

Educational Video on Demand in a UK Technology Exemplar Institution

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Abstract

Educational institutions are faced with many challenges in capturing, storing and delivering video content to their students, customers and staff. The days of using video recorders, making home copies of transmitted programmes and VHS tapes stored under the lecturer's desk should be long gone. Video media, whether in the form of videos or DVD's can be a staple of most teachers arsenals. This paper describes a successful approach taken by a UK Further and Higher Education Institution recognised as an Exemplar in the use of technology to simplify the capture, storage, indexing and delivery of video content in a controlled corporate manner. It makes reference to the organisation requirements and technologies that must be in place to be successful in the transformation to on-line video on demand. It details some of the history which led to the conclusion that a technological solution was required, the thought processes of the staff involved, the stumbling blocks, the reasons for success and the future of the development. A brief look is taken within the paper at how the Netrecorder+ solution will impact upon the Institutes plans for a full campus redevelopment and how it will be integrated for internal lesson recording.

INTRODUCTION

General Background

Video media, whether in the form of videos or DVD's can be a staple of most teachers arsenals. However for years it has been used in the most basic of forms, as an addition to learning, rather than the integral part it should be. Historically in some lessons and tutorials it has served very little purpose other than for students to just 'sit and watch' when lesson plans were limited and very little thought had been given to its appropriate use. This has also meant that videos could be hoarded by staff, and used as prized possessions in order to keep students 'occupied' rather than actually empowering them to learn.

THE GRIMSBY INSTITUTE VIDEO JOURNEY

The Problems

The lack of a central repository and control over video has presented problems over the years, with staff members leaving and taking what they considered "their own stock" of videos with them and thus making them lost to the Institution forever.

The limitations that a standard approach to "video libraries" within the Institution were far too great to be allowed to continue. These limitations included loss of

off line media via non returns to the video library, subject matter only being made available in a certain topic area, but not known and lost to other parts of the curriculum and in particular the consideration of the longevity of the off line media – especially with the traditional video tapes.

In The Beginning.....

The Institute had based its use of video technology for a number of years on a distributed set of video recorder/players attached to Televisions on stands which were wheeled in and out of classrooms/lecture theatres for tutors to use in a very limited and simplistic way. The Institute has over 200 of these delivery rooms and had a limited number of these sets of equipment (approximately 1 per 20 rooms), therefore the demand for these was high with different staff within the same area often desiring to use the same equipment at the same time. Due to the portable nature of the equipment it was often found to be unreliable.

The storage of the video tape media that was used in these video recorders was often also confusing as the Institute had a central video library as part of the main further education learning resource centre, which did not hold the majority of video media. A significant proportion of the media tended to be squirreled away within staff desks and brief cases only to be brought out for their personal use within the classroom and never to be shared or passed on to other colleagues.

When the library resources area changed line management to be within the same structure as the computer services unit and technical support team, it was felt that this was an opportunity to make a change. Order and sanity was required to reorganise the disparate mess that was the video library and the video experience that students were getting.

A TIME FOR A CHANGE

Evaluation of Approach

In July 2005, a group of staff from the Institute led by the Director responsible for learning resources were brought together to look at the problem of how to improve the services offered to staff and students for the use of video and audio within the education environment. The group reviewed the options that it had available, which had to that point seemed to be move away from existing VHS video tape media and transfer all information to DVD, there by improving the technical quality of the content available and trying to ensure its longevity. This would then be supplemented by all the DVDs being logged and indexed on the existing library system so that staff and students could then borrow as with existing paper based book stock. The video library services would then offer to record to DVD services though both a verbal or email booking system which the video library technician would then manually record to DVD.

This approach was felt by the team to be somewhat limited, although generally at the time would have been beyond what most educational institutions were offering, it was felt that this would not solve the problems of availability of the same video in multiple locations at the same time, it would not solve the

problems of viewing on fairly limited 22" TVs located around the campus, it would still require a significant amount of manual intervention by staff within the libraries/LRC to record programmes and then loan them out and would not make searching for content to use within lectures/tutorials and lessons particularly easy or user friendly.

It was concluded that the approach described above would provide limited improvement, so at this point the team decided that it should throw away the rule book on what an educational video library should in 2005, but what could be happening in 2010.

What Will Users Expect in 2010?

The team took the view that a user of the video library in 2010 would expect to have available to them at any time and any place the educational video and audio material stored within the Institutes video library, be able to schedule a recording of a programme on digital, satellite or terrestrial channel when it is first made available from where ever they are (without any manual intervention), to see what other content is has been scheduled for recording, to see listing with detail of the programmes available to record and finally to search for the educational video/audio in a single place without having to contact a member or the library/LRC staff.

These were early days for video on demand and very little software was available for recording and delivering video to non specialist media based staff, so the decision was taken to build a system in-house which would fully support the actual requirements of the Institute. This system has developed in to Netrecorder+ which caters for all the requirements described above.

NETRECORDER+

Staff can select from the electronic programme guide (Figure 1) of television listings of channels that the Institute has available to record. If the user hovers the mouse of a programme listing further detail is displayed.

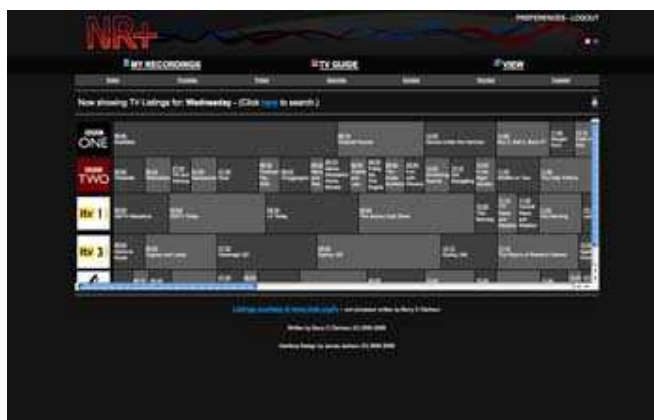


Figure 1. Netrecorder+ Electronic Programme Guide, screen shot of the guide which allows booking of programmes for recording

Once selected, the programme will be recorded to the hard drives of the Netrecorder+ servers and automatically indexed and stored ready for user to view.

The user is then able to view what is currently set to record (figure 2) with details about the recordings displayed.



Figure 2. Netrecorder+ My Recordings Guide, screen shot of the guide which programmes the user has booked for recording.

These recordings can then be removed if not required by the user any more.

Users can then search based on the content of text in both programme titles and descriptions of the programmes (figure 3), with a detailed description of the content available to the user and a thumbnail of the media displayed.



Figure 3. Netrecorder+ Media Search Return Screen, screen shot of the screen which returns searched information on the media available to play through Netrecorder+

Once the user has found the content they wish to play, they can then select it to play (figure 4). The system is device independent and can be played on any device which supports Flash.



Figure 4. Netrecorder+ Media Play Screen (not scaled to full screen), screen shot of the Netrecorder+ system playing back digital content.

The user is also offered both low and high bandwidth specification for quality of image depending on the network connection available to them (home broadband – low, or high when being operated through a local area network).

Implementation

The development of the Netrecorder+ version 1 system took a relatively short time and it went live with its first recording to be stored and automatically indexed on the 25th November 2005. The system was then extensively tested over the following month to ensure that the timing of recording would work, the electronic programme guide worked and most importantly that the media could be played back with appropriate resolution.

The system then went live for staff within the Institute on the 5th January 2006. The take up of the system was slow. Training sessions were delivered at curriculum area team meetings and individual staff were also trained to champion the use of the system. All feedback received from staff and students on Netrecorder+ was positive, however the speed of take up was limited by the confidence of the staff to use the system in a live teaching environment.

The timing of the initial implementation for many staff was ahead of its time, only now three years later is video on demand being delivered through commercial and public broadcasting networks (such as Channel 4OD, BBC iPlayer etc.)

In awarding the Grimsby Institute of Further & Higher Education “Technology Exemplar Status” Becta reported

“Grimsby Institute of Further and Higher Education: Technology Exemplar Network -Exemplar provider

The institute has set an ambitious technology agenda, benchmarking its achievements against world-class standards. The institute has developed a real culture of change in its teaching methods and uses technology across the whole

organisation - from the classroom to management. These developments are helping to engage the individuals and companies it serves.

What Grimsby Institute of Further and Higher Education did with new technology two years ago, the BBC does tomorrow.

The path-finding college had 'video-on-demand', distance learning support for lecture theatres and workshops in 2006, and yet the BBC has just got round to the same with BBC iPlayer."

Progress Since The Initial Implementation

The first year proved the systems capabilities. NETRecorder was added to the spectrum of essential tools for staff to use (staff development delivered through the Institutes Learning Curve) and the system was beginning to be seen by staff as a much easier tool than using videos or DVD's in their lessons. The 500th booking was made on the system in late November of the year and recognition was shown in the internal Inspection reports where teaching observations were made of its use in the classroom.

In its third year of full usage 2008, NETRecorder's usage statistics increased by over 200%. Over 500 bookings were made in the year alone. With it came the usage of individual programmes rising by in some cases 400% as staff began to realise the value of some of the resources available. Extra training was provided, and specific staff groups were targeted, as well as the PGCE students.

It has now been proved that a large scale implementation of video on demand in one of the largest further and higher education establishments in the UK is possible, by using a proven high quality system that is dedicated to supporting the needs of academic staff and students. Good news spreads through word of mouth and demonstration. This will lead to the eventual removal of equipment which would allow the use of any of the out dated technologies for capture and delivery of video content.

THE FUTURE

Capture In The Lecture Theatres & Classrooms

The Institute realised to improve upon the learning available to students, it needs to constantly enhance the way it captures and uses video. To this end it is embarking on an ambitious project to not only capture educational content through video from purchased in media or recorded from television channels, but to create substantial amounts of this media itself. The vehicle it is currently trialling to do this is through what is currently a single standard teaching room set up in the Institute with its media site which will allow the capture of the lesson in multi streams of video (from camera in the room and capture of the interactive whiteboards) and audio (from microphone in the room). The system then put in place will upload this content automatically to the Institutes VLE (to the lessons session) and Netrecorder+ ready for students to play back and use for revision catch up or just to go over the problems again to gain a better understanding.

