.

## 6.1   Survey Administration

The web address where the survey could be accessed was sent to the VSN contact at each institution as supplied to the research team by the WVN Support Centre.  Other members of staff at individual institutions identified in the course of the research were also supplied with the link.

The survey period ran from Monday, 18 April 2005 until Tuesday, 3 May 2005.  During the survey period the research team sent reminder e-mails to all institutions.

## 6.2   Background to Sample

107 respondents completed Section A of the survey.  However, a number of these respondents stated that they were staff and not students and were consequently removed from the analysis.  Several other respondents began but did not complete the survey and these were also excluded from the analysis.

The research team analysed the responses of those respondents who completed Section A and either Section B or Section C.  10 respondents completed Sections A and B to indicate that they were current users of the Video Services Network.  A further 64 respondents completed Sections A and C to indicate that they were current non-users of the Network.

Table 1 below shows the response rate per institution.

**Table 1: Response Rate across Institutions**

| Institution | Respondents |
|---|---|
| HE 5 | 24 |
| HE 11 | 14 |
| HE 6 | 13 |
| HE 1 | 10 |
| FE 12 | 4 |
| HE 7 | 2 |
| FE 7 | 1 |
| FE 8 | 1 |
| FE 21 | 1 |
| FE 3 | 1 |
| University/College not specified | 3 |
| | N=74 |

*Source: NFER Review of Welsh Video Network Student Survey 2005*

Of the 74 respondents, 41 were male and 29 female, with four respondents not indicating their gender.

Table 2 shows the age profile of the respondents.

**Table 2: Age Profile of Respondents**

| Age | Respondents |
|---|---|
| 16-17 | 2 |
| 18-20 | 23 |
| 21-30 | 36 |
| 31-49 | 8 |
| 50+ | 1 |
| No response | 4 |
| | N=74 |

*Source: NFER Review of Welsh Video Network Student Survey 2005*

Table 3 shows the main type of qualification for which respondents were studying.

**Table 3: Main Qualification Respondents were Pursuing**

| Main Type of Qualification | Respondents |
|---|---|
| Under Graduate HE qualification (e.g. Degree, HND) | 54 |
| Post Graduate Degree | 10 |
| GNVQ/ BTEC | 1 |
| A Levels | 1 |
| GCSEs | 1 |
| Other vocational (City and Guilds) | 3 |
| No response | 4 |
| | N=74 |

*Source: NFER Review of Welsh Video Network Student Survey 2005*

Table 4 shows the main subject area that respondents were studying.

**Table 4        Main Subject Area of Respondents**

| Main Subject Area | Respondents |
|---|---|
| Mainly science | 31 |
| Mainly technology | 9 |
| Engineering | 9 |
| Modern Foreign languages | 2 |
| Mainly arts/humanities (e.g. English, History) | 7 |
| Mixed academic subjects (e.g. GCSE Physics and Music) | 2 |
| A vocational programme | 5 |
| Other (Accountancy, Tourism) | 3 |
| Unknown | 6 |
| | N=74 |

*Source: NFER Review of Welsh Video Network Student Survey 2005*

## 6.3  Current Users' Responses

This section reports the findings from the 10 current users of the VSN.

Prior to college / university, seven had had previous experience of video conferencing and one had not.

Levels of use varied, with one user reporting weekly use of video conferencing, two reported termly use, one on an annual basis and four less than once a year.

Two respondents had participated in lectures within their own college and rated their experience as useful.  The one respondent who had worked with other students via video conferencing in Wales rated that experience as useful. Two respondents who had participated in meetings via video conferencing rated this as very useful and a further two described this as useful.

Respondents had not used the video conferencing studios in any other way.

Table 5 shows how respondents then rated their level of agreement with a series of statements relating to learning via video conference.

**Table 5:  Students' Response to Learning via Video Conference**

| Statement | Agree Strongly | Agree | Not Sure | Disagree | Disagree strongly | Not applicable | No response |
|---|---|---|---|---|---|---|---|
| I learn more when working with difference students and/or lecturers through video conferencing | 1 | 1 | 1 | 1 | - | 1 | 5 |
| I ask fewer questions when working through video conferencing because I do not like working with different students and/or lecturers | 1 | - | 3 | - | - | 1 | 5 |
| I pay more attention when working through video conferencing because I need to follow the discussion from all the people taking part. | 1 | 2 | 1 | 1 | - | - | 5 |
| Through video conferencing I learn more because I can talk to experts in my subject(s). | 1 | 2 | 1 | - | - | 1 | 5 |
| Video conferencing is less personal than meeting people face-to-face. | 3 | 1 | 1 | - | - | - | 5 |
| Video conferencing allows me to participate in lectures/tutorials that I could not usually take part in. | 3 | - | 2 | - | 1 | | 4 |
| Video conferencing wastes lecture/tutorial time because of the time it takes to set-up. | 2 | - | - | 1 | 2 | 1 | 5 |
| Learning by video conferencing is not different to other ways of learning | 2 | 1 | 1 | 2 | - | - | 4 |

*N=10*

*Source: NFER Review of Welsh Video Network Student Survey 2005*

52

Current users did not identify any further ways in which they would like to use video conferencing in the future.

## 6.4   Current Non-users' Responses

This section summarises the findings from the 64 respondents who completed Sections A and C of the survey to indicate that they were current non-users of the Video Services Network.

Of the 64 respondents, 26 knew where the video conferencing studios were at their institutions and 36 did not know.  Two respondents did not answer this question.

To the question why they had not used video conferencing; 15 respondents noted that they had not yet been required to do so, and 13 had not used the studios because they did not know where they were located.  Five respondents had not been provided with the opportunity to use video conferencing and two stated that a lack of confidence on the part of lecturing staff had led to non-use.

23 of the 64 respondents knew other students who had used video conferencing.  17 respondents knew other students on the same course who made use of video conferencing.  A further 38 did not know other students who had used video conferencing.

To the question what would make them more likely to use video conferencing in the future, seven respondents reported that talking to students doing the same or a similar course would encourage use, while six reported that they would be more likely to use video conferencing if the opportunity were presented to them.  Three respondents noted that guest lecturers would attract them to video conferencing.

## 6.5   Key Findings

The survey captured the views of a relatively small number of students only, and these findings should be interpreted in that context.

A much greater number of non-users than users completed the online survey. The majority were from HE Institutions which previously had the C5C system.

More than half of the non-users did not know the location of the video conferencing studios in their institutions.  The main reason for non-use was the lack of a specific need to use video conferencing, for example, participation in a lecture with a guest lecturer from elsewhere in the UK or the world.  A number of non-users also believed that some staff lacked the conference to use the facility.

Both users and non-users felt that talking to other students doing a similar course at other institutions and listening to guest lecturers would encourage greater use.

Current users reported video conferencing to be a very useful experience, particularly to access experts in relevant fields and to participate in learning activities that were not otherwise possible.  However, video conferencing was considered to be less personal than meeting face-to-face.

# 7. ANALYSIS OF VIDEO SERVICES NETWORK STUDIO USAGE

## 7.1 Data Sources

The following statistical analysis summarises the data relating to the video conferencing statistics produced by the Janet Video Conferencing System (JVCS) booking system. The dataset includes conferences which took place between 1 September 2003 and 28 February 2005 and relates to the 80 studios across the 35 institutions commissioned through the VSN programme. The dataset did not therefore include any information relating to any self-funded studios, the funding councils' own studios or those studios located at outside organisations, for example the National Library of Wales

The data was supplied to the NFER by the WVN support centre, and was an amalgamation of a number of different versions of the JVCS booking system and their own data sources. The NFER research team wish to acknowledge the considerable assistance provided by Phil Davison and his team in collating the data. The Support Centre staff also provided considerable assistance in clarifying the purposes of conferences as recorded by JVCS. It was noted that the NFER's request was the first time the Support Centre had been required to provide such data. It may be necessary to consider the data collection system to ensure that it is able to fully support future analyses.

The data was examined to inform the research aim of identifying:

♦ the extent to which the studios are used and the type and frequency of use.

## 7.2 Extent of Usage

Table 6 shows the total number of conferences in which VSN studios participated in the period 1 September 2003 to 28 February 2005 for conferences booked through the JVCS booking service. It should be noted that where a conference involved more than one FE / HE institution in Wales, the total number of studios is presented here. The total number of conferences exceeds the recorded number because a minority of point-to-point conferences are not booked through JVCS.

**Table 6: Total number of conferences recorded by WVN studios (in the period 1 September 2003 to 28 February 2005)**

| Month | N | Percent |
|---|---|---|
| Sept 03 | 349 | 3.6 |
| Oct 03 | 514 | 5.4 |
| Nov 03 | 506 | 5.3 |
| Dec 03 | 367 | 3.8 |
| Jan 04 | 574 | 6.0 |
| Feb 04 | 579 | 6.0 |
| Mar 04 | 789 | 8.2 |
| Apr 04 | 496 | 5.2 |
| May 04 | 679 | 7.1 |
| Jun 04 | 547 | 5.7 |
| Jul 04 | 331 | 3.5 |
| Aug 04 | 141 | 1.5 |
| Sep 04 | 501 | 5.2 |
| Oct 04 | 694 | 7.2 |
| Nov 04 | 760 | 7.9 |
| Dec 04 | 526 | 5.5 |
| Jan 05 | 573 | 6.0 |
| Feb 05 | 663 | 6.9 |

*No. of conferences (N) = 9590*
*Due to rounding, percentages may not sum to 100*
*Source: NFER Review of Video Services Network, 2005*

The JVCS system allows users to describe the nature of their use of the VSN video conference suite. The 12 categories of use are:

♦ Meeting / Administration

♦ Lecture

♦ Other Teaching

♦ Tutorial

♦ Training / Demonstration

♦ Event Participation

♦ Interview

♦ QA Testing

♦ Research

♦ System Testing

♦ Venue Only

♦ Venue Unavailable

Table 7 shows the types of use as defined by the users of the WVN studios for the 9590 conferences within the dataset.

**Table 7: Purposes of conferences recorded by WVN studios (in the period 1 September 2003 to 28 February 2005)**

| Purpose | N | Percent |
|---|---|---|
| Administration/meeting | 3862 | 40.3 |
| Interview | 97 | 1.0 |
| Lecture | 1447 | 15.1 |
| Participation | 141 | 1.5 |
| Quality Assurance testing | 294 | 3.1 |
| Research | 150 | 1.6 |
| System testing | 94 | 1.0 |
| Teaching | 414 | 4.3 |
| Training | 328 | 3.4 |
| Tutorial | 120 | 1.3 |
| Venue only | 2077 | 21.7 |
| Venue unavailable | 566 | 5.9 |

*No. of conferences (N) = 9590*

*Due to rounding, percentages may not sum to 100*

*Source: NFER Review of Video Services Network, 2005*

The 2643 conferences identified as venue only and venue unavailable were excluded from the subsequent analysis.

A key aim of the research was to explore the extent to which the studios were used. The research team only considered conferences where the video network facilities were being used, rather than the studio being in use simply as a room. JVCS guidance to users indicated that users should choose '*Venue only'* to describe use of the VSN studio where the room was occupied but the video conferencing equipment was not used. *'Venue unavailable'* may indicate that the VSN studio at a college had been decommissioned or was unavailable for technical reasons. The definition '*Venue unavailable'* was also employed to prevent other users from making bookings.

The analysis of the dataset revealed occasions when IP or ISDN networks were used against conferences designated as *'Venue only'* or *'Venue unavailable'*. It was reported by one institution that *'As far as I am aware all uses at Venue 1 and Venue 2 (sites for which I am responsible) are all booked via the JVCS service. Those that are not booked use the JANET system i.e. those direct dial single point calls are always booked in as* "Room unavailable." 'A further institution reported that *'about 5-8% of conferences we run are one-to-one links and not put through JVCS.'*

A total of 358 *'Venue only'* bookings recorded use of IP or ISDN networks and a total of 245 *'Venue unavailable'* bookings recorded use of IP or ISDN networks. This use of the Network may indicate a purpose other than *'Venue only'* or *'Venue unavailable'* but the actual use could not be identified.

## 7.3   Types of use

The data relating to the remaining 6947 conferences was analysed to investigate the overall use of the VSN studios for teaching and learning against other uses, including administration.

The research team defined the following five categories of use as teaching and learning purposes:

♦   Lecture

♦   Other Teaching

♦   Tutorial

♦   Event Participation

♦   Research

Table 8 indicates the degree of use for teaching and learning compared with other purposes.

**Table 8:   Purpose of Conferences excluding 'Venue only' and 'Venue unavailable' recorded by WVN studios (in the period 1 September 2003 to 28 February 2005)**

|  | N | Percent |
| --- | --- | --- |
| Teaching & Learning | 2272 | 32.7 |
| Other Activities | 4675 | 67.3 |

*No. conferences (N) = 6947*
*Due to rounding, percentages may not sum to 100*
Source: NFER Review of Video Services  Network, 2005

The table shows that of 6947 conferences that used the video conferencing equipment, almost a third (32.7%) were for teaching and learning purposes.

The research team then analysed the data to identify whether overall use was increasing over time as measured by the total number of conferences.

This is shown in Table 9 and Figure 1.

**Table 9:   Total Number of Conferences per month (in the period 1 September 2003 to 28 February 2005)**

|          | N   | Percent |
|----------|-----|---------|
| Sept 03  | 271 | 3.9     |
| Oct 03   | 435 | 6.3     |
| Nov 03   | 456 | 6.6     |
| Dec 03   | 329 | 4.7     |
| Jan 04   | 412 | 5.9     |
| Feb 04   | 433 | 6.2     |
| Mar 04   | 530 | 7.6     |
| Apr 04   | 338 | 4.9     |
| May 04   | 473 | 6.8     |
| Jun 04   | 399 | 5.7     |
| Jul 04   | 216 | 3.1     |
| Aug 04   | 82  | 1.2     |
| Sep 04   | 297 | 4.3     |
| Oct 04   | 466 | 6.7     |
| Nov 04   | 534 | 7.7     |
| Dec 04   | 348 | 5.0     |
| Jan 05   | 415 | 6.0     |
| Feb 05   | 512 | 7.4     |

*No. of conferences (N) =6947*
*Due to rounding, percentages may not sum to 100*

*Source: NFER Review of Video Services Network, 2005*

**Figure 1: Total Number of Conferences per Month (in the period 1 September 2003 to 28 February 2005)**
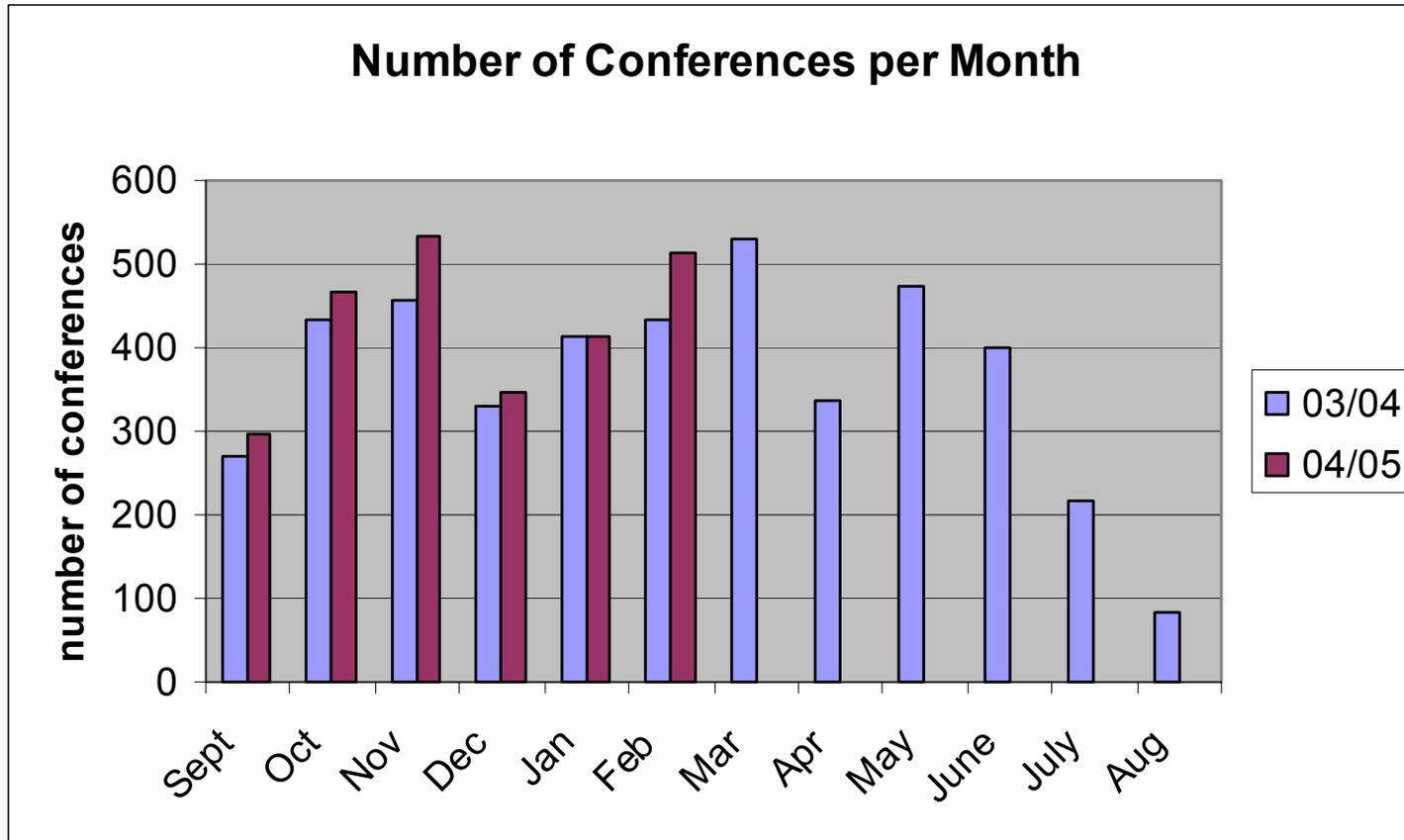
Figure 1 shows that the use of the VSN studios was increasing as measured by numbers of conferences and that the amount of use fluctuated across the academic year, reflecting periods of examinations within institutions and student holiday periods.

♦ The research team then established the total number of conferences per month for different teaching and learning purposes.

**Table 10: Total Number of Conferences for Teaching and Learning per Month (in the period 1 September 2003 to 28 February 2005)**

|  | N | Percent |
|---|---|---|
| Sept 03 | 52 | 2.3 |
| Oct 03 | 157 | 6.9 |
| Nov 03 | 177 | 7.8 |
| Dec 03 | 138 | 6.1 |
| Jan 04 | 150 | 6.6 |
| Feb 04 | 184 | 8.1 |
| Mar 04 | 193 | 8.5 |
| Apr 04 | 102 | 4.5 |
| May 04 | 117 | 5.1 |
| Jun 04 | 37 | 1.6 |
| Jul 04 | 21 | 0.9 |
| Aug 04 | 10 | 0.4 |
| Sep 04 | 43 | 1.9 |
| Oct 04 | 193 | 8.5 |
| Nov 04 | 220 | 9.7 |
| Dec 04 | 130 | 5.7 |
| Jan 05 | 138 | 6.1 |
| Feb 05 | 209 | 9.2 |

*No. of conferences (N) = 2272*
*Due to rounding, percentages may not sum to 100*

*Source: NFER Review of Video Services Network, 2005*

Figure 2 shows the comparative numbers of conferences for teaching and learning purposes over 2003-4 and 2004-5.

Figure 2: Total number of conferences for Teaching and Learning per Month (in the period 1 September 2003 to 28 February 2005)
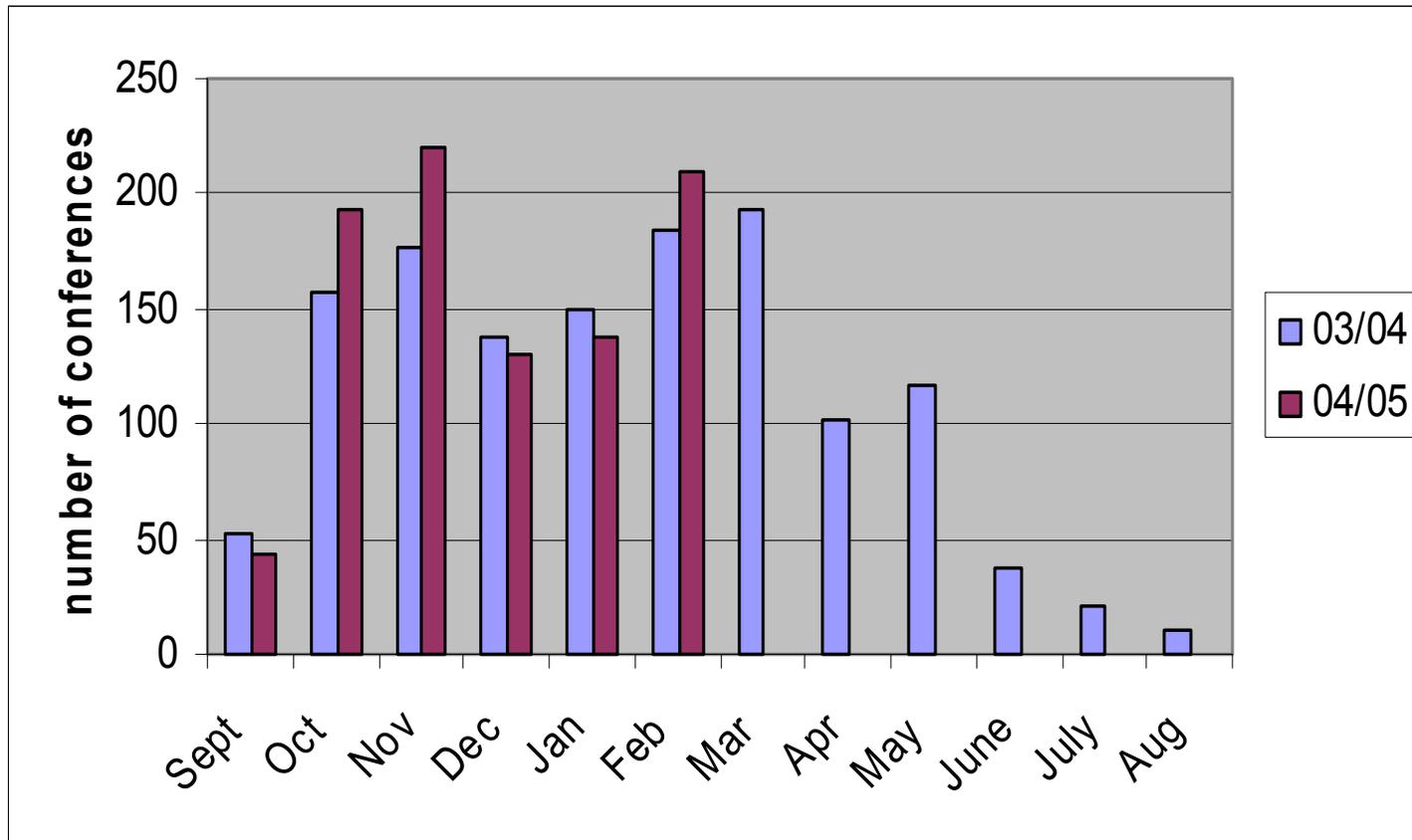
In October, November and February the number of conferences for teaching and learning was increasing in 2004/5 when compared to 2003/04. The number of conferences for teaching and learning in September, January and December decreased from 2003/04 to 2004/05. However, this may be affected by the total number of teaching weeks available to staff; for example, the autumn term may have started later in September in 2004 than in 2003.

As well as the number of conferences held, use can also be measured by the duration of the conferences. The average duration of teaching and learning video conferences is shown in Figure 3.

**Figure 3:  Average Duration of Teaching and Learning Conferences per Month (in the period 1 September 2003 to 28 February 2005)**
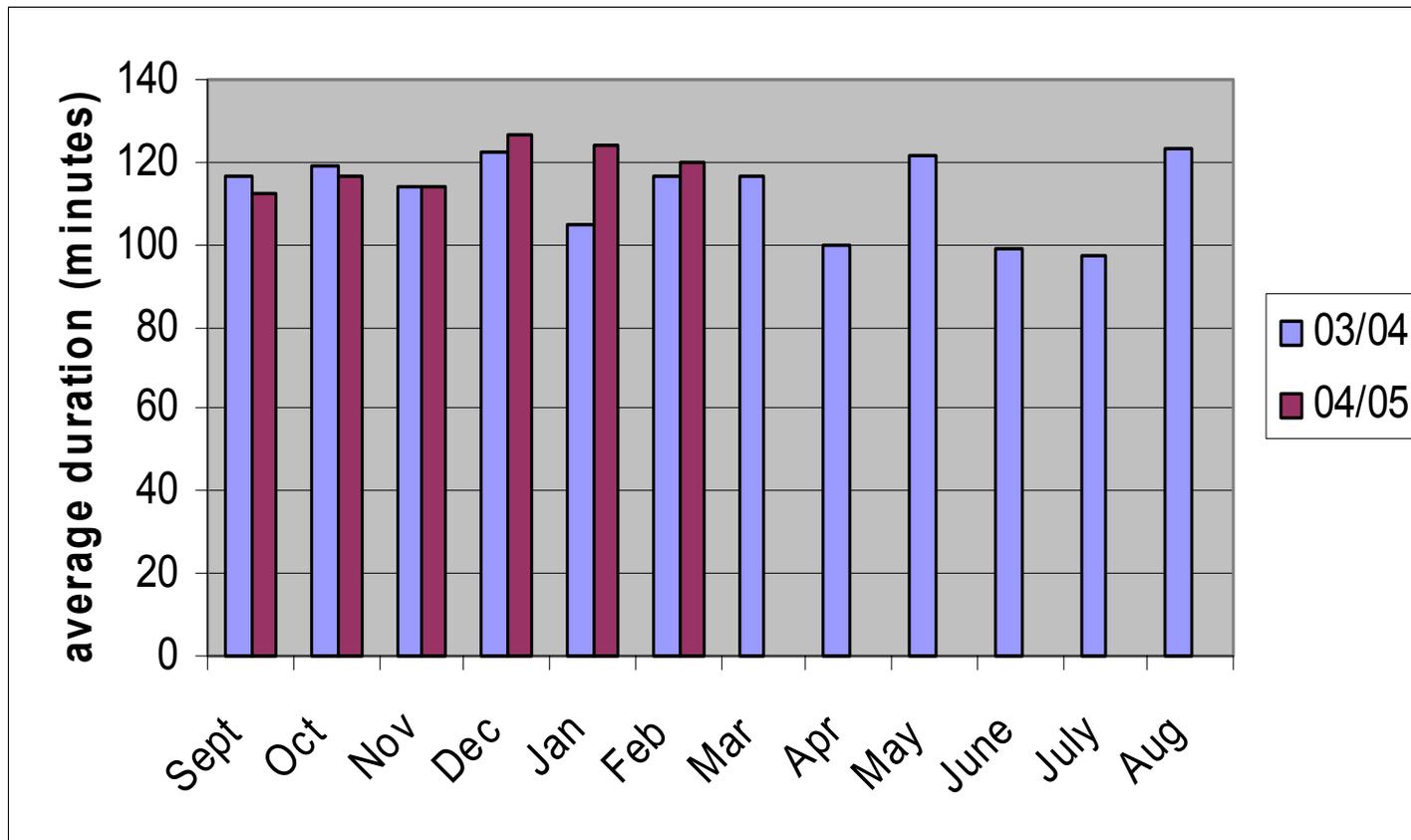
Figure 3 shows that teaching and learning conferences lasted typically for around two hours in the peak teaching months of October, November, February, March and May, and that this remained fairly constant.

The research team then analysed the data to investigate the type and frequency of use by each institution. This data is presented in Tables 11 and 12 and Figures 4 and 5. The data is presented separately for each sector.

**Table 11: Percentage of the Number of Video Conferences at each Further Education Institution split by Teaching and Learning and other Purposes (in the period 1 September 2003 to 28 February 2005)**

| Institution | Percentage of number of conferences for other activities | Percentage of number of conferences for Teaching & Learning | Total number of conferences |
|---|---|---|---|
| FE1 | 71.7 | 28.3 | 46 |
| FE2 | 89.8 | 10.2 | 274 |
| FE3 | 100.0 | 0.0 | 21 |
| FE4 | 66.0 | 34.0 | 191 |
| FE5 | 100.0 | 0.0 | 7 |
| FE6 | 82.7 | 17.3 | 75 |
| FE7 | 58.5 | 41.5 | 65 |
| FE8 | 58.2 | 41.8 | 268 |
| FE9 | 73.4 | 26.6 | 124 |
| FE10 | 54.7 | 45.3 | 988 |
| FE11 | 83.2 | 16.8 | 440 |
| FE12 | 80.2 | 19.8 | 192 |
| FE13 | 98.3 | 1.7 | 118 |
| FE14 | 71.9 | 28.1 | 57 |
| FE15 | 66.7 | 33.3 | 18 |
| FE16 | 100.0 | 0.0 | 11 |
| FE17 | 75.0 | 25.0 | 4 |
| FE18 | 90.9 | 9.1 | 22 |
| FE19 | 25.9 | 74.1 | 139 |
| FE20 | 97.8 | 2.2 | 92 |
| FE21 | 54.5 | 45.5 | 154 |
| FE22 | 80.0 | 20.0 | 10 |
| FE23 | 88.0 | 12.0 | 125 |
| | 68.9 | 31.1 | 3441 |

*Source: NFER Review of Video Services Network, 2005*

**Table 12: Percentage of Number of Video Conferences at each Higher Education Institution split by Teaching and Learning and other Purposes (in the period 1 September 2003 to 28 February 2005)**

| Institution | Percentage of number of conferences for other activities | Percentage of number of conferences for Teaching & Learning | Total number of conferences |
|---|---|---|---|
| HE1 | 67.0 | 33.0 | 355 |
| HE2 | 88.7 | 11.3 | 151 |
| HE3 | 90.9 | 9.1 | 11 |
| HE4 | 67.5 | 32.5 | 593 |
| HE5 | 87.1 | 12.9 | 93 |
| HE6 | 72.0 | 28.0 | 710 |
| HE7 | 18.9 | 81.1 | 444 |
| HE8 | 88.5 | 11.5 | 104 |
| HE9 | 85.5 | 14.5 | 55 |
| HE10 | 91.4 | 8.6 | 128 |
| HE11 | 62.3 | 37.7 | 551 |
| HE12 | 79.4 | 20.6 | 311 |
| | 65.7 | 34.3 | 3506 |

*Source: NFER Review of Video Services Network, 2005*

**Figure 4: Percentage of the Number of Video Conferences at each Further Education Institution split by Teaching and Learning and other Purposes (in the period 1 September 2003 to 28 February 2005)**



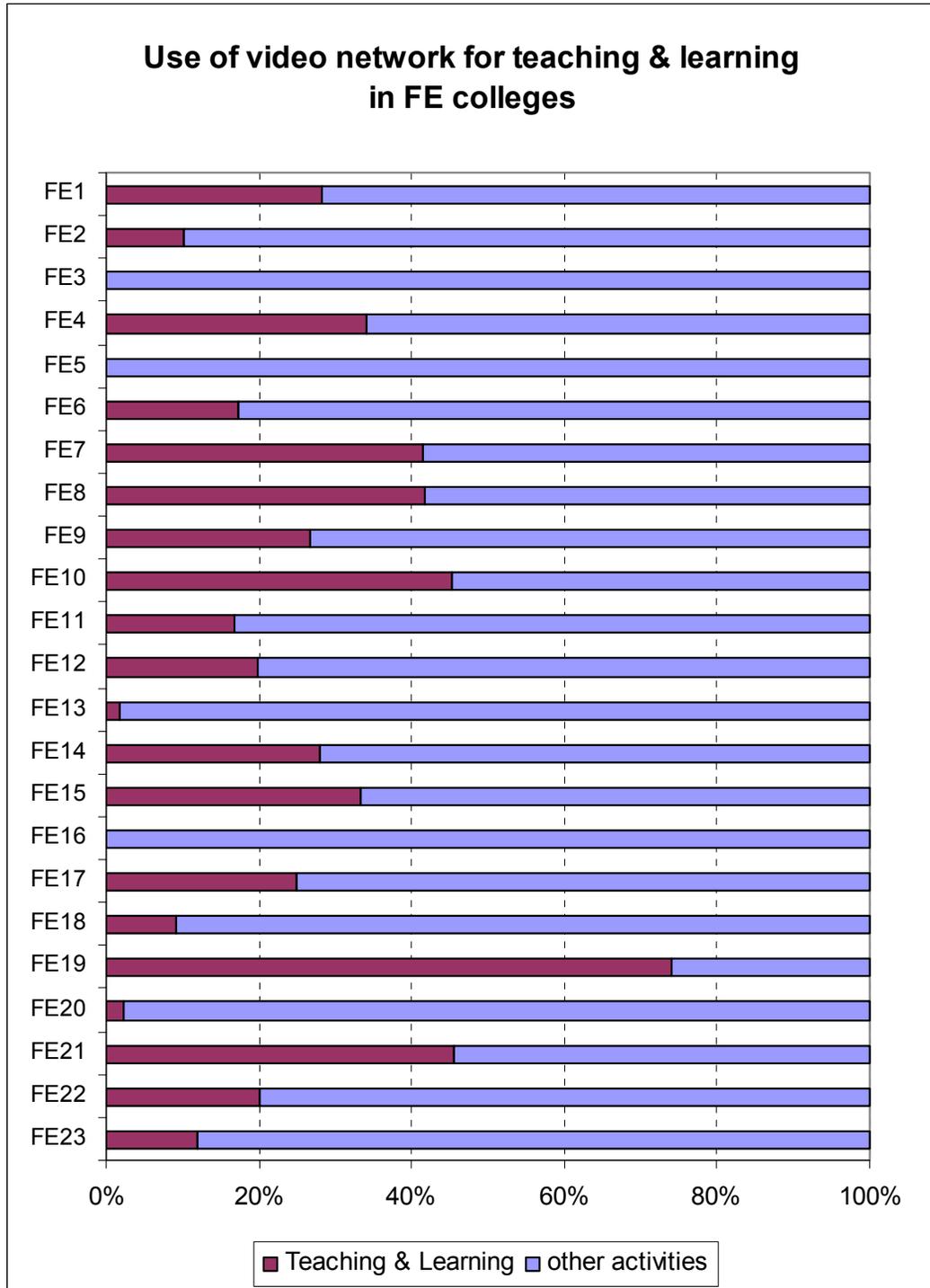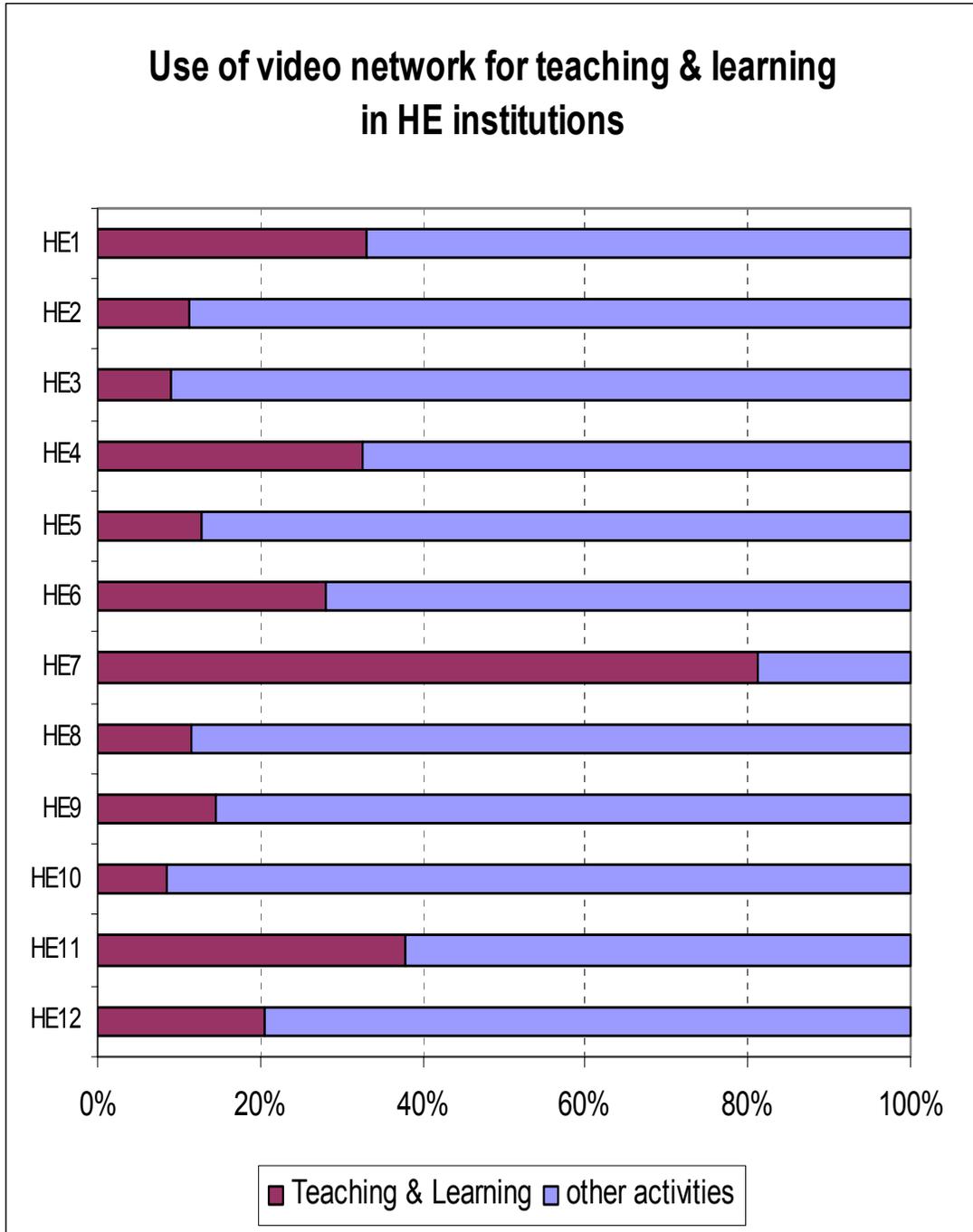Use of video network for teaching & learning in FE colleges

**Figure 5: Percentage of the Number of Video Conferences at each Higher Education Institution split by Teaching and Learning and other Purposes (in the period 1 September 2003 to 28 February 2005)**



Use of video network for teaching & learning in HE institutions

These graphs demonstrate the variation in use across institutions and confirm what was reported in the qualitative interviews and focus groups. A number of institutions (16) made use of the VSN studios for teaching and learning for more than 25% of their overall number of conferences.

## 7.4   Key Findings

The amount of use varied considerably across institutions. The factors which influenced the amount of use are explored in the qualitative sections of this report.

All HE institutions made at least some use of the Network for teaching and learning, whereas three FE colleges made no such use at all.

The use of the Network for teaching and learning ranged from 0 – 75 per cent of conferences in the FE sector and from five to 81 per cent in HE institutions. However, in only two institutions did teaching and learning account for more than half of the overall number of video conferencing sessions.

On the whole, the use of the VSN for teaching and learning purposes was increasing.

# 8. COST BENEFIT ANALYSIS OF THE VIDEO SERVICES NETWORK

## 8.1 Forward Looking Analysis of Phase 3 of the Video Services Network (December 2005- November 2008)

ELWa and HEFCW requested NFER to quantify the possible future savings on travel time and cost through the continued use of the Video Services Network.

A cost benefit analysis was prepared using the following assumptions:

- Previous expenditure on capital and provision are non-recoverable and thus they may legitimately be excluded from the analysis on the grounds that they are sunk costs.

- 45 meetings (involving two or more sites) within Wales held via video conference per year per institution.  This figure was derived from the current overall number of conferences minus the current number of teaching and learning conferences.  In the period March 2004 to February 2005 there were 3197 sites involved in video conferences for meeting purposes.

- An average distance that would have been travelled to each meeting without video conferencing was 70 miles in each direction for each institution

- Two staff (on average) would have had to travel to each meeting and would have travelled in the same car

- An average speed of 35 miles per hour

- 30 pence is the cost per mile

- Staff costs are an average salary of £35,000.00 plus 25% on-costs per annum and 225 working days of seven hours

These assumptions produced a journey cost of £111 time cost (per person) and a £42 distance cost, indicating a £264 total travel cost per meeting via video conferencing per institution.

The number of meetings per institution per year was assumed to be 45.  This figure was based on the 3,197 meetings currently held via video conferencing per year and an indication that approximately half of these meetings would be avoided by the use of the VSN.  The initial assumption was thus that potentially travel to 45 meetings per year per institution could be avoided.  This assumption is subject to a sensitivity analysis later in this chapter, however if all of the above assumptions occurred the potential savings

(benefits) are £11,891 per institution per annum, £416,178 across all institutions per annum.

## 8.2 Summary of Costs for Phase 3 of the Video Services Network

The following information was supplied by ELWa and HEFCW with regards to the costs associated with the VSN in the period December 2005 - November 2008. The total projected cost for support costs, equipment maintenance, project management and support for teaching and learning was £883,032. These costs are not evenly spread over time.

## 8.3 Benefits and costs over time

Cost analysis must be discussed in terms of a time period. This is usually taken as the expected lifetime of the equipment. Since costs and benefits will be distributed over time, cost analysis is required to adjust future values of costs and benefits to a present value such that the opportunity cost of upfront costs (and benefits) is adequately captured. Such a process is known as discounting and H.M. Treasury (2003) recommend a discount rate (for both costs and benefits) of 3.5% per annum which is adopted here. Discounting has the effect of shrinking costs and benefits in the future.

Table 13 shows the costs and benefits associated with the Video Services Network.

**Table 13: Costs and Benefits associated with the Video Service Network**

| Benefit / Cost | Type | 2006 (£) | 2007 (£) | 2008 (£) | Total (£) |
|---|---|---|---|---|---|
| *Benefit* | Nominal | 416178 | 416178 | 416178 | 1248534 |
| *Benefit* | Discounted | 416178 | 402104 | 388507 | 1206789 |
| *Cost* | Nominal | 186182 | 376925 | 319925 | 883032 |
| *Cost* | Discounted | 186182 | 364179 | 298653 | 849014 |

## 8.4 Findings

It must be noted that this analysis systematically omits other benefits that may accrue through the use of the Video Services Network, for example, the provision of lectures across a number of institutions by one lecturer avoids repetition of delivery across those institutions and consequently saves both time and travel. The analysis of studio use in the period March 2004 until February 2005 revealed 1413 video conferences for teaching and learning purposes and this figure was anticipated to rise.

The analysis also does not account for the *'willingness to pay'* of participants (students) for teaching and learning activities delivered via video

COST BENEFIT ANALYSIS OF THE VIDEO SERVIES NETWORK

conferencing.  Again, this will systematically undervalue the monetary value of the benefits of the provision.  The research team are aware of lectures currently delivered to students in Wales by experts in South Africa.  The analysis also does not include the possible savings in terms of time and cost for members of staff attending meetings overseas, for example to conduct examination board meetings.

The comparison of discounted costs and benefits as calculated for meetings via video conferencing and using the assumptions stated in the model over the next three years indicates a Present Value Net Benefit of £357,775.  This indicated that the continued provision of the Video Services Network is cost-effective i.e. the future costs of provision are justified by the expected savings from avoided travel to the current level of meetings.

## 8.5    Sensitivity of the Analysis

In order to obtain some insight into the sensitivity of the findings to the assumption of the number of meetings for which travel may be avoided, the analysis was repeated varying the assumed number of meetings for which travel may be avoided from 1 to 60 per annum (though the cost of travel remains unchanged).  Figure 6 shows the results of this univariate sensitivity analysis.  This shows that the continued provision would still be cost-effective (that is the Present Value Net Benefit > £0) so long as travel to 32 meetings per annum per institution is avoided.

**Figure 6:    Sensitivity of Net Benefit to number of meeting per annum**



Sensitivity of Net Benefit to number of meetings p.a.
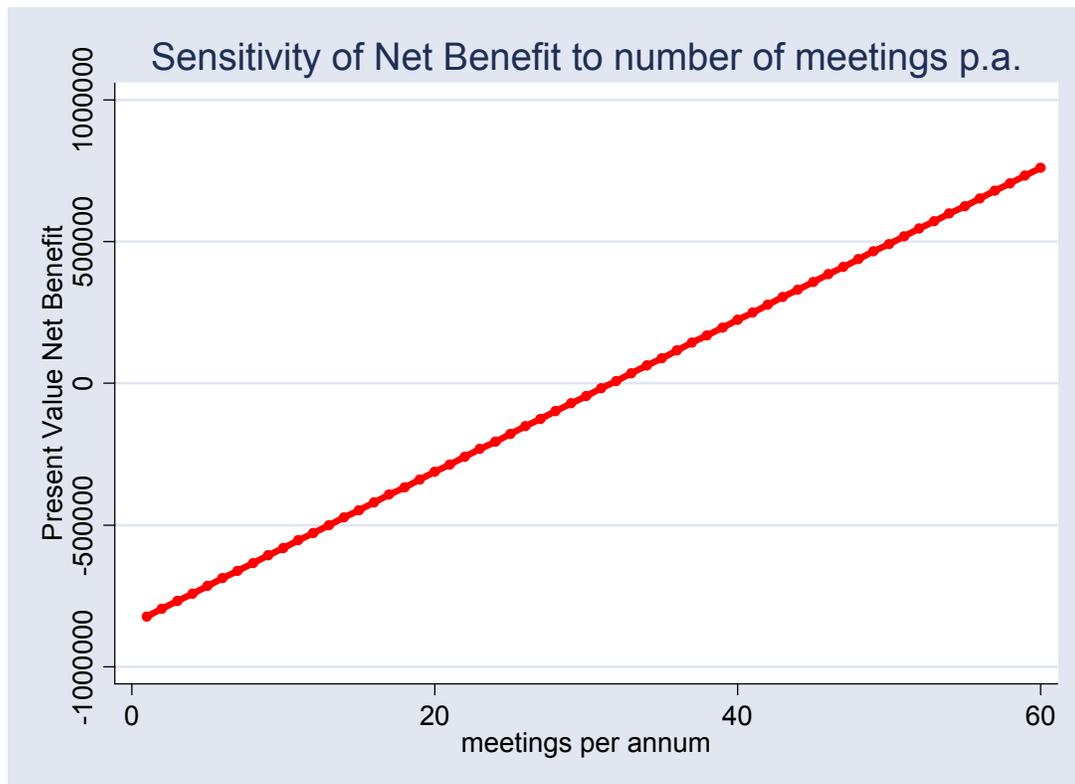
In order to obtain some insight into the sensitivity of the findings to the assumption of average distance travelled for each meeting, the analysis was repeated varying the assumed average distance of travel for meetings from 0 to 100 miles.  Figure 7 shows the (univariate) sensitivity of cost-benefit to the assumption regarding average number of miles per meeting.  The switching value is 50 miles, that is if the average length of the journeys avoided (and assuming that there are 45 per annum) is less than 50 miles, then the Present Value of the Net Benefit will be less than zero, therefore it would not be cost-effective to continue the provision for meetings via video conferencing alone.

**Figure 7:  Sensitivity of Net Benefit to average miles per trip**
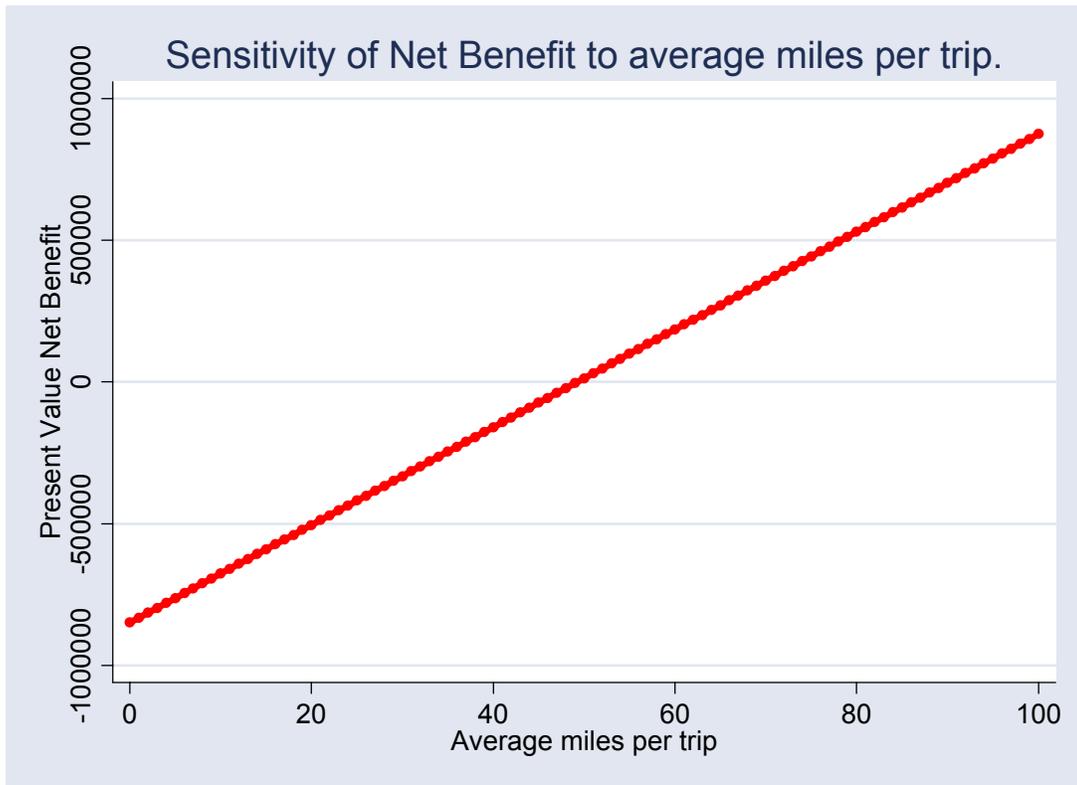
# 9.  KEY PROJECT FINDINGS

This chapter describes how the project aims and main research issues set out in 1.3 above have been addressed through the evidence gathered during the research project.

**Project Aims and Objectives**

9.1     (Explore the impact of the implementation of the recommendations made by UKERNA.)

The UKERNA recommendations had provided FE and HE institutions in Wales with a robust Video Service Network which facilitated meetings effectively and had the potential to impact further on teaching and learning. The level of use of the VSN had proved the demand foreseen for it.

The benefits of the VSN derived from the compatibility of all studios.  The move to IP video conferencing would continue to offer cost savings to institutions.  The establishment of a Support Centre managed by UKERNA had proved invaluable in ensuring the robustness and efficient functioning of the Network.

9.2     (Explore the extent to which video conferencing facilities have a positive impact on institutions and students.)

Video conferencing had become an integral part of institutional life, particularly for administration, in most institutions and the VSN was responsible for this.  The major impact on institutions had been the saving of staff time and cost for travel to internal, inter-institutional and other meetings, and the improvement of attendance at those meetings.  Other associated benefits included widening student access to courses.  Examples of additional positive impacts for students were the provision of previously unviable courses and contact with other students or experts on distant sites, although this was not common across all institutions.

9.3     (Explore obstacles to effective implementation of video conferencing.)

The obstacles identified included:

♦   A lack of training for the pedagogy required for teaching and learning by video conferencing

♦   In some institutions, a lack of high profile Senior Management support for the use of the technology for teaching and learning

♦   Lack of time for teaching staff to adopt the new technology and integrate this into curriculum delivery

- ♦ A need for useful partners with whom to link in order to maximise the benefit of the technology

- ♦ The fixed and therefore inflexible nature of the studios, and their inconvenient locations for some departments in many institutions

- ♦ Differing levels of confidence of lecturing staff when using video conferencing for teaching and learning

- ♦ A lack of awareness of the potential benefits of using video conferencing, particularly for teaching and learning

- ♦ Less advanced systems in other institutions outside Wales.

9.4    (Explore the desirability of further investment in the Welsh Video Network.)

There was a need for further investment in the short to medium term to aid the anticipated increase in use for video conferencing and to ensure that the system keeps pace with technological advances.  The cost benefit analysis conducted showed that the future costs of provision were justified by the expected savings from avoided travel to the current levels of meetings within Wales alone.

However, an exit strategy would be necessary in the longer term whereby institutions would have to manage video conferencing in a sustainable way from their own resources.

A procedure for consultation with each institution regarding future developments would be welcomed.  Such ongoing consultation should include the nature and changing needs of the studios.

### Research Issues

9.5    (The extent to which the studios are used and the type and frequency of use.)

The main use reported was for meetings and administration, which accounted for 67.3% of studio use from 1 September 2003 to 28 February 2005. Teaching and learning accounted for 32.7% of use in the same time period.

9.6    (The quality of experience of video conferencing for teachers, students and others participating in meetings.)

Although video conferencing was invaluable in overcoming challenges such as the distance between participants, it was not considered able to fully replace face-to-face teaching or meetings.  Some elements of effective communication could be lost, such as body language and personal contact.

9.7    (Perceptions of the quality of equipment and the value of additional facilities such as whiteboards and PCs.)

The quality of the equipment in general was praised, with the main concern being the specific make of interactive whiteboard used within the studios.

However, to ensure that the VSN remains at the forefront of educational technology a re-evaluation of the studio technology should be conducted in the event of refurbishment of the studios.

9.8     (The value and effectiveness of the Support Centre.)

The Support Centre and the help it offered to both teaching and IT staff was highly commended.   However, the Support Centre number could be highlighted to a greater extent within studios.

9.9     (The usefulness of training and briefing days.)

These were generally highly valued, particularly the initial training during the introduction of the Network.

However, the focus groups held for this research project were one of the first opportunities for colleagues to meet and discuss issues of training and video conferencing, and more such opportunities would be appreciated.

There was a clear demand for more training in the pedagogy of teaching and learning through video conferencing, although the exact requirements need to be elaborated.   The identification and dissemination of exemplars of good practice in teaching and learning via video conferencing would be useful to institutions.

**Other findings**

9.10    A relaunch of the VSN was recommended to help its promotion. This could be considered in conjunction with the launch of the translation service. A number of focus group participants used simultaneous translation during those group discussions and were impressed by the quality of experience.

9.11    Consideration should be given to developing and supporting a central coordination point for prospective partners in video conferences, as the building of relationships and links requires time that hard-pressed staff may not have. Some small projects have been developed to meet this need and have been highlighted in this report.

9.12    Teaching and learning through video conferencing is expected to grow over the coming years.

9.13    Future students' familiarity with personal technology such as webcams and video mobile telephones will mean that they will have high expectations for the technology employed in their FE and HE institutions

9.14    Further research is required into the identification of good practice in teaching and learning via video conferencing, and the results should be disseminated to staff across all institutions.

9.15    Prior to further investment in the VSN, further consultation should be conducted between the Funding Councils, the WVN Support Centre and each FE and HE institution as to the nature of the use made by each institution of the VSN studio. This process of consultation should capture the views of users (both lecturing staff and students) and provide clear guidance as to the best studio solution for each institution.

# 10. REFERENCES

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# APPENDICES

## Appendix 1:  Focus Group Participants

### Cardiff

| | |
|---|---|
| Deputy Director of IT | HE 1 |
| Technician | HE 1 |
| Specialist Team Leader - Media Services | HE 2 |
| Head of Information Technology | FE 1 |
| IS Manager | HE 3 |
| Head of Music Technology | HE 3 |
| Media Services Manager | HE 4 |
| | HE 4 |
| Teaching Resource Coordinator | HE 5 |
| IT Manager | FE 2 |

### Swansea

| | |
|---|---|
| ILT Director | FE 3 |
| IT Manager | FE 3 |
| Senior Lecturer | HE 6 |
| Technician | HE 6 |
| ILT Champion | FE 4 |
| Director of ILT Services | FE 4 |
| Media Centre Manager | HE 7 |
| IT Services Manager | HE 8 |
| ILT Manager | FE 5 |
| Quality Department | HE 9 |
| ILT Champion | FE 6 |

### Betws-y-Coed

| | |
|---|---|
| ILT Champion/ Development Officer | FE 7 |
| Technical Services Manager | HE 10 |
| Media Resources Coordinator | HE 10 |
| Head of Media Services | HE 11 |
| ICT Services Manager | FE 8 |
| Head of E Learning | FE 9 |
| Religious Studies and Sociology Tutor | FE 10 |
| IT Service Director | FE 11 |
| IT Workshop Manager | FE 11 |
| E Learning Manager | FE 12 |

## Appendix 2: Covering e-mail from Welsh Video Network Manager

```
Dear Contact,

We are forwarding the message below on behalf of NFER. NFER are
currently undertaking a review of the Welsh Video Network on
behalf of HEFCW/ELWa. WVN fully support the review and ask that
as many people as possible take part in their survey. If you
know of others within your organisation (whether they currently
use videoconferencing for teaching and learning or not), who
may like to participate in the survey, please forward this
message to them. If you have any suggestions on how the survey
could reach a wider audience please do not hesitate to contact
me. Please note that the deadline for submission is the 27th of
April 2005.

Your participation in the survey is very much appreciated and
will contribute towards the future success of the Welsh Video
Network.

Regards,
Philip.
Video Network Manager
Welsh Video Network
```

**Appendix 3:    Job title of e-mail respondents and their use of the VSN**

| Institution | Job Title | Type of use | Frequency |
|---|---|---|---|
| FE4 | Welsh Baccalaureate Coordinator | Links to other WBQ institutions: Teaching and learning | Not stated |
| FE8 | Lecturer, Programme Director PGCE/Certificate Of Education. | Teaching and learning with students on a franchised course | Occasional |
| FE8 | IT Support | Meetings | 1 hour a month |
| FE12 | Head Of Faculty Of General Education | Meetings | 2-3 hours a month |
| HE1 | English For Academic Purposes Coordinator | Teaching and learning | Once/ Twice a semester |
| HE5 | Senior Lecturer | Not as yet | n/a |
| HE5 | Director Of Enterprise, School Of Product Design | Not current user: wishes to use the system | n/a |
| HE3 | Head Of Music Technology | Not current user: cannot see how system can be used at present | n/a |
| HE2 | Education Lecturer | Teaching and Learning with students in North Wales | Occasional |
| FE9 | Vice Principal | Meetings | 3 times per month |
| FE2 | ILT Champion | Meetings | Occasional |
| FE4 | ICT Development Manager, | Meetings and some teaching | 2 hours per month |
| FE4 | International Baccalaureate Coordinator | Links with native French speakers for students to converse with | Not stated |
| FE4 | Curriculum Team Leader In Art & Design | Teaching and learning: links with outside bodies | Termly |
| FE4 | ESOL Lecturer/ Coordinator; Equality And Diversity Leader | Teaching and learning with ESOL students | Not stated |

| Institution | Job Title | Type of use | Frequency |
|---|---|---|---|
| FE4 | Lecturer | Teaching and learning with 14-16 students | 3 hours a week |
| FE8 | Section Leader, Adult Continuing Education | Meetings | Occasional |
| HE6 | Facilities Administrator | Meetings | Occasional |
| HE11 | Senior Lecturer | Teaching and learning at undergraduate and postgraduate level | 4-10 hours a week |
| FE23 | Quality Manager | Meetings | Occasional |
| HE5 | Acting Head of Learning and Teaching Support Unit (LTSU) | Meetings | Rarely |

## Review of Welsh Video Services Network

## Online Questionnaire

# Section A

**1**

| | |
|---|---|
| **Gender** | |
| **(Please select one box)** | |
| ☐ Male | |
| ☐ Female | |

**2**

| | |
|---|---|
| **Age** | |
| **(Please select one box)** | |
| ☐ 16-17 | |
| ☐ 18-20 | |
| ☐ 21-29 | |
| ☐ 31-49 | |
| ☐ 50+ | |

**3**

**At which college/ university are you studying?**

-- Please select a college/university -- ▼

**4**

**What is the main qualification or type of qualification for which you are studying?**

**(Please select one box)**

☐ Under Graduate HE qualification (e.g Degree, HND)

☐ Post Graduate Degree

☐ GNVQ/ BTEC

☐ NVQ

☐ A Levels

☐ GCSEs

☐ Other Vocational

☐ Other (please specify)

---

**Which of the following best describes the subjects you are following?**

**(Please select one box)**

☐ Mainly science

☐ Mainly technology

☐ Engineering

☐ Modern Foreign languages

☐ Mainly arts/humanities (e.g. English, History)

☐ Mixed academic subjects (e.g. GCSE Physics and Music)

☐ A vocational programme

☐ Other (please specify)

---

**5**

**Have you ever used the video conferencing studio at your college/ university?**

**(Please select one box only)**

| ☐ Yes |
|-------|
| ☐ No  |

# Section B

**1**

> **Had you used video conferencing in any form before you used the studio at your college/ university?**
>
> **(Please select one box only)**
>
> ☐ Yes
>
> ☐ No

**2**

> **How often do you use the video conferencing studio at your college/ university**
>
> **(Please select one box only)**
>
> ☐ More than once a week
>
> ☐ Once a week
>
> ☐ Once a month
>
> ☐ Once a term
>
> ☐ Once a year
>
> ☐ Less than once a year

90

**3**

| In what ways have you used the video conferencing studio(s)? | How would you rate your experience? | | | | |
|---|---|---|---|---|---|
| **(Please tick all that apply)** | **(Please select one box per row)** | | | | |
| | Not useful at all | Not useful | No opinion | Useful | Very useful |
| To take part in a lecture/seminar with a lecturer in your own college/university | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To take part in a lecture/seminar with a lecturer from another college/ university in Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To take part in a lecture/seminar with a lecturer from another college/ university outside Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To work with other students in Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To work with other students outside Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To carry out a research project in Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To carry out a research project outside Wales | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To take part in a tutorial with a tutor | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |
| To take part in a meeting | ☐ | ◉ | ◉ | ◉ | ◉ | ◉ |

**Are there any other ways in which you have used the videoconferencing studios?**

**4** | **Please indicate how much you agree with the following statements in relation to video conferencing.**

(Please select one box per row)

| | Strongly agree | Agree | Not sure | Disagree | Strongly disagree | Not applicable |
|---|---|---|---|---|---|---|
| I learn more when working with different students and/or lecturers through video conferencing | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I ask fewer questions when working through video conferencing because I do not like working with different students and/ or lecturers | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I pay more attention when working through video conferencing because I need to follow the discussion from all the people taking part | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Through video conferencing I learn more because I can talk to experts in my subject(s) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Video conferencing is less personal than meeting people face-to-face | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Video conferencing allows me to participate in lectures/ tutorials that I could not usually take part in | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Video conferencing wastes lecture/tutorial time because of the time it takes to set-up | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Learning by video conferencing is not different to other ways of learning | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**5** | **In what other ways would you like to use video conferencing in the future?**

## Section C

**1**

**Do you know where the video conferencing studio(s) are in your college/ university?**

**(Please select one box only)**

☐ Yes

☐ No

**2**

**In your opinion why have you not used video conferencing?**

**3**

**Do you know other students who use video conferencing?**

**(Please select one box only)**

☐ Yes

☐ No

**4**

**If yes, are they on the same course?**

**(Please select one box only)**

☐ Yes

☐ No

**5**

**In what ways would you be more likely to use video conferencing for your course?**