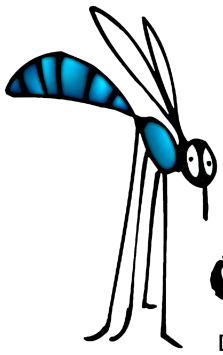

diverse

Developing Innovative Visual Educational Resources For Students Everywhere

Conference Proceedings

7th International DIVERSE Conference
27th – 29th June 2007
Lillehammer University College
Lillehammer, Norway

8th International DIVERSE Conference
1st -3rd July 2008
INHolland University
Haarlem, The Netherlands

Editors:
Mark Childs, H. Lori Schnieders, Pieter van Parreeren and Johan Oomen

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Preface DIVERSE Foundation

With pleasure, I'm writing this preface to the second volume of DIVERSE proceedings. The selected papers in this volume accompany presentations made at the Seventh and Eighth DIVERSE Conferences in Lillehammer (Norway) and Haarlem (The Netherlands). From its foundation nine years ago, DIVERSE has fostered a lively community of practitioners in order to enhance educational innovation around the globe by the use of visual technologies.

Over the years, every DIVERSE gathering built on previous edition, but also added elements the conference programme. The 7th annual DIVERSE Conference in Lillehammer, 27th to 29th June 2007, was the first one organized in Scandinavia, and the first conference with a live TV broadcast. This broadcast was aired live at the end of every conference day. Some 120 delegates participated and exchanged experience and knowledge. The 8th Conference in Haarlem, 1st to 3rd July 2008, welcomed over 150 delegates. At this conference, DIVERSE introduced master classes as a pre conference activity. The two master classes (Immersive Virtual Worlds and Video Production) were well visited and received good reviews from the participants. In Haarlem, DIVERSE also introduced the first Creative Concept Coffee tables. During every conference day delegates had the opportunity to share ideas with their peers. This was facilitated the Creative Concept Coffee team, lead by Lori Schnieders. Both master classes and Creative Concept Coffee tables are to be continued at the 9th DIVERSE Conference in Aberystwyth.

After the 2008 conference, the INHolland University Board of Directors offered DIVERSE the opportunity to keep the conference surplus. This fantastic gesture made it possible to start professionalizing the DIVERSE Community. Since the February 3rd 2009, DIVERSE is officially a Foundation under Dutch law. The list of members of the board and steering committee (until 2008) is included in the handbook.

The DIVERSE Foundation is in a position where it can finance small projects dealing with typical DIVERSE related subjects. For a start, The Foundation allocated funds that made it possible to invite an additional keynote speaker to DIVERSE 2009 and also provide travel grant that enable students to participate. Another important goal for the future is the launch of the revamped DIVERSE web site, that supports the ongoing dialogue between members of the DIVERSE Community.

In the years to come I hope we will be able to continue to raise funds and grow to a stable community, supporting innovation, without losing the original spirit, which has made DIVERSE a close, bonded, yet slightly anarchistic community.

The next DIVERSE Conferences will take place in Aberystwith, 24th to 26th June 2009, and in Portland 5th to 7th July 2010. I hope to see you there

Enjoy reading the Proceedings,

Pieter van Parreeren
DIVERSE Chair, June 2009

Preface INHolland University

On behalf of the Executive Board of InHolland University of Applied Sciences, I'm very pleased to introduce these conference proceedings, published by InHolland University, and bringing together research papers from the Seventh and Eighth DIVERSE International Conferences on visual learning, video and videoconferencing in Higher Education. Our support for this work is because we firmly believe that international exchange can contribute to a higher quality of education and research activities.

Internalisation is one of our focus points for the coming years, so we focus on internationally-recognised values such as entrepreneurship, social involvement and innovation and we selected four themes for the conference: pedagogy and assessment; tools and content-orientated applications; projects and cases and their implementations and sustainability; and people and technology (societal aspects). All of those four themes are themes that are vital to our own policy as an institution for higher education because we strongly believe that ICT elearning, together with an international orientation, are necessary to bring innovation into our education and to educate people who can bring this innovation into their workplace.

What I personally consider to be a huge challenge is the following, and I would like to challenge you to look for answers as you read and reflect on these papers. Young people are using ICT in a very natural way, as if they had never known anything else, which of course they haven't, so they are living their lives in Second Life(R) and in FaceBook. Informal learning has become more and more important in the past years and I believe that it is our challenge to bring the two worlds together; the world of the formal learning we have inside this building and the word of the informal learning which happens everywhere besides here. My question is: how can we make proper use of what students learn outside their schooling environment?

My second challenge is very strongly connected with the first one but is equally important. How can we bring teachers to take their place in these developments? How can we transform them into good coaches of these particular learning processes? What contribution can they make to the development of their students when the students are so far ahead of them in their use of the technology? In the past decades a lot of things have been made possible technologically-speaking but how can we make proper use of these developments and how can we tempt teachers to do so, or in other words, what is the *Lorelei* for our teachers? My biggest concern, then, is not the technology itself, but that we will not be able to make a creative connection between the worlds outside and the worlds inside our universities.

Needless to say we were very proud to host this beautiful community for the second time and we are very happy to give support for a publication that furthers the conferences' aims to share and reflect upon practical experience and knowledge in the field of technology in educational innovation. The 2008 conference had presentations from seventeen countries at this conference and connected individuals and institutions on all levels; intellectually, socially, culturally, you name it. The DIVERSE network, I believe, is a very special one and it has become a very strong community throughout the years. Pieter van Parreeren describes the members of the network as "friends" and I believe the network has become a sort of a family. So to all the readers of these conference proceedings, I would like to encourage you to take part in the network and in the conferences, as well as enjoy the papers published here. Thank you.

Joke Snippe
Member of the Board
INHolland University

Introduction from the editors

These papers were drawn from work presented at two DIVERSE conferences; that of 2007 in Lillehammer University College in Norway, hosted by Claus Knudsen and Per Eriksson, and of 2008 in InHolland University in the Netherlands, hosted by Pieter van Parreeren and Tom Visscher.

DIVERSE Conferences have been a feature of the international educational community since 2001 and is, as far as we can tell, still the only international conference that focuses on learning with visual technologies. The core of what DIVERSE is concerned with remains the use of video and videoconferencing, and yet changes have occurred over the past seven years that make these technologies increasingly important as a medium for learning and teaching.

The first of these changes is the cost of the equipment. Handheld cameras are now affordable to the extent that University departments can justify their purchase, even if they are not teaching media and film. Broadband connectivity is a given, and the computing power needed to process video, and the storage capacity to archive it, is now standard.

Another driver is the rise of web 2.0 technologies such as YouTube. This is providing not only a source of material for learners, but also providing a ready-made audience for students-as-producers, as well as a useful platform for sharing content between learners.

Thirdly, lagging behind the technology and no less important, are the legal and metadata frameworks needed to open up the archives of video for usage, some of which are discussed within these proceedings.

Finally, there is a developing understanding of the role of visual technologies in learning and teaching, both in how to make best use of them in the classroom (whether that room is physical, distal or virtual) and in how to implement them within an institutional setting. That developing understanding is evidenced by the following papers. In them are displayed the usual eclectic mix of technical and pedagogical analyses, academic investigation and personal reflection, and experienced practitioner and new member of the profession that are found at DIVERSE Conferences. These annual conferences are a unique forum bringing these different parts of the community together and the following papers reflect part of that dialogue.

In order to impose some structure on to the publication, the papers have been organised into four groupings. These are:

- Learning by creating and viewing video
- Sharing video resources
- Using videoconferencing in learning and teaching
- Learning and teaching using video and text

Learning by viewing and creating video

The four papers included here cross a wide range of different contexts for students learning through producing their own video materials. Keith Radley and Mike Bramhall of Sheffield Hallam University, UK, describe two engineering modules in which students engaged with course content through producing and presenting their own videos of the material. Becky Fenton, Megan Lawton and Emma Purnell from the University of Wolverhampton recount how students developed skills at personal reflection through submitting material to an eportfolio system using video recorded on webcameras. The final two papers in this section are from the University of Lancaster. The first of these is by

Alberto Ramirez Martinell and Julie-Ann Sime and is a cross-disciplinary analysis of the various degrees to which videos are effective and for what reasons, when shown to students. The second is a personal account of the process of setting up a students' television unit, and is by Michelle Ryan and Alberto Ramirez Martinell again.

Sharing video resources

In the section on archiving and accessing video, Bonnie Green, David Willis and Chris Willmott describe the use of a web 2.0 technology to disseminate information about video resources to support education on bioethics. Alexander Hecht and Johan Oomen then discuss the details of a major European project that aims to share television materials. This paper identifies many of the legal, technical, cultural and taxonomic harmonisations that are required for such an undertaking to be a success. Finally, Hugo Huurdeman, Marek van de Watering, Winoe Bhikharie, Anton Eliëns from the Vrieje Universiteit in Amsterdam discuss a platform for interactive video and describe the various ways in which video can be made interactive and yet still tell a narrative.

Videoconferencing in learning and teaching

Videoconferencing is being used in a variety of applications, yet has a range of issues associated with it as a practice. The status of this as a well-developed and understood technology is exemplified by John Morgan's paper, which lays out a theoretical framework for videoconferencing and practical suggestions for developing programmes utilising videoconferencing.

One of the more well established activities of the use of videoconferencing is to support students' contact with each other and in the section on the use of this particular medium, Grete Hole, Hanne Opedal and Kristin Andersen Soldal look at a case of using videoconferencing to support students training to be social support contacts, Barbora Budikova explores its use in language learning and Mark Childs writes about applying it in the use of cultural and theatre studies. All three papers also identify issues in terms of access, technical barriers, and the need for videoconferencing to create a sense of presence in order to be effective. In his paper, Palle Qvist identifies a perhaps more challenging dimension, that of using videconferencing for *assessment* and Nils Enlund and Anders Askenfelt push the use of the technology to even teach masterclasses in music.

Learning and teaching using video and text

The following four papers recount how text and video, when blended together, can complement each other very effectively.

Marianne Aars, from Tromsø University College describes the development and implementation of a platform that enables video created by clinicians and physiotherapists to be viewed and discussed by students and has also been a useful aid for enabling practitioners to reflect upon their own practice. Grant Barclay, from St Kentigern's Church in Kilmarnock, has found that a similar technique has been of value in encouraging and articulating the discussion of faith-based issues amongst church members. In a course similar to Mark Childs's paper in the previous section, Angela Goddard, Manon van der Laaken, Rosalie Mesker were engaged in bringing together to two groups of students, one from the UK and one from the Netherlands, to discuss cultural and language issues. In their paper, however, the authors detail the role that both visual *and* text-based communication played in the students' dialogue.

Technical reports

To round up, we have technical reports from a range of projects, offering advice and analysis regarding a range of visual technologies.

Acknowledgments

As stated earlier, these papers were drawn from two DIVERSE conferences; that of 2007 in Lillehammer University College in Norway, hosted by Claus Knudsen and Per Eriksson, and of 2008 in InHolland University in the Netherlands, hosted by Pieter van Parreeren and Tom Visscher. Without their constant dedication and enthusiasm during their respective hosting of the conference, these proceedings (and the continued existence of DIVERSE) would not have been possible, and the editors would like to acknowledge their contribution to these proceedings. Similarly, the DIVERSE Committee, and the delegates of the conferences, were also essential to the existence of this volume.

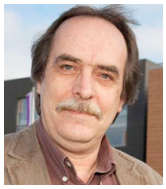
Future locations for the DIVERSE conference are:

The University of Aberystwyth, Wales (24th June to Friday 26th June, 2009), hosted by John Morgan
University of Southern Maine, Portland, USA, (5^{th} to 7^{th} July, 2010) hosted by Lori Schnieders

The conference proceedings for those two years will be published in early 2011. We hope that you can continue to be part of the DIVERSE community, either as a delegate for the conferences, or as a reader of the next conference proceedings.

Mark Childs, H. Lori Schnieders,, Pieter van Parreeren and Johan Oomen

The DIVERSE Conference Committee



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Section 1. Learning by creating and viewing video

1.1

Record, reflect, connect: Using web cams with an ePortfolio system

Becky Fenton, Megan Lawton and Emma Purnell

University of Wolverhampton

Abstract

Each country has its own visual sign language used by the Deaf community; in the UK this is British Sign Language (BSL). In 1994 the University of Wolverhampton created the first degree course in Europe for Interpreting (BSL/English) this course has a very high employment record. Before this research students used video cameras to record work, physically having to bring tapes in for tutorials and feedback. This research brought together an ePortfolio system – PebblePad© and web cams to offer students the opportunity to record, reflect and connect their development in their own space and time and for staff to be able to provide relevant and appropriate formative feedback. Within the University of Wolverhampton all students and staff have an ePortfolio system - PebblePad©. The software allows users to build collections of items related to their studies, personal development, continuing professional development or any event. Those items can then be published or shared with individuals, groups or to a public audience. The software promotes reflection and gathering of evidence, any digital file can be linked to the software giving the ability to add such things as video, images and sound. However, the majority of students and staff use mainly text and pictures this research has tested the ability to connect moving images through web cams. This paper will give a comprehensive view of the technical, pedagogic and support issues raised by this project.

Background.

The introduction of Personal Development Planning to Higher Education in the UK

In May 2000 the Quality Assurance Agency (QAA) et al issued a policy statement on the development of a Progress File for Higher Education. A progress file was to have two elements:

a transcript recording student achievement which should follow a common format devised by institutions collectively through their representative bodies;

a means by which students can monitor, build and reflect upon their personal development.

All Higher Education Institutions in the UK were invited to endorse and implement this policy. The Policy Statement set out roles and responsibilities for implementation, (point 16 in the Guidelines for HE Progress files) that clearly state that the institutions are responsible for providing opportunities for students to engage with personal development planning (PDP), however the responsibility for gaining benefit from this process would be with the student but that the institutional stance, policies, support and attitudes would influence this. The Guidelines (2001) gave an implementation date for Progress Files as the start of the academic year 2005/6, from this date the QAA could include PDP in their institutional audit.

Within the Guidelines PDP is defined as:

“a structured and supported process undertaken by an individual to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development.”

Within the University of Wolverhampton, PDP was strategically placed within the Institutions’ Learning and Teaching Strategies 2002-05, 2005-06 and 2006-10. An outcome of this was the development of an institutional framework for the process of PDP which set out that the main outcome should be a formative student-centred process that provided a product that documented a student's achievement and experience at the university. The PDP processes are integrated throughout the whole of the student experience at the university, they are developmental and used by students with tutor guidance.

ePortfolio.

In 2004/5 the University of Wolverhampton worked with an external company, Pebble Learning, to develop and pilot the software PebblePad©. At the start of the academic year 2005/6 this tool was rolled out across the whole of the University. All staff and students having their own personal accounts, icons for short-cut access to the software became a part of all desktops and could be found in the personal management page of the virtual learning environment, Wolverhampton On-line Learning Framework (WOLF). Over 2005/6 and 2006/7 new communities of users emerged that were early adopters and ‘champions’ of the new software and an ePortfolio users group was established. In June 2007 a review of PDP at level 1 showed that all academic schools were using PebblePad© in some way to deliver PDP in the first year (undergraduate) curriculum. ePortfolio and PebblePad© at the University are often used as interchangeable terms. For example the URL to access the PebblePad© software is http://www.wlv.ac.uk/eportfolio. PebblePad© is a system designed to support both formal and informal learning, within the University of Wolverhampton it is defined as a ‘personal learning space’ as opposed to a ‘managed learning environment’. The software allows users to build a diverse collection of items related to their studies, personal development, continuing professional development or any event of personal significance. Those items can then be published or shared with specified individuals or groups or to a public audience through the creation of a URL address. The software promotes reflection and gathering of evidence, any digital file can be linked to the software giving the ability to add such things as video, images and sound

The Pathfinder Project www.wlv.ac.uk/pathfinder

This Higher Education Academy (HEA) funded project came out of two areas of best practice highlighted in the University’s Benchmarking exercise, 1. Innovative use of retreats (two day and one night off campus staff development events) 2. Successful implementation of an ePortfolio tool – PebblePad© to support the process of Personal Development Planning. The aim of the Pathfinder project was to extend the use of electronic personal development planning ePDP. In each academic school ePDP was be embedded in two, core Level 1 modules using Pebble Pad© software. A key aspect of the project was the appropriate design of ePDP tasks in line with the learning outcomes of each module. In addition, there was a staff development aspect in that module leaders and teachers in many Schools became familiar with the uses, issue in, and benefits of, ePDP. The project used ‘champions’ of ePDP as developmental mentors to support Level 1 tutors in their planning, design, use and assessment of integrated ePDP tasks. Staff development in support of the mentor role and for tutors implementing ePDP was brokered through a series of three away-day retreats following five phases of developmental mentoring. Nine staff acted as ePDP mentors to nineteen module tutors covering 1810 Level 1 students. Modules ranged from groups of 15 to the largest module with 350 registered students.

Throughout the project were the two questions of whether developmental mentoring was culturally desirable and feasible. Those involved in the project were asked to reflect in their ePortfolios and to share their thoughts with all members of the project team. Two of the authors of this paper acted as mentors and one as a module tutor or mentee

For the Pathfinder project the Level 1 module "Basic Bilingual/Bicultural skills for interpreters part 1" was chosen to embed the use of an ePortfolio. The module is designed to develop key skills in both British Sign Language (BSL) and English as grounding for the rest of the course. On average, approx 70% of the cohort have come from the University's foundation (Level 0) BSL accelerated course, the remaining have studied BSL on external college courses and entered as direct to level 1.

British Sign Language (BSL)

Each country has its own visual sign language used by the Deaf community; in the UK this is British Sign Language (BSL). In 1994 the University of Wolverhampton created the first Degree course in Europe for Interpreting (BSL/English). This course has very high employment rates. The course requires students to develop their BSL skills and, as this is a visual language, students are required to record their signing for self, peer and tutor assessment.

BSL has a different grammatical structure to spoken English and consists of different elements such as non-manual features (e.g. eyebrow lifts, mouth shapes and body and facial posture), classifiers or hand shapes, placement. To give the correct meaning and understanding to the language students must be able to use accurate combinations of all the BSL elements in the correct BSL grammatical structure. To develop their production and translation skills students are asked to produce clips of signing from either spoken English or text which can be assessed for clarity and accuracy of meaning. Students need to be able to reflect on their performance and develop action plans for self-improvement. To become a BSL interpreter, students must become comfortable with being watched be others and to having their signing questioned.

Issues pre-ePortfolio

BSL teaching has traditionally always relied on video cameras and VHS language labs to copy and use sign language materials in the classroom. VHS is a linear recording method with a lower quality compared to digital, therefore, PebblePad© was suggested as it offered a number of additional benefits as well as better recording facilities. The benefits included a unique way of enabling students to document and evidence their BSL clips using a more robust technology, ease of self, peer and tutor reviewing, reflection along side the moving image and better quality recording, search and copy options. Another crucial aspect was that PebblePad© ethos supported second language acquisition, or in this case: hearing adults learning British Sign Language. Oxford (1990) advocates the use of language diaries to support second language learning, therefore, the e-portfolio system would enable recapping, linking, developing and reflecting on BSL language learning by using web cam clips, all of which was not possible with traditional methods.

ePortfolio advantages

The idea of using an ePortfolio to support language development was unique to both the University of Wolverhampton and for the teaching of British Sign Language. Spoken language learning has always used technology however a tool enabled visual language learning had been hard to find. For the first time within the history of BSL teaching, students were not required to meet each other face to face to practice or send their signed VHS assessments in the post but could work remotely. This advantage was particularly important for our BSL students who lived away from the university, had part time jobs or family commitments and couldn't always meet their BSL study group.

Using web cams was eagerly accepted by the 'e-generation' of the cohort as web cams are part of the social networking sites such as MSN chat, Facebook, MySpace etc, compared to perhaps mature students who did not have this kind of experience. Interestingly to note that previous 'pre e-generation' cohorts would often physically freeze in front of huge tripod VHS machines regardless of age and were very tentative about having to be filmed.

To introduce IG1100 students to PebblePad©, they were taken away from their usual VHS language lab/classroom to a computer lab and was introduced to PebblePad© software. Having used web cam clips successfully within our own VLE (WOLF) and introducing PebblePad© successfully across a number of subject disciplines, we hadn't foreseen any difficulty of applying it to BSL language learning.

To help students with their reflection the tutor created a scaffolded web folio template (Fig 1) with various tasks and prompts. They were asked to copy the template to their own accounts, personalise it and then share it with their tutor and selected peers.

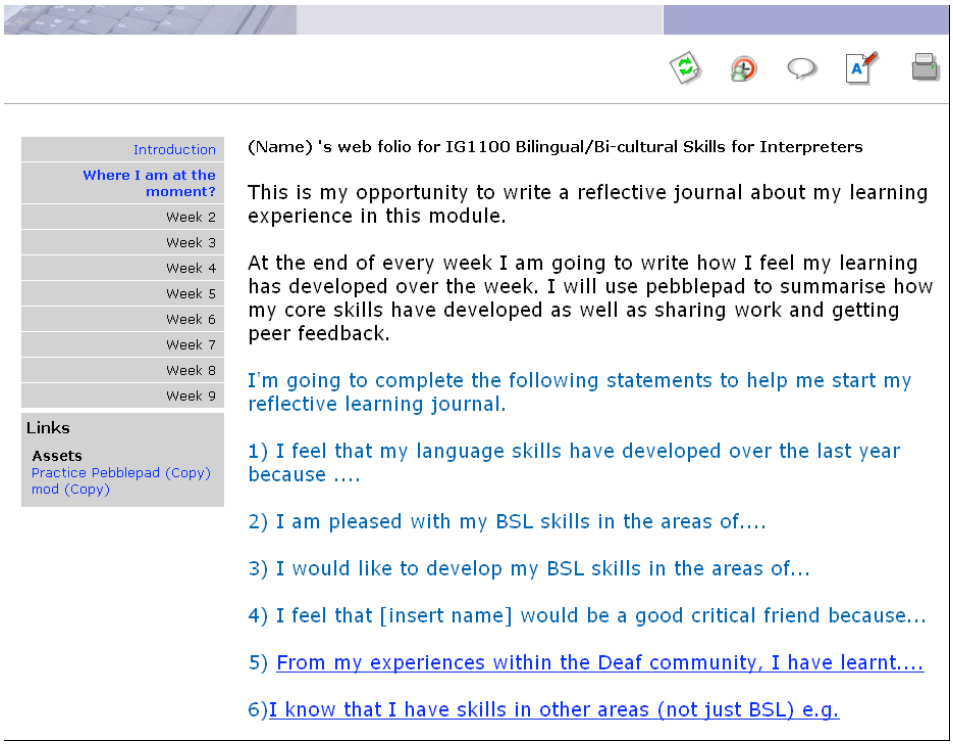

Figure 1. Scaffolded web folio template

The personalised templates were published to a tutor-controlled space – a gateway – which could be viewed by the tutor but not by other students. Once published the web folio is automatically updated when ever a student makes any amendments.

Issues and potential solutions

Students were required to bring their own web cam clips to upload as their first introductory tasks, this was our first initial problem. We had forgotten that PebblePad© had a maximum 10MB file upload. Generally, BSL students' clips are larger than 10MB as their clips were over 30 seconds in length and had often been recorded on the highest quality possible. This was to ensure that hand shapes movement/articulation and facial movements were conveyed clearly, crucial for BSL learning. We subsequently tested differing qualities and found that if students dropped the file size, the quality was

compromised which was not acceptable when dealing with a visual language. After consulting various computing academics, we realised that some web cam clips could be reduced in memory slightly by ensuring that students were wearing plain clothes, had sufficient lighting and recorded themselves against a plain background but the saving was insufficient to hit the 10MB limit or below.

Also within the introductory lesson, students had brought different clips with various file names that were incompatible or unrecognisable to the University's system. There were issues surrounding a new version of the software that were unforeseen and thus disrupted the class.

A major issue was insufficient time within the module to teach the modular content, how to effectively use the software and perhaps the most time consuming, was learning to write reflections. Students often needed PebblePad© support, it was often left to tutors to field technical queries which meant tutors finding out themselves and responding back to students or offering telephone support. Students, when they had managed to upload something such as a piece of English text translation or a very small web cam clip, often required feedback as reflective levels were at such an early stage, that peer feedback or self analysis wasn't helpful. It was impossible to feedback to all thirty-five students and this would also be a contributing factor to disengagement. The nature of the use of an e-based system meant that there was far more opportunities for formative feedback but that this was time consuming and unrecognised by teaching hours.

Discussing the main aforementioned issues with various academics, PebblePad© tutors, and technical support services, a number of possible solutions were offered. The two most popular responses were to 1. have a bigger upload size, one of easiest solutions but not viable as the software only allowed for a 10MB upload and 2. to create video clips in the free social site of YouTube which could then be linked to an ePortfolio. As YouTube is an open site it was not conducive to BSL learning. Unlike spoken language classes where students can voice their language production attempt to a class that doesn't need to see you, BSL requires that all class participants can see you. The students did not feel comfortable with their signing being on such an open site.

Another suggestion was to use smaller clips of signing however BSL students need to show a certain level of fluency requiring at least 2-3 to 3½ minutes of BSL production.

The final suggestion was to lower the video quality, which as previously discussed, would not allow for clear hand shapes, lip pattern, eye gaze, etc to have been clearly seen and thus rendering any BSL production incomprehensible.

Having so many complications consequently led to additional barriers that had not been foreseen. Initially, both staff and students were frustrated by the uploading issues especially as students had painstakingly worked on BSL clips to upload to their portfolio. Staff became frustrated as they could see real potential benefits of the system. Inevitably students disengaged and staff were disheartened especially as PebblePad© had been used so successfully across the University. Eventually a number of simple yet successful resolutions were found.

Solutions

Staff created a simple set of guidelines for web cam recording (lighting, clothing, background, etc) which meant that every opportunity was taken to reduce the file sizes. Another set of guidelines was created for using Moviemaker which became the standard platform to create web cam files using standard WMV format. The uploading solution was solved by web linking files into PebblePad© from the students' increased personal storage space. Students on interpreting courses now have a larger profile space than any other student in the university which is normally set at 100MB.

Students put themselves into small learning sets to support and offer feedback on each others signing this alleviated some of the pressure for feedback from the member of staff. It also created a better community of learners who were more confident exposing their language skills to their chosen group members

Conclusion.

Using web cams with an ePortfolio can be successful if the aforementioned solutions are followed, as well as considering that contact, virtual or face-to-face time is increased to support students in both their use of the software and in writing reflectively. The use of an ePortfolio that builds up over time requires more tutor input as students expect, need and can receive timely, appropriate formative feedback and feedforward. Whilst it is admittedly heavily front loaded for the tutor, when students have developed their reflective and evaluation skills, the benefits can then be seen as they become able to feedback to peers and reflect independently with only some reliance on tutor input.

Since the Pathfinder project, some of our students have set up a closed group on Facebook to send each other web cam clips for feedback during the summer holidays. YouTube has recently allowed selected access only. Whilst both social networking sites are 'closed' and have to be signed up for, it doesn't allow students to singularly select who sees their work, like PebblePad©.

Whilst the Pathfinder project has been an enormous challenge, encouraging other staff to adapt their module to PebblePad© is another vast challenge as it does take time, dedication and creativity, however, the rewards are great. The front ended load is huge on staff time but the potential rewards merit the effort.

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1.2

Inspirational Learning: Developing autonomous student learning through media production

Keith Radley & Professor Mike Bramhall

Sheffield Hallam University

Abstract

"Inspirational learning" is a creative group working approach to learning which uses media production as a catalyst to engage its learners. Although this paper will look at two examples from an engineering background, the methodology is also being used in other subject areas such as nursing, property development and business and management.

This paper explores how media production has been embedded into engineering subjects at Sheffield Hallam University, where students are supported through workshop and drop in sessions, then go on to produce digital media to deliver assignment work. The paper reflects on some of the benefits and issues identified and, in reference to Prensky (2005) and others who have noted that student requirements for engaging with learning are changing given their expectations for a digitally rich curriculum, it asks can higher education satisfy the student expectations for a more enriched learning experience by embracing digital technology and can digital media support a more authentic learner experience and so meet the needs of employers?

Definition

The Inspirational Learning project employs the use of digital media production in collaborative learning. It is a flexible methodology which can be applied to many subject areas.

Introduction

Students today have an expectation of communication technologies. "These students, many of whom have never known a world without personal access to information technologies, often take them for granted and integrate them seamlessly into their daily lives. These technologies also represent an opportunity for making changes in higher education instruction. How can higher education fully embrace the possibilities they present?" (Caruso & Salaway, 2007).

The 2008 Horizon report mentions grassroots video as a key emergent technology emphasising today's accessibility and portability of digital video. Easy creation, distribution and instantaneous uploading and downloading of digital media are now the norm. 'MySpace' and 'YouTube' are just two examples of free user-generated on-line video sharing.

Such resources are bringing about new opportunities and a potential revolution in the way teaching and learning can be managed. Students in mainstream education are becoming increasingly knowledgeable and proficient in creating and up-loading media. Based on their experience in this area as evidenced by recent studies conducted by JISC (2007) and ECAR (2007), those who do enter Higher Education tend to have higher expectations, many are much more skilled compared with their predecessors.

Consequently, some academics are taking up this opportunity to better address the needs of these media literate students.

Applying inspirational learning - Sheffield Hallam University student project work (working with media)

I am currently working with staff and students across the university to develop a media focused approach to learning. Student assignment work can be supplemented through the introduction of media based projects. For example, final year students based in the Faculty of Arts, Computing, Engineering and Science studying 'material properties' recently completed case study work using this methodology. Student output covered greater depth and was to a very high quality. Students claimed that they enjoyed working in this way. One student commented that "working with video disguises the learning aspect."

These projects are supported on a flexible basis through the introduction of team working skills, short media production workshops and drop in sessions which are embedded into the curriculum.
The workshops set out to develop and explore key fundamental concepts such as the conformed language of television, storyboarding, interview techniques and group working skills rather than focussing on technical operations. They also enable students to produce media to a higher quality.

Benefits

Students engaged in the project work are providing us with evidence to suggest that they gain inspiration which leads to an enhanced learning experience. This initiative offers an alternative way of assessing learning outcomes, whilst also encouraging the development of employability skills.

Listed below are some of the main outcomes which have so far been raised by staff and students:

- Increases student motivation
- Enhances the overall learning experience
- Higher marks are attained
- Develops a potential for a deeper learning of the subject
- Develops learner autonomy e.g. research skills
- Relates project work to PDP (Personal development profile)
- Promotes team working and communication skills
- Improves presentation skills - Provides a source of evidence relating to skills for interviews (autonomous and group working)
- Provides opportunities to develop project management skills
- Creates learning resources for future cohorts to use
- Enables the student learner to produce media more effectively
- Provides opportunities for staff development - Relates to CPD (Continual professional development)

The approach is not labour intensive for staff members, plus the methodology is flexible and can be used in a range of subject areas.

Case study

Introduction

The main objectives of the project were:

- To develop learner autonomy with first year Engineering students
- To link individual critical review of knowledge and skill development of the students and relate this to their PDP (progress files) through the use of group project learning
- For students to work effectively in teams and independently to develop both communication and presentation skills, as well as engineering problem solving skills through enquiry

- To use digital media technology to enhance student learning
- To develop innovative teaching methods for staff
- To reduce the burden of assessment on both staff and students

A Level 4 module, *'Materials, Manufacturing and Environmental Engineering'* was the initial project with 60 students. This was followed by using a modified methodology with 25 final year students on a *'Polymers and Composites'* module.

How the technology is being used

Media production technology was introduced to inspire and engage the students in something different to the norm, so that learner autonomy could be developed (figure 1). A use of the technology in two modules is discussed below.

Fig.1 Students engaged in video production work

Year 1 Module (Level 4 students)

The project focused on 60 first year (level 4) Undergraduate Engineering students. The module 'Materials, Manufacturing and Environmental Engineering' has been traditionally taught over two semesters, with keynote lectures, laboratories and tutorials in semester 1, followed by case studies in semester 2. However, learner autonomy was not explicitly developed within these case studies and so a new learning and teaching methodology was used to better engage the students.

Students were divided into two groups and asked to undertake one of two new types of project work.

One half of the first year group of students were required to produce short video clips (less than 2 minutes) related to the theme of 'Materials, Manufacturing or Environmental Processes'. We introduced a new initiative – 'Users as Producers', which required the Engineering students to learn and develop skills in digital video and media production. The resultant clip (or asset) was embedded within a PowerPoint presentation, and located within the Blackboard VLE for other students to view.

As well as developing skills in media production there was also an opportunity for students to develop key skills such as presentation techniques, project management skills and conflict resolution (whilst working together in groups) (figure 2).

As well as developing skills in media production there was also an opportunity for students to develop key skills such as presentation techniques, project management skills and conflict resolution (whilst working together in groups).

The second half of the first year group covered the theme of ‘Engineering Disaster Management’. Initially (within two weeks) the students were required to develop a half page ‘brief’ related to an Engineering disaster that had happened anywhere in the world. This brief had to:

- Give the background to the disaster and where it fits in within the context of materials and/or manufacturing and/or environmental engineering
- Define the project / problem, give details, outcomes, solutions (future prevention)
- Present a work programme / project plan to include how they would find information, the type of information, responsibilities and team roles for the different aspects of the project.

Final year module (Level 6 students)

The final year module, 'Polymers and Composites', featured 25 final year students. A similar methodology was used to engage student learning again through media production which replaced the traditional paper based case study work and PowerPoint presentations. Students produced a short video case study (figures 3 and 4) in the form of a digital video movie publishing through either DVD or CDR media. One of the benefits of students handing in media was the re-usability aspect i.e. Student output can potentially be used as future teaching resources.

Fig. 2: Students filming on location

The learning process

Both the level 4 and level 6 projects were prepared in a number of ways. A series of seminars on video and media production were provided during semester 1 and reinforced in semester 2. Scheduled 'drop-in’ sessions were also provided. Students were introduced to the Belbin model of team roles to help them harness the full potential from their group working. Students undertook a self-perception Belbin questionnaire in class which highlights their perceived team role. This was then reflected upon both during, and at the end of the project.

Ultimately, the level 4 groups of students presented their project, as a technical paper, at the end of module ‘Student Conference’. This technical conference was held in the Student Union building. An external speaker was invited from industry to deliver the keynote on 'Engineering Disasters'. This provided more realism to the conference and allowed students to get the feel of a ’real-world’ conference event. The day was a great success and students commented how much they had learnt from engagement in the project, and that they had developed numerous key skills to help them on their way to learner autonomy and employability. Students critically reflected upon their assignment

experiences, the role they played and what they had learnt about their strengths and areas for future development for inclusion in their Personal Development Portfolios.

The final year (Level 6) project focussed on a Polymers and Composites module. Students were given the task of researching a topic in polymers or composites and the end production was a digital video case study handed in on a CD or DVD for assessment. This assessment task replaced a traditional 6 week case study that would have covered the same technical areas, but would have resulted in a group report and PowerPoint presentation. The students were supported in a similar way to the first year students, with an initial seminar on video production, followed by weekly drop-in sessions for technical support on filming and editing. Final assessment was purely based on the media content, with a group 'showing' of their outputs at the end of the module.

Evaluation

Evaluation of this work is ongoing. In 2006 a questionnaire was handed out to ascertain how students perceived learner autonomy; also seeking to evidence their current learning styles and expectations. Follow up focus group discussions were used to further evaluate the student view of the assignments in order to evaluate the benefits of this type of learning and teaching methodology.

Overall, the first time pass rate for the first year module increased from the previous 3 years of 77% 75% and 80% to 95% the only referrals were those students that failed to attend the conference. This improvement in pass rate is believed to be due to the increased attendance and motivation of the students by using this type of project work.

Overall our evaluation has shown the following benefits:

- Students quickly adapt to the technology
- Students enjoy these kind of project and enquiry-based approaches which means:
- They become more motivated, the overall learning experience is enhanced, higher marks are attained and a deeper level of learning is achieved.
- Provides a source evidence of skills for interviews (autonomous and group working)
- Learner autonomy developed (students manage their own learning and assessment)
- Students produce future media learning resources
- These approaches are not staff labour intensive

The module group has worked collaboratively with Centre for Excellence in Teaching and Learning staff and the Learning and Teaching Institute's Academic Innovation team to develop their learning, teaching and assessment practice. Staff are engaging in the use of digital technology, especially on how to embed media into learning and its uses for assessment. Consequently staff are now becoming proactive with this type of teaching and learning activity.

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1.3

Who is watching our videos anyway? An analysis of target audiences and their responses to different kinds of educational videos

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Abstract

Due to the popularisation of video sharing servers, and the successful impact on the viewing audiences, the drop of prices in consumer video production equipment and the accessibility to editing software, the production of educational videos has become a more frequent option for educators to consider. The use of video in Higher Education (HE) is not only being limited for conveying learning messages for distant students but also for attempting to enrich the academic practice of enthusiast practitioners who decide to use video - either self-produced, commercially produced or customised- for an educational purpose. In an analysis of eight different cases at Lancaster University, UK that aimed to use video for learning purposes, it was observed that target audiences that commit to actively engage with the video-enriched learning activity tend to benefit more from this kind of medium than those that passively approach to the resource. An attempt to classify the audiences in four types depending of the expected degree of activeness is presented and employed as a reference for relating the type of audiences and the degree of activeness with the apparently most appropriate kinds of video-enriched learning activities.

Introduction

Educational online video in the framework of HE promises to flexibly enhance learning opportunities among students and provide meaningful context-related situations in which a set of new skills to succeed in the modern world are likely to be fostered. Effective educational online video does not only consist of a visually well-produced medium with the right imagery, the right content and of the right length. What makes online video effective is the activities that cascade from it and the mental activity that it may trigger. Contrary to the lean-back, passive attitude that viewers may assume while watching television, some video tapes or films, online educational video should promote intellectual alertness and an active attitude towards the medium, thus educational video for technology-enhanced learning environments must not be designed for a passive audience; educational online video should encourage the viewers to commit a certain level of mental effort. This may lead us to think that long-form content might harm such effort. Educational online video should be used to trigger critical thinking, to engage students in active learning and to enhance learning opportunities. In Web 2.0 environments, online video enables the viewers to enhance their authorship and appropriate of the video by engaging in activities like sharing it with others; commenting on it; or criticising its contents or its quality. Such activities can of course be intentionally embedded in the video by the producer, by explicitly asking the viewers to take some action before, during or after watching the video; they can also be envisaged and assigned to the students by the educator; or they can even be triggered by the online activity that the medium could have fostered among other fellow viewers.

Audience types

The types of students using, or even producing video for learning purposes, depend on the ways video has been implemented into an academic setting. By means of a series of case studies conducted from October 2005 to June 2008, four types of audiences have been identified: Student producers, performing art students, workshop students and classroom-based students.

The audience types are determined based on the level of engagement with the video-enriched learning activities and the "degree of activeness" that students assume. In terms of a metaphor that relates the level of engagement with the posture of the body, we have found that video seems to be more effective to enhance learning for audiences that lean forward when viewing video, that is that cognitively commit with the contents and with the activities that are derived from them. Several degrees of activeness –or passiveness –among classroom-based students have been identified along the outline of the characteristics of these four types of audiences, for example those students who attend to lectures tend to adopt a more passive attitude towards the academic gathering than those who attend to seminars or lab sessions, or even more notoriously passive than those students creating their own videos. The discussion turns next to the definition of the main characteristics of the types of audience here proposed.

Classroom based students

By classroom-based students is meant the students who need to physically displace themselves in a given time to be able to attend to an academic gathering within a formal course of study. Classroom-based students usually remain seated during the gathering and tend to receptive to the discourse that takes place within the classroom. Students who attend to lectures are normally expected to sit passively in a big lecture theatre, while those attending seminars or labs are expected to be more active due to the more inclusive and participatory characters of the academic setting. It is not being discarded that students do learn in passive face-to-face environments, but according to the premises of Rich Environments for Active Learning, an active attitude towards learning encourages responsibility and decision making by means of participatory dynamics which promote high level thinking processes, and facilitate intentional learning in an atmosphere of collaboration among students and instructors (Dunlap and Grabinger, 1996: 66).

The degree of activeness of students who attend to typical lectures is, by definition, very low and if not indicated otherwise by the lecturer, students may tend to keep passive all along the session. Also the distribution of the layout and facilities within the lecture theatres do not allow a change in the students' attitude during the sessions. These and other paradigms such as the theatrical role of the lecturer seem to harm an active use of video in the classroom. Notwithstanding, video can still be used for illustrational purposes, as sound bites or summaries of what was learn in previous sessions or as video lectures. In classrooms with a more loosen distribution; video can be used to generate discussion among participants, to clarify misunderstood points or to trigger critical thinking activities.

Video lecturing is a very common activity in which it is believed that the qualities of the face-to-face session can be transferred to the video version. Although there is evidence that support the statement that video lectures are effective means for conveying learning messages, establish an effective transactional distance between the lecturer and the students and re-establish the social responsibilities of the learners (Parchoma, 2003), and that weblectures as recorded life events are valuable learning objects in Higher Education Learning Environments (Van Leijen, 2008; Van Leijen, and van Haarlem, 2006), the characteristics of a lecture and its video version differ in many ways. It is also believed that the lack of a social contract between the viewer and the videoed lecturer does affect the attention of the viewer and the impact of the messages conveyed by the lecturer. In this research, video lecturing has been seen as one of the least effective video-enriched learning activities for encouraging students to learn from it.

Workshop students

The learning value of workshops lies on the enhancement of active learning opportunities. A workshop is an academic gathering that may take place within formal education, or, in most of the cases, for training, continuing education, and lifelong learning practices. Workshop students tend to be highly motivated and to actively engage with the sessions assuming a great level of expressed responsibility and control of their learning processes. Workshop activities tend to flow more smoothly than in other type of academic gatherings in which the degree of students' activeness, motivation and engagement tend to be lower than that in workshops.

Workshop students can be seen as classroom-based students, however this type of audience was propose to refer to the kind of learners that are actively engaged with the academic gathering, usually self motivated and with a notoriously more active role during the academic gathering. The learning environment workshop students are normally immersed enhances peer interaction, learning-by-doing opportunities and a direct exposure to ill-defined and more real-world situations. Lab students can be categorised either as classroom based students, or as workshop students depending on the characteristics of the activities they are executing. These characteristics of the learning environments create the perfect setting for students to work with video as creators or collaborators rather than only as consumers. It has been observed that using video for triggering discussion among fellow students, for self-evaluation or for the production of online discussion in a workshop type environment is a coherent activity in which the hands-on character of the learning environment and the potential use of video seem to foster higher order thinking skills, going beyond the illustrational role that video tends to play with classroom-based audiences.

Performing art students

In a similar way than the workshop students, but with a higher degree of physical involvement, Performing Arts students tend to get immersed in learning situations in which a high degree of alertness and attention is needed to perform the tasks they are assigned. Performing art students seem to be different to workshop and classroom-based students due to their level of engagement with their own personal development, a natural talent and an evident competitive environment are usually the driving forces that motivate them to engage in a quasi iterative improvement process. Based on the Myers-Briggs indicators, Alisa Roost (Roost, 2003: 225) states that performing art students are extroverted and perceiving, and that reflective activities such as writing or analysing readings or, in this case, videos, may enable them to think critically and make connections across fields. In a categorisation of the performing arts student, Roost defines them as outgoing and quick thinkers, who despite procrastinating achieve the academic tasks generally energised by last-minute deadlines.

Fine arts students are required "*to learn how to shape their perceptions and understanding of the world and to create a physical manifestation of that perception*" (Corner, 2002: 148) and video can help them to disembody from what they are performing, allowing them to assume the place of the observer. This separation of their performing selves and their normal appreciation point of view during their acts, may enable them to become more aware of what they are doing while being engaged in a performance. Corner (2002; 148) claims that for fine art undergraduate students to learn how to understand and manipulate such experience, they need to be taught to analyse, research, develop technical and practical skills and combine these elements into a physical realisation.

Video in performing courses tends to be used as a source of information, by means of documentaries or teacher produced videos; for illustrating purposes by means of pre-recorded performances, theatrical events or concerts, or by documentaries as well; for retrieving visual feedback by means of videoing the students performances and making them available for the students to review; and as a creative element when students are asked to produced their own videos, or to create video installations. In an interview with a Dance teacher, he asserted that video for Performing Arts students is like books for literature students, in the sense that they are –or at least, should be– familiar learning resources. He claimed that that the familiarity with the medium as a learning artefact enables students to benefit from the video resources in different ways than the average student population. Similarly a Music teacher asserted that video in Performing Arts is more pragmatic and justified than in other

subject areas. He claimed that every single video clip used during a Performing Arts course is a necessary element of the students' integral preparation.

Student video producers

Student video producers can be ascribed to any of the former three types of audiences; it is however the level of student involvement, the control of their learning processes in ill-defined situations and the condition of creators rather than consumers what describes this condition. Student video production is a valuable academic activity that allows students to benefit not only from the production process but from the replay as well. In this kind of activity individual commitment and collaboration among group members are enhanced by means of shared objectives which may include, planning the contents and an appropriate visual representation, organising the recording matters and assuming production roles. These activities locate the student video producers in a position in which they can exercise the power of deciding what to present and how to present it to a target audience. Giving such power to the students, may enhance the learning opportunities of the creators of audiovisual contents during several stages of the production process (Ferres, 1994: 70) and during the replay. Students producers use video not as a medium in its own, claims Pinnington (1992: 118), but as a way of developing general communication skills, a means of expression, a tool for collecting information, a tool for promoting change in individuals and organizations, and a visual message that goes beyond the classroom.

Video production involves several challenges along the pre-production, production, post-production and delivery stages which are likely to enable a series of competences and to foster learning opportunities (Chia, 2008: 347). Such challenges include: 1) in the preproduction, the research of the subject matter, the selection of actors and the dealing with physical constraints as for locations and equipment; 2) in the production, the rehearsing and direction of people and the recording itself usually compliant with the planned angles and movements; 3) in the post-production, the editing, the selection of music and sound effects and other visual effects or final touches such as adding graphics and text (Cf. idem) and 4) in the delivery stage, the video-enriched learning object is unleashed, made public and ready to be used as a trigger for discussion and peer interaction.

Student producers are expected to be conscious about the learning objective of the activity; to master the contents before engaging in the creation of their videos; and to acquire and further develop the twenty-first century skills and competences that are enhanced along the production process. Student producers are required to act in ill-defined situations, to learn on-the-fly and to apply their previous knowledge to situations similar to those graduating students might be likely to get on a real job.

Relationship between the students' attitude towards video and the expected degree of activeness

The lines between the student types are very blurry especially if they are very strictly defined, however it is the epitomising form of the student type and its respective qualities what are used to identify the different levels of engagement with the academic setting and their own personal development.

The relationship between the students' attitude towards video and the expected degree of activeness is graphically represented in the next figure. In the x axis it is located the attitude towards the video in terms of the leaning factor, and in the y axis the four types of students. It can be seen in the figure that when the video-enriched learning activity is closer to the origin a passive attitude towards the activity is likely to take place; and the farther the activity the more likely it is to be fostering flexible, personalised and probably more meaningful learning.

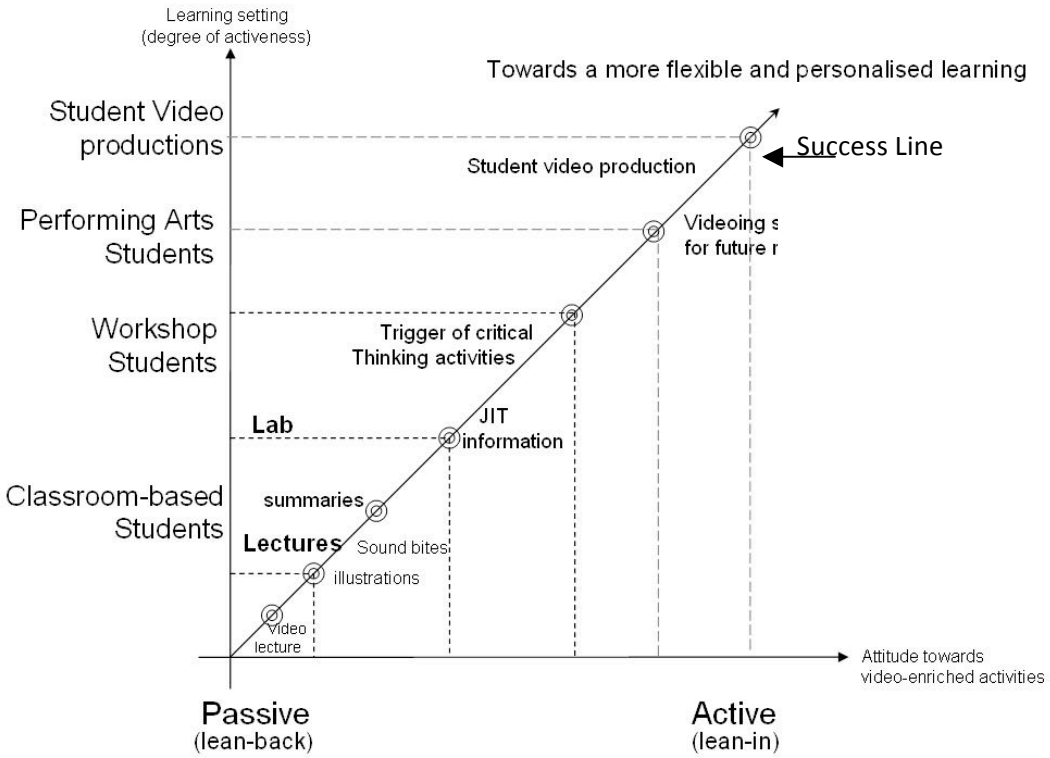

Figure 1. Relationship between the students' attitude towards video and the expected degree of activeness.

Conclusions

Who are we producing video-enriched learning activities for? Are we creating appropriate resources for the right audience? Are we considering that the target audience may be influenced by the everyday dynamic of the learning environment? Are students using the video resources the way we conceived them to be used?

The graphical representation of the direct relationship between the students' attitude towards video and the expected degree of activeness shown in Figure 1 aims to dispel the former questions and to work as a visual resource for practitioners to use before committing their time and effort to the production of video, anticipating to a possible mismatch between the conceived and the actual used of an activity of this kind. By simply locating the expected students' attitude towards the video and by selecting the audience type that best describe the learning scenario where video is going to be used, the graphical representation of the relationship may help to visualise whether the video-enriched learning activity may (near the success line) or may not (far from the success line) be appropriate for the target audience.

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1.4

Setting up a Student Television Unit: A case study at Lancaster University

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Abstract

This paper discusses the discoveries made, challenges faced, and lessons learnt by the establishment of a student produced internet-based television station. The driving force behind this project is the students' desire to actively apply the knowledge they are learning in the classroom in an appealing stimulating environment capable of enhancing their educational experiences. Presented in the form of a case study, this paper examines the aspects that were successful and areas that which did not achieve their goals. The authors played a formative role in the creation of the station and reflect on the lessons learnt regarding access and allocation of resources, political and administrative challenges, people and project coordination issues, infrastructure and organizational development and self-directed training on advanced technical equipment.

Introduction

In an era of student-centred higher education (HE) with current pedagogical foundations shifting the roles of educators and students, and in a social framework in which consumer produced online video has gained levels of viewer's acceptance never reached before; a group of students at Lancaster University, UK banded together in October 2007 with the aim of generating new learning opportunities where they could further develop the hard and soft skills proper to the field of video production, enhance twenty-first century competences in an ill-defined environment and be able to transfer knowledge to 'real world' situations. The development of such type of skills and competences in the modern knowledge-based economies is likely to nurture the students' working knowledge and help them to develop their potential in a competency-based environment and profiting from the experience for their formal courses or after they graduate.

The Case of LUTube.tv

The main aims of the Student Television Station were to provide clear opportunities to practice the skills being taught by the university, to gain 'real world' experience while tasting possible career options and to develop team working and managerial skills. These skills include, but are not limited to, actual production and technical abilities, business management and marketing, decision making, goal setting, project management, analysis of target audiences, critical thinking, and problem solving.

Since it was first conformed, the Internet-based student television unit has provided its members with hands-on experience in every aspect of a real television network. Students have been able to practice their skills in a safe environment and reflect on what they have learned on weekly departmental meetings and a monthly general meeting.

The Birth of a Web TV Station

The genesis of what would later be known as LUTube.tv can be traced to an exploratory meeting held in December 2007. After email circulations and individual brainstorming, a date was established to meet face to face with any and all interested parties. Attending the meeting were the authors of this paper and six additional university students. Alberto Ramirez Martinell had previously observed that Lancaster University (LU) owned a collection of high quality video equipment that appeared to be underutilized. Although it was not known at the time if students would be allowed to access this equipment, Alberto saw this as an opportunity. The initial meeting took place in a campus pub and the 8 students present consisted of 2 PhD students (Alberto Ramirez Martinell from Educational Research and Michele Ryan from Management Learning & Leadership) and 6 others who were all first year undergraduate students; the majority of whom were enrolled in drama/theatre studies or a media related major.

It quickly became obvious during this first meeting that excitement level was high. However, the lack of knowledge and experience of the majority of those present, led the 2 PhD students to take the leading roles in the organization of a club. LU requires student groups (or activity clubs) to formally apply for membership with the student union known as LUSU. In preparation for the application process it was made apparent to us that we needed to prepare a sample of the videos and/or shows we planned to produce. At this point the organization had no video cameras, no editing software, no equipment, no studio, and no facilities of any kind. What we did have was a group of excited people who believed that this was a worth-wild adventure. We used personal owned camcorders, borrowed cameras and even mobile phones to start experimenting with the types of videos we would later produce.

During this initial meeting, the emerging leaders of the group asked the other students what they wanted from the formation of the organization. They probed the younger students as to get an idea of their desires, goals and ambitions. The purpose of this inquiry was three fold. Firstly, we wanted to measure the level of enthusiasm as a possible gauge for determining their future level of commitment. As older students, we were concerned that the younger members may not be fully aware of the time and energy commitments required to make the venture successful. We believed that the students, who were showing only a marginal interest at this point, would not likely follow through on their commitments at a later time. This was considered especially applicable to tasks that were administratively necessary and not particularly enjoyable. Secondly, we wanted to allow the students to bond as a team by collaborating on the future of the organization. We allowed ample time for everyone to express their visions. This naturally merged into conversations about show ideas. Each person had an opportunity to share his/her thoughts with the group. As we would later learn, brainstorming and pitching show ideas is a mechanism for both team development and a key factor for the retention of members. Thirdly, we wanted students feel a sense of ownership by participating in the initial decisions. This concept proved to be the backbone of the club. It fuelled the students and helped keep them working positively during difficult times.

Between December 2007 and January 2008, we worked behind the scenes gathering information about how to form a sanctioned 'society', planning organizational strategy and in a sense doing everything so that we could project an image of professionalism. We did these things without the involvement of the younger students; in part because we were both dedicated to making it happen and also because we did not know and did not trust the younger students with responsibilities. We wanted to delegate authority but also wanted to be organized ourselves before trusting the others. It can be perceived that we were also setting up a structure, although not expressly intentional, where we would retain the power and control over the important matters and be able to micro-manage the others. We came up with the name LUTube which later proved to be advantageous.

January 2008 we hosted a booth at an informational festival called the Freshers' Fair. These events are held twice a year and give the students an opportunity to sign up for various extra curricular activities. We used the fair to recruit new members and gain exposure for our organization. At this point we did not have shows to promote only ideas. We added approximately 50 people to our roster

from the event. In our booth we capitalized on the romance of television. We borrowed professional TV equipment that was not in working condition. We used these items as props for display purposes and setup a green screen and monitor and hand held camera that did work. We used the fair as a chance to get people on camera. We employed the slogan, *Pimp your CV- Join LUTube*. Our philosophy was to tap into the glamour and energy that comes from students' preconceptions about TV, Hollywood, and showbiz in general. We knew that if we had 20 members currently and only 5 were being active, that we would need about 200 members to get 50 active. Our long term goals involve needing at least 50 people, who were willing to work as hard as we were and dedicated to the success of the club. We never expected to achieve such as high level of activity but it was our dream.

Our 1st *BIG* Meeting

Anxious about retaining as many of the now 75 members of the unofficial society, we organized our first *big* meeting. Approximately 50 students to the meeting and we presented the students our vision for the group, the fundamentals of web TV and then broke in to small groups for brainstorming show ideas for our initial pilot episodes. We believed that by doing one-off shows, students would be more likely to get involved, especially in a role that they were not familiar. Students were told that after the pilot episodes were completed, then they would be allowed to change groups.

We successfully selected 6 initial pilot shows formed the crews and established the leadership responsibilities for each show. We wanted our production leaders to have the authority to direct their crews as they desired, yet be available to them for assistance as needed. In retrospect, this high level of flexibility proved to be an obstacle. Another obstacle that we feared at the time was our lack of credibility. We saw ourselves as a group of students, not a television organization. One of the main purposes in deciding to do pilot, or practice, shows was to give us something tangible to show to the Student Union (LUSU) for them to upgrade us as an official society. However, there was an ulterior motive. We believed that this was a critical aspect to gaining access to the university's professional equipment which was control by the Lancaster University Television Unit (LUTV). Yet, as it turned out, our credibility was established through less structured ways.

Credibility

Our first major obstacle was establishing ourselves as a recognized student organization. We knew that we would not be able to even ask for permission to access the professional video equipment owned by LUTV until we had been approved by LUSU. We worked simultaneous at scheduling what LUSU called an approval meeting while attempting to meet with LUTV. The advice we were given at this stage turned out to be slightly inaccurate. Thus we were pressurised into *proving ourselves* despite the fact that the LUSU approval committee did not actually require us to do so. Our contact thus far with LUTV had been very positive and we prepared to give a formal presentation to them showing off our work. We felt as if the LUTV meeting was more of a formality; and the LUSU meeting was where we needed to shine. As a result we focused our energies accordingly. In the end, we could not have been more wrong in our assumptions regarding both LUSU and LUTV.

Interestingly enough, one of the most important factors that helped enhanced the credibility of the Society among the community was its name: LUTube. Later we added the extension of '.tv' because after completing a Google search the original name yielded a selection of pornographic websites. In addition the name gave the impression that we hosted user content (as does YouTube) and did not reflect our intention of becoming a web delivered television station. We were able to secure the domain name of LUTube.tv and created a website.

In preparation for our presentations with LUSU and LUTV, we conducted a set of random interviews in the main square of the university. The results showed us that more than 50% of the people asked, said they thought they had heard about LUTube.tv and many could correctly identify its primary

purpose. The name was catchy and self explanatory as well as accessible to any student with an internet connection. We quickly developed an informational 'buzz' that filtered into both LUSU and LUTV.

The general feeling of the university population including, students, academics and administrative staff about LUTube.tv was very positive. Others societies, like the University Cinema, offered their help to advertise our clips before their feature presentations. Additionally, the tae-kwon-do society and the cheerleader squad asked us to produce promotional videos for them. Outside the university campus we joined the National Student Television Association (NaSTA) and attended to their 2008 awards at Leicester University. There we had the opportunity to talk to more mature student television stations to see the type, quality of their material, and the way they were delivering their content to their audiences. This allowed us to reflect on what we were able to produce with the resources and human capital we had at that moment.

It was during our effects to project a professional image and build a positive reputation that we encountered resistance from the long standing student radio station. Although some of our members were also members of the radio station, stories and rumours began to surface about how much the radio station disliked us. This was interesting because we had not yet aired any material, yet members of the radio station were saying that our shows were rubbish. This rivalry grew over time and later proved to be one of our most valuable assets from a promotional standpoint.

Whilst attempting to establish ourselves as a trustworthy group, we met with the university's legal department to ask questions about copyright regulations. We made it clear that we did not want to do anything that could put the school in jeopardy and asked for guidance. In the United Kingdom there are laws which allow usage of copyrighted material for educational purposes. We did not know if those regulations would apply to us. We were not well-received. We found this strange because, as we saw it, the school should be pleased that we are addressing these issues as it shows our commitment to producing quality programs that would not cause future liability issues. As a result of our disappointing meetings, we established our own guidelines (perhaps stricter rules) of not infringing on copyright issues, even where usage was potentially permissible. However, having taken the initiative to meet the legal department, this added to our positive image, as word got around the school that were taking a moral high ground and that the administration was not offering to assist us. We refused to speak negatively about the situation when confronted by other local media, such as the student newspaper. Credibility, as we learned, can be orchestrated through a positive promotional campaign.

By March 2008, we still had not produced anything that had been aired to the public. Yet, our reputation was strong. The primary mechanism for this was the use of the students' newspaper. Perhaps because we understood the needs of those in media, we produced regular articles accompanied by photographs for the newspaper to print. We met with, and became friends with, the editor. We knew that like any newspaper the need for new content was strong and therefore we provided a regular stream of articles for their use. Although we had no shows to promote, we had been conducting training sessions for our members. For example, we filmed a PhD student who was presenting in a workshop and they delivered the film to him so that he could use it to prepare for his forthcoming viva. News of such activities was promoted in the newspaper and students as well as teachers formed a positive opinion of us before we aired any content. Although our successful attempts at creating credibility helped us overall, they also drove a wedge between us and LUTV and BailriggFM (the student radio station). However, in April 2008 we were granted official status by LUSU.

Accessing the *BIG* Equipment

We met the executive board for the professional media department (LUTV) and gave them a presentation. They were not receptive to the idea of a student unit whose purpose was similar to

theirs. We believe that they felt threatened and they challenged our right to exist. In all fairness, the hands-on managers of the group were very warm and helpful. But their bosses wanted no connection with us and would not consider allowing us to use their equipment: not even when we offered to pay for that right. We falsely thought that a student TV society and the professional TV department could (and should) have some type of a relationship. Licking our wounds from our initial meeting, we vowed to do it without them. This would mean that gaining access to the unused equipment (which was the original driving force of this project) was no longer an option. Instead we would have to do it with our personally owned video cameras or by borrowing equipment. We had no money. We could not quit or give up because we had built such a strong presence and positive reputation. What no one outside out society knew was how much we differed from the image we were projecting.

Organizing LUTube.tv

The society has been organised in two different ways. The initial way was decided at a very early stage of the foundation of the group. In this first fashion, all the power fell on our shoulders. We purposely granted ourselves full control of decisions, while hoping others would step up to take more responsibility. It took nearly 6 months before they finally wanted structural re-organisation. This came about because they began to feel micro-managed and desired more authority. They felt tense about approaching us about this issue and met in secret to discuss it. When we learned of this we were delighted. We quickly held a meeting and were transparent about our intentions. We explained that the reason we had organized the power and control to reside with us, was simply because no one else had stepped up. We expressed our joy in seeing that they were now ready to share the responsibility and agreed to restructure the written constitution to reflect this. We also began to shift from micro-managing the crews to giving them more flexibility and anatomy. Although, this was our original intention from the beginning, we felt that the failure of several of the pilot shows taught us that the younger students were not ready to work solely on their own. But now, nearly six months after first forming, the members were finally beginning to resist the authoritarian structure and were thus ready to share in less fun, but necessary tasks of running LUTube.tv.

All societies in the university must carry yearly elections for the executive members, and ours is not an exception. The elections for the new executive board will take place in the summer 2009 and a new generation of station managers will emerge to run the society from October 2009. There is a general sense of belonging and identification within the society. Students have printed t-shirts with the logotype of the society; they have ironed patches of the logotype to their clothing and on the whole they like to be recognised by the academic community as members of LUTUbe.tv. The team cohesion has increased dramatically since the re-organization occurred.

The Pilot Shows

By early April 2008, we had concluded our initial pilot stage. Each show progressed differently; some were completed and aired while others were abandoned. Below is a diagram of shows and how they progressed. When evaluating our pilot episodes we considered a show successful only if it was completed, regardless of its quality. When considering the crew's success or failure, we determined that they were successful if they developed their skills and returned to work on other projects, regardless of the status of the pilot show. That is to say, that the students' involvement was more important to us than the completion or quality of a show.

As evident from the matrix (see figure 1) there appeared to be only a moderate relationship between a show's completion and the development and retention of its crew members. This was surprising. We had hypothesized that completing and airing the shows would lead to those members becoming increasingly involved in the organization. This was true, generally speaking. But several crew members that we suspected would become extremely active members, abandoned the group after their shows were produced. In these cases, we later discovered that the difficulty and time constraints of the projects caused some members to rethink their involvement.

On the whole, members who were active in the production of a pilot show did result in their future development. However, whether a show was completed or not, turned out to not be the most important characteristic. For example, the LU-Promo show never materialized. The crew leader held planning meetings but the show was never scripted or filmed. Most of the crew members abandoned the society. The crew leader never asked for assistance. One crew member, however, later surfaced and went on to become a society officer. The failure of this project was determined to be largely due to the lack of confidence and insecurity about the technical aspects of film production on the part of the crew's leader. LU-Promo, like the TREV show, failed in part because we were able to reach them and reassure them that failure of the show did not reflect negatively on the crew members.

Fear played a large role in students' leadership abilities and willingness to try new tasks. In the case of TREV the show was scripted, rehearsed and even filmed. However, the editing process never occurred and the project was abandoned. Rumour and innuendo spun for months about what had happened to the crew members. They did not respond to repeated attempts to contact them. Those who had been actors in the show, and other non-post production people, returned and volunteered for other assignments. However, the crew's leader and all post production personnel disappeared. Nearly six months later we learned that the crew leader had abandoned the post production team. There was one remaining student who was committed to editing the project, despite not having any support, knowledge or training. He later came to us with his head hung low in shame. He expressed that he felt that he had let the rest of the team down. After further discussions we reassured him that asking for help was not a sign of weakness and successfully reassigned him to another project. TREV was abandoned but we learned several lessons about the local culture's views on failure.

The Game show, however, is a good example of a failed show that yielded very successful crew development. The team leader held several planning meetings, gathered props and started the script. The project was never filmed. The difference with this show was that the team leader was proactive in asking for assistance. Although our effects to help him did not yield the shows completion, all crew members remained within the organization and accept reassignments to other shows when the project was abandoned. The primary reason for the show's failure was the nature of the project. It was too complex to be produced in the given time frame with the available resources.

In another case, the show's success did not mirror that of the crew's development and retention. Pimp My Room was a show that involved decorating student dorm rooms. The project was led by a proactive crew leader. When the crew leader asked for assistance, we provided hands-on help with the technical aspects. The crew leader work hard and did a large portion of editing. When the show was completed, the crew leader and all but one of the other crew members disappear and did not return future contacts. One member did return to the club and move on to other projects. The finished show was too large for our server space at the time. As a result, we delayed airing it for several weeks. It was believed that the failure to air the show may have caused crew members to be upset and perhaps contributed to their decision to leave. Several months later, we happen to see the former crew leader, we asked her why she and the other left the society. Her response was simply that it turned out to be a far much larger commitment in terms of time and energy than they desired. She said she made sure the show was completed out of obligation, but had no desire to do it again.

Cooking on a Budget was a cooking show. The crew's leader was proactive and dedicated to the project. She later told us that she was nearly paralyzed with fear. The uncertainty of how to proceed near stopped her from moving forward. The show was filmed and aired on schedule. This crew had also asked for help and received hands-on assistance from ourselves as well as members from other shows. The result was that most of the crew members were retained and progressed to do other shows.

Our most successful show was that of the Campus Cams series. In approximately 30 days the Campus Cams produced their initial episode and then went to produce an additional two shows. The three Campus Cam programs were unique in several aspects. They were also the most successful with the highest retention factor for those involved in their production. The primary difference, we

believe, was that these shows were led by Alberto. Having an experienced leader added a level of confidence that filtered through the team. In addition, Alberto was knowledgeable in all aspects of filming. As a result, the shows became the training grounds for presenters, camera operators, directors and editors. Several students involved in Campus Cams went on to lead groups of their own. Being given a mentor, as opposed to absolute anonymity and flexibility was far more productive. Students that started with Campus Cams faced their fears of uncertainly with an experienced person at their side. These students went on to become executive officers and team leaders in the following year. Whereas those who worked independently, or without a senior mentor figure, often quit or abandoned the society. We feel it is safe to say to that the success of crew member development is not directly related to a show's successful or failure. Instead, it appears to be tied to the involvement of a mentor.

Show	Genre	Progression	Final Status	Crew Development	Comments
LU-Promo	Show highlighting the university intended as a promotional device	Held planning meetings	Never produced	Low overall. Most of them disappeared	Show failed, crew was overall a failure, with one exception
TREV	Fictional, soap opera	Script was written, rehearsals took place, project was filmed	Never edited	Low overall. Most of them disappeared.	Show failed, crew was failure
Game Show	Reality style game show	Several organizational meetings were held	Planned but never filmed	High: All crew members were reassigned to other shows when this one was abandoned	Show failed, crew successful
Pimp My Room	Dorm room improvement show	Planned, filmed and edited	Aired several months later	Low to Medium: One crew member remained and went to other shows. The rest	Show successful, crew failed

				disappeared, including the crew leader.	
Cooking on a Budget	Non-fictional-how-to show	Planned, filmed and edited	Completed and aired on time	Low to Medium: Two crew members went to other shows.	Show successful, crew mixed
Campus Cams	Campus news and informational	Planned, filmed and edited	Completed, aired on time: progressed to 2 additional episodes	High	Show successful, crew successful

Lessons Learnt

Throughout the year, we have learnt several lessons; some about organisation; some about credibility; others about the importance of relationships between people and other organizations. The way a student television unit is constituted can play a decisive role in its road to success or failure, however despite the approach of organizing executive and general members the group seems to be more cohesive and more functional when its members are either assigned to projects or are in charge of executing given tasks. We also tried to enhance the degree of commitment and the sense of belonging by allowing the members to name their roles within the group, and it did work to some extent. The roles with apparently higher hierarchy (like production manager, producer or director, were accepted immediately and the members seemed to feel quite proud of their positions. However, for roles such as assistant director, the students struggled to accept any 'assistant' label job title. We also discovered that the sooner a new member is assigned to a project the more likely he/she was to become a regular contributor. Additional social recognition was a key factor in their decisions to step up and assume more responsibility.

In conclusion, we shall summarize the primary lesson learnt during our first year of starting a student internet-based television station. They are intended as a collection of thoughts and advice to others who may be considering tackling a similar venture.

1. Utilize the resources of the university to network and promote your organization regardless of if you have any completed shows or not.
2. The power of a catchy and cleaver name cannot be underestimated.
3. Pick you battles! Try to stay out of old organizational feuds.
4. Get students working on something, anything, ASAP!
5. Most students can overcome fear by something once.
6. Hold their hands for the first stage. Assign mentors and coach them.
7. Credibility can be manufactured through a positive promotional campaign.
8. Professional image can come from the smallest actions.

9. Give them something tangible, like a simple t-shirt. Allow them to show off their pride in the organization.
10. Don't underestimate the resistance to change.
11. Don't believe everything you are promised.
12. Locate barriers then work around them: instead of trying to overcome them.
13. Crews need to feel part of a team.
14. Maturity is an issue. Give them complete structure at first. But be flexible to hand over more responsibility as they desire it.
15. Battle fear of uncertainly by grouping old and new members. Provide mentors.
16. Start your revenue model ASAP. Make trades for services.
17. Network, network, network. Everyone loves to be on TV so film them and they will support you!

Section 2. Sharing video resources

2.1

Sharing the vision: exploiting Web 2.0 technologies in promoting the use of multimedia in bioethics education

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Abstract

Bioethics is a field of emerging significance in society, and the importance of students grasping the ethical implications of developments in the biosciences has been echoed in recent curriculum changes. Broadcast programming and films represent a vast reservoir of vignettes suitable for promoting engagement with the science and ethics of such breakthroughs, yet it has not always been easy for educators to be aware of these resources. By exploiting a pre-existing blogging platform it has been relatively straightforward to develop BioethicsBytes, a searchable repository where ideas and recommendations about the use of multimedia clips can be shared with likeminded teachers and lecturers. The approach described here has been specifically applied in the area of bioethics education, but is readily transferable to any discipline.

Introduction

Thousands of hours of television are transmitted each year. Whatever our field of study, this level of broadcasting is bound to include many features with relevance to our course content. Conversely, the sheer scale of output can make locating the appropriate material problematic. It is unrealistic to expect the programme descriptors in general-purpose information services, such as the Television and Radio Index for Learning and Teaching (in the UK), to include sufficient annotation to satisfy all the nuances of discipline-specific usage.

Given these limitations, alternative means to share recommendations regarding programmes and clips for use in teaching have been investigated. This paper describes work we have undertaken to develop Bioethicsbytes, a web-based repository of commentaries, reviews, and structured guidance for promoting the use of multimedia resources in bioethics education.

Bioethics is a discipline of increasing importance, a fact formally acknowledged by recent curriculum changes at both secondary and tertiary level (Willmott and Willis, 2008). Within the UK Higher Education sector, the undergraduate *Benchmarking Subject Standards for Bioscience*, first published by the Quality Assurance Agency (QAA) in 2002 and tweaked in 2007, make nine explicit references to the provision of ethics teaching in biology syllabuses (QAA, 2007). This emphasis has come as a shock to many academics, trained in an era with different priorities, and many stated that they felt ill equipped to tackle ethical issues (Willmott *et al*, 2004).

At secondary level, the place of bioethics in the school curriculum has been evolving since the turn of the century. Two reports *Beyond 2000* (Millar and Osborne, 1998) and *Valuable Lessons* (Levinson and Turner, 2001) have had a pivotal role in shaping science education. The importance of ethical understanding and wider ‘scientific literacy’ as identified in these documents has had a direct impact in the development of specifications for both GCSEs (taken at age 15-16) and A levels (taken at 17-18).

The first recommendation of the *Beyond 2000* report included the need for the science curriculum to provide "sufficient scientific knowledge and understanding to enable students to read simple newspaper articles about science, and to follow TV programmes on new advances in science with interest" (Millar and Osborne, 1998: 9). A number of recent projects have helpfully addressed the use of newspapers in science education (e.g. Jarman and McClure, 2007; Hyden and King, 2006). To date, the consideration of television representation of science and scientific news has not been so well advanced. Like their colleagues in universities, Science teachers in schools have reported feeling uncomfortable dealing with 'opinions' rather than 'facts' (Lewis, 2006).

It seems clear, therefore, that there has been a very real need for greater resources to equip teachers and lecturers to tackle issues in bioethics education and Bioethicsbytes is one service intended to meet that need.

Rationale for Bioethicsbytes

The Bioethicsbytes project rests on several foundational principles. The first is our conviction that there is huge pedagogic value in the use of video. In the context of a DIVERSE conference this is not a particularly shocking revelation, but is nevertheless worth restating since many of our academic colleagues have not, perhaps, been as keen to embrace the use of audiovisual media.

Secondly, we are particularly enthusiastic about the use of video *clips* or cameos (Holtham, 2007). An extract has the advantage of focussing immediately on the key issues. If, for example, you have an hour long documentary and only a 50 minute teaching slot you are going to struggle to show the whole episode without incurring the wrath of whoever is scheduled next in your venue. No doubt one or two of your students will also be underwhelmed by your offer of some extra tuition. Selection of clips, rather than a full programme, frees up time for discussion, thereby enhancing the educational merit of the visual material. Furthermore, use of selected segments rather than whole episodes allows you to bring together clips from a variety of sources within the same presentation. In this way, representation of different viewpoints on a particular issue, for example the different approaches taken in ethical decision-making, is facilitated. We regularly use clips as scene-setters, as case studies, and/or to convey particular factual information in an engaging manner.

Thirdly, broadcast material can readily be obtained for educational purposes. The legal use of television programmes and films are subject to various regulations, some of which are jurisdiction-specific. In general terms, however, footage can be used freely provided that relatively straightforward conventions are adhered to (see, for example, the Educational Recording Agency website www.era.org.uk for licensing rules in the UK).

Fourthly, there is an important distinction between having permission to show broadcast material and knowing both what is available and how best to exploit the resource. Colleagues may require specialist assistance to locate and use appropriate clips. We have found that so-called Web 2.0 technologies, such as blogs and social bookmarking, are ideal for sharing practical suggestions regarding suitable footage. Our particular focus is on bioethics education, but the approach taken could easily be adapted to all manner of different subject disciplines.

The debt Bioethicsbytes owes to TRILT

Before turning specifically to the Bioethicsbytes project, it is important to draw attention to a fantastic resource available to academics in the UK. The Television and Radio Index for Learning and Teaching (TRILT, www.trilt.ac.uk) run by the British Universities Film and Video Council (BUFVC), provides two great services for knowing the details about broadcast programmes. Firstly, TRILT offers a searchable database of the transmission history covering terrestrial and satellite broadcasts since 1995. Each programme has a unique ID code, which can then be used to identify recordings available free of charge via the BUFVC's back-up service, an archive of programmes, including all terrestrial

broadcasts since June 2008. Secondly, TRILT can provide weekly e-mail alert warning you of any programmes coming up in the next fortnight that match your chosen keywords. There is no limit to the number of keywords you can employ, and these can range from quite broad categories through to the ID for one specific episode of a particular series if you are already aware of its pedagogic potential.

It was via a TRILT e-mail that we first became aware of an excellent resource for teaching about one of the most controversial areas of recent bioethics. A search for "stem cells" came up with a listing for *Kenny Dies*, an episode of the anarchic cartoon series *South Park* (Parker, 2001). Not renowned for its educational pedigree, *South Park* seemed an unlikely source, but on the strength of the alert we requested that the programme be recorded. As a consequence we unearthed a fantastic 90 second clip which, over the last three years, has been a staple component of our lectures and workshops on the science and ethics of stem cell biology.

The limitations of TRILT

The *South Park* example is particularly striking since we would not have known about it without the TRILT service. Invaluable as TRILT has proven, however, it is not realistic to expect a general-purpose alerting tool to include adequate information to highlight the subject-specific potential of all programmes, nor to make recommendations about how a particular clip might be incorporated into classroom activity.

A second example, *Better the devil you know*, an episode of the medical drama *Holby City* nicely illustrates the limitations of TRILT. The programme contains a very good cameo for introducing xenotransplantation, the suggestion that we might overcome shortages for human organ donation by using animal organs instead. The TRILT entry for this episode (ID: 005BD824) states "*Abra returns to Holby and clashes with Ric over the treatment of a terminally ill patient, when Abra decides to offer the patient an illegal transplant. Chrissie thinks she's cracked it with Sam*." Armed with this information alone, it is unlikely that the pedagogic value of the clip would have come to light.

It was clear therefore that despite the many benefits of TRILT, there was room for an additional service for sharing rather more specific advice on the use of multimedia resources in teaching about bioethics. Over the last two years we have been developing Bioethicsbytes to meet this need.

A Web 2.0 solution

Bioethicsbytes (www.bioethicsbytes.wordpress.com) is a weblog, or 'blog' for short. When blogging first started in the 1990s, it was initially seen as little more than a vehicle for sharing the contents of your personal diary with anyone who might be interested. The fact that some of the more salacious diaries inevitably proved to be early crowd-pleasers added to the slightly tawdry image of blogging as a means of communication. Within the last decade, however, blogging has grown into a global industry worth billions of dollars and the content of blogs has diversified (Technorati, 2008). Educational and academic blogging is now an increasingly respected activity to the extent, for example, that in August 2008 the Nature publishing group and the Royal Institution are co-hosting an inaugural conference on Science blogging.

The growth of blogging has been fuelled by the establishment of free blog-hosting services such as Blogger (www.blogger.com) and Wordpress (www.wordpress.com), the home of Bioethicsbytes. There are many advantages to using a blog-hosting service. Firstly, a range of off-the-shelf style sheets are available and you don't need to know any HTML in order to produce your blog, although an ability to work with code can help to improve the appearance of your site. Secondly, the service

includes in-built searches based on categories, tags or reader-selected keywords. Thirdly, the blogs have good visibility on Google and other search engines. Fourthly, an extensive range of statistical and tracking tools come as standard, thereby allowing you to know how many people have visited your site, how they found you and the specific pages they visited when they were there. Fifthly, the blog is interactive and responsive – unless you invoke restrictions, users are free to post comments and suggestions and, unlike more traditional media, the blog author(s) can edit the resources whenever it seems necessary or sensible so to do.

As Bioethicsbytes has evolved we have developed a range of posts. Reviews and recommendations regarding the usage of clips are the main format of blog entries. A variety of media genres are covered including films, TV fiction and documentaries, but also radio, books and podcasts.

The aim throughout is to deliver helpful information regarding the science, the ethics and the pedagogic potential of each of the multimedia resources. A review will typically summarise many of the key issues within the programme and highlight specific clips (via reference to timecodes) that are most useful for teaching on the topic. Where applicable, the relevant TRILT identification code is noted to assist users in ordering their own copy of the video/audio material. Exemplar questions for steering discussion based around the specified clip(s) are sometimes included, and worksheets in PDF format are provided for use with some videos. Our most academically rigorous entries are branded as “extended commentaries” and seek to consider the multimedia resource in the context of scholarly articles on the topic.

Clearly, Bioethicsbytes is an accumulative and ongoing project; previous entries remain valid provided (at least some of) the target audience can still access the relevant source materials. Guaranteeing access to the clips has, however, always been a concern – particularly with the increasing prominence of bioethics in the secondary education curricula. The resources generated on Bioethicsbytes have much potential for teachers in that sector, however most schools are not members of the BUFVC (for which a subscription is required) and thus cannot access their services.

The rapid rise of online video is now circumventing some of these difficulties; many valuable clips are ending up on sites such as YouTube and GoogleVideo (although the provenance is sometimes questionable) and news reports are also becoming a staple provision on the websites of broadcasters such as the BBC. We are therefore looking increasingly to the development of study guides and background briefings linked to freely available online media, which can then be streamed, or in some cases downloaded, for use in the classroom.

Other new innovations in Web 2.0 technologies are being incorporated alongside the core activities of Bioethicsbytes. For example, it has proven relatively trivial to add a “Bioethics in the news” sidebar fed automatically using a specific tag generated on Delicious, the social bookmarking service (http://delicious.com/chriswillmott/bioethics). These news articles are being tagged for a separate purpose, but the automated feed provides additional benefit to users of the Bioethicsbytes site.

In a separate development, we have recently started to distil information gleaned from TRILT and other sources into a page alerting users to upcoming television programmes that they may wish to record at the time of broadcast. This includes tried-and-tested material, which we may well have already described in the Bioethicsbytes reviews, as well as new documentaries and dramas that we anticipate will be relevant for the teaching of bioethics.

Conclusions

Bioethicsbytes has been developed as a means to promote the use of multimedia clips in teaching about the ethical issues associated with developments in biology and biomedicine. Despite being a field of increasing importance, the specifics of bioethics are likely to be outside the remit of most members of the DIVERSE community. Nevertheless, the approach undertaken in this project is

readily transferable to other disciplines, and as such Bioethicsbytes serves as a paradigm for both the use of clips of broadcast material and the use of emerging Web 2.0 technologies in enthusing and equipping teachers.

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2.2

Creating access to Europe's television heritage

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Introduction

Audiovisual material is a vital component of Europe's heritage, collective memory and identity – all our yesterdays – but it remains difficult to access.

Video Active (www.videoactive.eu) brings 11 leading European archives together (covering 10 languages) and offers multilingual access to thousands of items of television programs. Other archives are more than welcome to join the initiative. Video Active is a project funded within the eContentplus programme of the European Commission. The Video Active consortium gathered on September 27-29 for the kick-off meeting in 2006. Over thirty representatives from the participating organisations were present in Utrecht, the Netherlands. The project runs for three years.

The history of the 20th century is captured in moving images. In their early days, film and later television were not taken seriously by the cultural and political elite as media of great cultural value, but as the 20th century progressed (and society fundamentally democratised) an "audiovisual culture" emerged. Today, moving images are omnipresent; they are the most prominent tools for cultural expression and transmission of information. Europe's audiovisual heritage contains both a record and a representation of the past and as such it demonstrates at different levels the development of the 'audiovisual culture' we inhabit today. By making and showing images about us, in past and present, media, especially TV, have constituted (and still are) a collective memory, which in turn informs notions of cultural identity. It is through the continuous flow of images that television has given us 'images of ourselves' in changing times, however mainly framed within national borders. From the perspective of cultural heritage Video Active addresses both the observed demand for historical knowledge in general and the need for awareness of the diversity of European cultures and identities.

In most countries, it is no longer necessary to plead that film and television recordings merit preservation and require the proper storage and other facilities for their survival. The demand to access this invaluable resource is enormous and enjoys broad support across many user groups. (Edmondson, 2004) However, gaining access to the collections remains a challenging endeavour. Access remains restricted in the following ways:

- Geographic specificity - archives housing the collection are the only place where the material can be seen or heard. These may be national institutions hundreds of kilometres away from the student or citizen wishing to access the material.
- Costs – while some collections provide free access, others charge anything from a few Euros for a year's membership, to up to 15 or 20 Euros per hour for video or film access.
- Time-sensitivity – because the original material has to be kept in special storage conditions or because 'access copies' may have to be prepared, it often has to be booked weeks in advance.
- Uneven provision – while some public collections do actually allow the public to have access, others remain closed to all public access. The reasons for such restrictions are discussed in the next section.

Restricted access evidently has to do with technology (audiovisual archives require equipment to play the media) and secondly with legal issues. Copyright issues make it difficult to show the material publicly. Different national legislations make international exchange of audiovisual material even more difficult.

There is a third problem that Video Active aims to address, directly related to content enrichment: audiovisual material can only reveal cultural commonalities and differences when its origins are known and understood through signifying practice. Detailed descriptions of the original source and its context are however only seldom to be found.

Video Active is determined to tackle these issues. The project will bring together the leading audiovisual archives in Europe, building a portal of 20th century television material and, as such, contribute to the digital continuum of Europe's cultural heritage. (Laan, 2004) Each of the participating archives has hundreds of thousands hours of audio and video material in their collections, growing in steady pace every day.

Current developments in technology do challenge the relationship between archives and the public. During the past few years, media production companies have been transforming their tape-based production chains into fully digitised processes. Specialized media asset management systems together with digitisation of content-creation play a major role in transforming the archiving process from 'items on shelves' to 'files on mass storage'. This change removes the major technological and logistical barriers to providing ubiquitous archive access over networks. Archives are also digitising their old content, for preservation purposes. The EC project PrestoSpace found that a sample of 31-major European archives is planning to digitise 250.000 items per year during 2004-2006 (Wright, 2005). These changes in back-office processes in combination with widespread availability of broadband connections also have their effect on end-user services. The point of Video Active is to remove the remaining barriers of inertia, rights, organisation, signifying practice and metadata, and create European multilingual access to the European audiovisual heritage.

Already, content from various sources is accessible on-line using streaming media technology. To date, most of these services are aimed at professionals. The few sites offering free online access to their holdings are narrow in scope: be it in their coverage of the period, countries and topics they deal with. Video Active will explore new grounds; never before have so many audiovisual archives joined hands to create access to their holdings. Video Active's dissemination activities target to include all EC member states. The close collaboration with end users will guarantee a well-balanced contextualised collection of content. Access to the streaming media files will be free. Additionally, the portal offers the possibility for professional users to order high-resolution copies of the material. This novel strategy, a hybrid combination of Business-to-Business and Business to Consumer models, has been set up and tested within the BIRTH project (www.birth-of-tv.org).

The Video Active portal core components

Video Active builds upon the following existing assets:

1. Digitised content from the contributing archives;
2. Tested technical architecture for publishing audiovisual assets;
3. Technical platform developed within the BIRTH project;
4. An active academic user group, brought together in the European Television History Network

Ad 1. Digitised content from the contributing archives

Content selection will be based on comparable programme material from the different archive partners, which reflects the cultural and historical similarities and differences of television from across

the European Union. The partners in the project – and 'associates' to be recruited during the running of the project – are already digitising their archive contents for preservation. The digitisation includes material from the earliest recordings of TV on film, the so-called 'telerecordings' and other filmed television programmes. Digitised film material will include Newsreels, telerecordings of cultural and political events and early TV drama productions. Content is likely to include programmes demonstrating new technological developments in television (such as first trans-European broadcasts, videotape and colour television). It will include the development of common television genres, such as entertainment, popular music, comedy, news and fiction. Content will also look at historical moments that have shaped collective memory (such as the Prague Spring 1968) or major European competitions and contests (ranging from the Eurovision Song Contest to football and athletics), and have attempted to draw together and reveal the multiculturalism and diversity of Europe[1]. Content will also examine changes in everyday life, such as technology in the home and attitudes and policies relating to race, nationality and gender. Finally, the content will support serious study of issues such as the influence of media on religion, politics and sport and on popular and 'high' culture – issues where content from multiple countries allows many more analytical opportunities than is the case with 'mono-national' material. Content selection will be conducted in an active dialogue with the archive partners and with end users, in particular the academic members of the European Television History Network.

Ad 2. Tested technical architecture for publishing audiovisual assets

The workflow for publishing audiovisual assets developed within the BIRTH project (www.birth-of-tv.org) is used as a blueprint on which to base the implementation of the Video Active online services. This ensures that the Video Active platform for publishing and presenting audiovisual material online is being built on already established and tested components.

The design of the workflows and technical platform was based on the results of the market analysis user studies and technical infrastructure consortium partners have available. The high-level architecture is based on a combined approach of central content management for the public website and local content management for asset management (figure 1).

[1] Deutsche Welle operates the website Today in History (http://www.todayinhistory.de/) with information on many events over the past centuries. This information can be used to put the content in a historical context.

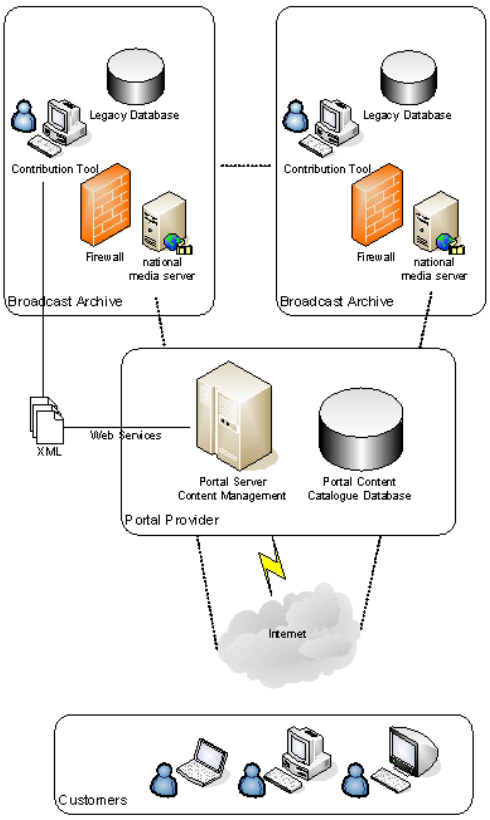

Fig. 1. Architecture

A central portal server and a metadata repository is the gateway to archives' workflow processes and end user services. A Contribution Tool (CT) is used to upload assets and media objects onto the website.

Users accessing the Video Active website retrieve metadata and visual content (metadata, key frames, photographs, PDF documents and online articles) from the central metadata repository; whereas audiovisual content will be retrieved from local media servers, i.e. servers situated in the respective countries where the archives are located.

This solution provides a remedy for broadcasters who are not allowed to host television archive content outside their respective countries due to IPR restrictions. Also, this network allows both a future use of the same media content for different online services (such as company internal websites on TV history) and an easy linking with other online media servers, e.g., from archives that will join the website consortium as external content providers.

Ad 3. Technical platform developed within the BIRTH project

Archive partners already have media asset systems operational; these systems are the major source for the Video Active portal; metadata will be exported and digitisation processes are managed by these media asset management system. That leaves three components in the architecture to be adapted and configured:

- **The Contribution Tool** (as built in the BIRTH project) will be adapted by Noterik Multimedia following user requirements studies and input from the semantic interoperability work;
- **The National Media Servers** are the video servers operated by each individual archive. In principle, hosting the video files is outside the scope of the project; it is up to the individual

archives to configure video servers of make arrangements with hosting parties in their respective countries. Alternatively, Noterik Multimedia is able to offer hosting facilities to the archive partners, but only if IPR restrictions allow hosting in another country;

- **The Video Active portal** provides the user experience; it's the front-end to the world. The portal also builds upon refined BIRTH components and will contains a variety of services in order to meet the demand from different user groups. But the look and feel and interactivities will be specially tuned to meet the requirements of the Video Active project.

Workflows for asset management

Each broadcaster has its own database and description method. For this reason standardisation is essential to meet the objectives. Therefore, parameters are defined to provide interoperable results on contributions. Areas include:

- Technical as well as descriptive metadata: A common data model will be designed and adopted according to international standards.
- Media object formats: Common standard formats will be adopted as well as conversion parameters.
- Exchange format specifications and communication interfaces for asset uploading with the Contribution Tool.
- Integration of thesaurus access functionalities into the Contribution Tool for aligned multilingual annotation.

The aim in designing the workflow is to allow content suppliers to transfer material to the portal in an easy, effective and aligned way. For these reasons the Contribution Tool has been developed. In general terms, the Contribution Tool is a client application *installed at every archive partner's premises*. Its basic functionality is to add essence, annotate corresponding metadata and to upload it to the portal. Metadata and images are stored directly at the portal; video material is stored on servers in the country of origin. The Contribution Tool is at the heart of the Video Active working processes. This is outlined in the functional diagram in figure 2.

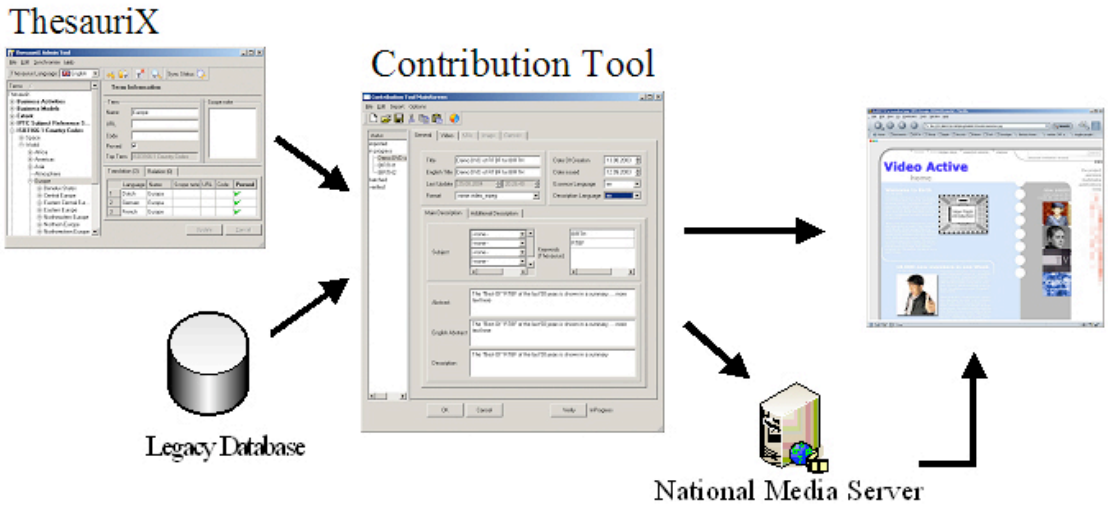

Fig. 2: The functioning of the contribution tool

The Contribution Tool enables archive partners to publish digital assets (video, PDF files, pictures) to the portal. Partners do not need to have direct Internet access to the web portal itself, but are able to use the offline CT to submit multiple assets. Once locally processed the CT then connects to the Video Active Portal using a web service. This web service is the final stage of pushing the digital item to the front-end, making them available in the Video Active Portal for users.

Advanced features such as generating key frames and transcoding tools are fully integrated in the Contribution Tool, making it the one-stop-shop for publishing content to the portal.

As noted above, the archives already have metadata and essence in their legacy catalogues[2].

- The Contribution Tool is able to import metadata in various formats, to perform mapping processes and to output uniform XML files, conforming to the Video Active metadata model. The Contribution tool is used for making additional annotations.
- The digitised assets are encoded in MPEG video format. MPEG is the non-proprietary standard for media storage and in use at all content providers. The CT tool launches (fully automated) several processes in the background; i.e. creating key frames, l streaming media encoders (Real, Windows Media, Quicktime) and uploading the content to the (local) steaming server.

To transcend language boundaries, a multilingual thesaurus has been set up. The Contribution Tool integrates the thesaurus by allowing the user to select thesaurus terms for several elements of the metadata. The actual management of the terms (translations, adding new entries etc.) is carried out by the ThesauriX tool.

The Video Active portal

The Video Active portal (front end) also builds upon refined BIRTH portal components and contains a variety of services in order to meet the demand from different user groups. It is fully multilingual; all editorial texts and menus are available in ten languages.

Metadata serve as a centralized starting point to access the archive. Once a user looks at the detail of an asset he not only gets flat text metadata, but also a glimpse of the actual content of the video by means of a key frame extraction, which is provided during the ingest of metadata by the archive. The integrated Multilingual Thesaurus enables users to browse through collections based on available themes. Users are not only able to enter a flat text search, but are able to graphically search and browse the archive by means of a Flash based timeline, which represents the archives in a new way. You will no longer see long lists with search results; rather the search result is shown in a dynamic visual environment.

Professional users are encouraged to use state of the art P2P technology available on the Portal, making it possible to order a license for a specific audiovisual asset. Once a user agrees on a fee with the rightful owner, the user is then granted access to an MPEG2 file, again made available using the Portal by means of a web service. The academic community is encouraged to publish knowledge-based articles, whereby other assets from the Portal such as photographs or TV guides can be cross-referenced using an online interface. Already existing tools are linked to the Video Active application that will update automatically and provide options to change the representation of the graphs and numbers in order to generate customized reports for system administrators and archive partners. Statistics should be consulted when determining quality of a digital item: number of times used in a

[2] List of functionalities: Import metadata from legacy database, Create new metadata, Encode streaming formats of archive videos, Create Articles, Upload new metadata to portal server, Upload already existing metadata to portal server (update functionality), Upload images/PDF/HTML to portal server, Upload streaming videos to national media server, A Key frame Extractor to create light tables and Key frame Editor to increase quality of light tables.

specific search query for example. Based on this statistical correspondence existing metadata could be extended/updated to increase similarity in future search actions.

In order to make archive content understandable and meaningful, all content will be accompanied by detailed descriptions of its original source and how it appeared there (TV channel, programme and schedule details; non-broadcast commissioning bodies such as trade unions; script material; lost material such as live and unrecorded introductions etc.). Users will be invited to contribute further material (e.g. reminiscences of seeing it at the time, or working on its production).

Cultural heritage collections are mostly indexed on the basis of strongly divergent metadata standards. For example, Dublin Core is used for simple discovery, SPECTRUM for rich collections information, AMICO for art museum images, MARC for bibliographic records, IMS for instructional materials, MPEG-7, OAI-MPH, VRA, and so on. This severely hampers the combination and opening up of such collections. The Video Active project focuses on semantic metadata interoperability by making semantic links using existing Semantic Web technologies. More specifically, ontology alignment tools, applying reasoning algorithms using transformation rules and performing metadata validation using classical ontology validation tools, will be examined and employed. Such interoperability will enable uniform access to heterogeneous collections and contribute to the opening up of cultural heritage.[3]

Most of the metadata standards, the past years, have been represented using Semantic Web languages (RDFS and OWL). However, there are still metadata standards that are represented in non Semantic Web languages (XML Schema or other). This causes interoperability, as metadata standards represented in RDF/OWL may not have the same semantics for the same semantic terms. Therefore, alignment between terms of different ontologies of the same language is also necessary (e.g. MPEG-7, VRA ontologies and IPTC core). Ontology alignment and mapping will enable semantic interoperability. A survey on existing tools for ontology alignment and mapping will be produced and the best (open source) tool will be adapted and used according to the projects needs. Furthermore, existing rule-based reasoners (SWRL, HOOLET, PROLOG) will be employed to enforce semantic interoperability. Rules are used to encode ones' knowledge about certain actions that have to be followed when a certain set of preconditions hold. Rules can be used to encode the knowledge of an expert. Using the mapping rules, metadata schemas integration and alignment will be achieved.

The goal of Video Active is to use available vocabularies, technology and tools for knowledge representation, extraction and usage. This architecture and infrastructure, which provides a widely interoperable environment for delivery of the prototype services, focused on the needs of the identified end users for easy-to-use access to the available content on. In part this will involve an exercise to map and harmonise all metadata schemas and repositories in use across the consortium and create a prototype metadata registry.

The user groups

The demand for access the invaluable resources that our cultural heritage represents and in which the cultural memory of Europe is stored, is enormous and enjoys broad support across many user groups. Access to audiovisual material is a priority for digital library content in the USA, UK, Netherlands, France and Italy (to cite just the most obvious examples), but none of the national projects extends across multinational and multilingual boundaries, and most are confined to higher education. (See "Digital Library Audiovisual Priority reference" in the References section) The growing investments by national governments and international bodies for digitisation activities indicate that activities meeting these demands receive strong political support (Minerva 2004). For historical

[3] Some examples of successful applications include: Oaister (http://oaister.umdl.umich.edu/o/oaister/) and Picture Australia (http://www.pictureaustralia.org/)

reasons, the collections of physical archive materials have tended to reside in a large number of cultural heritage institutions. This poses limitations for both visitors and researchers. The use of advanced ICT technology will bridge this gap and lead towards a digital continuum of Europe's cultural heritage resources (Laan 2004, Veltman 2003).

Initiatives going in the direction of this development are found in governmental documents and in (pilot) projects by national and international government bodies that encourage establishing a digital infrastructure for cultural heritage. The Video Active project takes these projects into account and offers additional and sustained benefits to the large digitising investments of the cultural heritage sector. The Video Active portal will enable novel ways of exploring heterogeneous collections of audiovisual material across nations and across languages, combining existing technology and providing visitors unprecedented views on Europe's collective memory.

We distinguish three main sectors that will benefit from the outcomes of the project: **Education**, **General Public** and the **Cultural Heritage** sector.

The consortium is well aware of the changes in structures and organisations that technological progress and the role of ICT has brought to schools and universities. The Internet has been instrumental in making culture and cultural education more accessible to the younger generation. Increased connectivity and the key words 'interactivity', 'life long learning' and 'learning in real-life contexts' as the prerequisite for good educational practice come together in the demand for totally integrated use of digital cultural heritage in education.

The Video Active application will benefit all stages of education; from primary education to further and higher education. Digitisation of archive content transforms cultural heritage into flexible 'learning objects' that can easily be integrated into today's teaching and learning strategies. By using Video Active's search engine, the educational sector is able to exploit, enjoy and learn from cultural heritage collections as it provides:

- Ubiquitous access. Video Active will offer the user multilingual access to multimedia content through query, browse and navigation facilities. Students and teachers can browse through collections of material when they want and wherever they want.
- Seamless integration. By using open standards in terms of metadata and presentation of retrieved documents, material found using Video Active is highly flexible and adaptable. For example, the objects can be integrated in repositories relying on the IEEE LOM (http://ltsc.ieee.org/wg12/) metadata schema.
- Exploring new possibilities. Video Active will provide access to material that has been locked away in the past.

Example cases of the three main education segments and links to some reference applications are mentioned below.

Primary education	**Secondary education**	**Higher and Further Education**
Children will use Video Active to become acquainted with online repositories. Children search the portal, and study the digital resources that are related to courses they are studying, for example history classes. Alternate views are offered, allowing these young users to	Students can use the Video Active resources in language courses where they look at news broadcasts, texts, and other cultural artefacts and study the differences between the various cultures. Using external tools like	Video Active offers web-based tools enabling users to export links to digitised content. Faculties of 'European Studies' can conduct comparative research on the media coverage of EC related issues in various member states. References can be

browse through the collection, i.e. without having to type in search queries.	videoconferencing, students can use Video Active as a shared resource to promote exchange and discussion.	made to the source material and are immediately retraceable. Research data and findings can be published online.
reference applications: http://www.show.me.uk/ http://www.ebu.ch/en/television/collections/changes.php	reference applications: www.movinghere.org.uk/ www.historicalvoices.org	reference applications: www.merlot.org/ http://www.cemp.ac.uk/

General public (cultural tourism and the media consumers at large)

Cultural heritage is of interest to everyone, not just specialists and students. The 19th century saw a huge development in museums, libraries, galleries and related heritage institutions, all with public access. Many such institutions have very low charges – or are free – in order to make access truly public and democratic. Audiovisual collections are much less accessible and democratic. Broadcast archives are closed to the public, most 'public' film and video institutions charge by the hour for personal access, and many such institutions are not actually public. Instead, they require proof of research status before allowing access to the general collections.

Not all serious researchers are lecturers or graduate students. Members of the general public have serious interests: in their family history, or matters relating to their work and leisure activities, or concerns about their local area, its politics, history and future. It is very hard to think of a matter of general or even specialist interest that would not relate to audiovisual material – if only that material could be found and accessed. Therefore a vital concern of Video Active is making audiovisual material accessible to the average citizen.

Current research indicates a growing interest in history by the general public. (Raad, 2003; Minerva, 2004) High-quality presentations of and access to Europe's cultural heritage via Internet will attract more visitors to these sites and collections. There is a clear market potential for the services offered by Video Active (Laan, 2004; Buchholz, 2004). The objectives are completely in line with current trends in public media consumption:

- The Internet and rich media experiences. With the steady increase of connectivity over high-speed connections, online services are becoming daily media experiences and they will keep changing the media landscape. More and more digital content is made available online and the use is growing rapidly (Building, 2004; Minerva, 2004). The quality of this web-delivered content is reaching very high standards (Gilmer, 2004, Geser 2005).
- The WWW as a social phenomenon. People are primarily using the network to support an ever-expanding menu of social interactions (Manovic, 2001; Fox 2005). Thus, successful resources should enable these interactions. The Video Active portal will enable visitors to leave their own comments and contributions, create links etc.; it will grow to be an active space where users meet to share and create new knowledge.
- Contextual information. For a wide range of users to both understand and interpret the archive content it is necessary to provide contextual information. The Video Active project will include knowledge-based articles about particular developments, moments and trends in European and broadcasting history. It will also complement moving image archive content with additional materials such as still photographs, scanned documents and correspondence. This will be necessary not only to make historical understanding possible for different levels of user, of

different ages with different knowledge bases, but will also make the content understandable for users from different countries and cultural contexts. Translation, interpretation, contextualisation, re-presentation for optimal understanding by people of different ages or expertise would be necessary to make all this information accessible (Bearman, 2004).

- Importance of 'media literacy'. Actively using moving images involves understanding of how media work and how they produce meaning. The content-based user environment that the Video Active portal will offer stimulates an active use and a critical interpretation of media as sources of cultural understanding.

Cultural Heritage (including audiovisual archives)

The digital age also has its impact on the work of professionals in the CH domain, such as museum curators, organisers of exhibitions, journalists, documentalists, etc. They can conduct their activities and render services faster, better, more efficiently and sometimes at a lower cost. In short, a so-called e-culture is emerging.

The significance and importance of the cultural heritage sector is most prominent in its interaction with education and the general public. (Hyvönen, 2004). Art, culture, and historical objects can be made accessible to any person interested, twenty-four hours a day, all over the world, without any damage to the objects, and without human intervention. In addition to these processes relating to cultural expression and reflection, e-culture also encompasses the provision of information on culture and in some cases of more general information.

Additionally, in the digital age, the value of CH institutions lies increasingly in their role as mediators between networks that produce culture and impart meaning. More and more, they will find themselves contributing their knowledge and content within a cultural arena where a host of highly diverse players are in action, including non-cultural sector institutions, as well as the audience or users. This implies that the added value of CH organisations is increasingly dependent on the extent to which they are able to make knowledge sharing, crossovers, and structural cooperation part of their 'core business'. Video Active will play an important role, as it enables the CH sector to:

- Increase revenues of their copyrighted material in new publications (documentaries, textbooks, etc.);
- Combine wide ranges of different knowledge sources to establish new insights;
- Make it possible to make heterogeneous audiovisual collections of different kinds mutually interoperable. This enables, for instance, the creation of large inter-archival exhibitions thus adding new meaning or making them accessible to a different or larger audience;
- Video Active also presents greater opportunities for contact with users. In principle, users could link their own knowledge and artefacts to those of professional organisations by using Amazon-like inferences and interactivities;

Description of the underlying data and sources

Eleven archives are represented in the consortium; Broadcast archives (BBC-UK, DR-Denmark, DW-Germany, ORF-Austria, RTBF-Belgium, TVC-Spain) as well as National Archives (SLBA-Sweden, SV-Netherlands, NeumannKht-Hungary, NTUA-Greece, Luce-Italy). Added up, their collections comprise of over four and a half million hours of audio and video material from 1890 to now and represent a major part of Europe's audiovisual heritage. This unique content covers all major European languages, subjects and cultures. As outlined above Video Active will focus on certain content themes that reflect the cultural and historical similarities and differences of television from across the European Union.

Noterik Multimedia is specialised in web applications dealing with streaming media. Clients of Noterik include European broadcasters, the European Commission and national research and educational

networks. Noterik has built the BIRTH portal (www.birth-of-tv.org) and will be the major technical partner of Video Active.

The second technical partner is the National Technical University of Athens. It has responsibility for coordination of the semantic interoperability work package. Apart from participating in several FP5 projects, NTUA is one of the leading participants of the W3C working group "Multimedia Annotation on the Semantic Web". Their leading expertise is this field is highly recognised.

Two world-renown departments in the field of media history compliment the Video Active consortium. The faculties are headed by leading academics Prof. Dr. Sonja de Leeuw of Utrecht University and Prof. John Ellis of Royal Holloway University of London. In particular, they both have organised workshops, conferences and collaborative research projects involving participation across Europe, demonstrating their strong commitment to an international and multicultural approach to media studies.

Content on the portal

Digitisation has become daily routine for the majority of archives participating in Video Active. The long-term preservation of media assets is a primary objective of most audiovisual archives. When an archive has a collection on discrete media, in either a digital or analogue format, this preservation work can involve a continual process of migration of content from old to new media. Media formats become obsolete. Once media content is migrated to discrete individual specialised media storage formats and onto a mass storage platform this issue is mitigated to an enormous extent, due to three main factors:

- Moving to mass storage breaks the link between physical format and data format. This means that the process of transferring data between physical formats is less complex and no longer dependant upon technologies approaching obsolescence.
- The available physical storage media are no longer limited to specialised broadcast and professional audiovisual formats only.
- Digital transcription between successive generations of media has no negative impact on the quality.

The digitised assets are being regarded as the primary reference copies, so this implies that quality assurance measures are in place. Video Active partners have proven knowledge on this, as they are or have been involved in initiatives to promote the uptake of digitisation[4].

Video Active aims at putting on line a quantity of 10.000 items, enriched with well-defined metadata and with contextualizing descriptions of its original source and content. Earlier experiences such as the Birth project and BBC Creative Archive tell that reaching this amount could be considered an enormous achievement. In this respect it is useful to emphasize Video Active's basic assumption that quantity follows quality. There are examples where masses of audiovisual content have already been put online, however, the metadata being incomplete or simply wrong this is very often content that can't be searched and used. The specific choice of items in combination with an enrichment of the metadata and contextualized descriptions of source and content makes the platform of Video Active unique.

As far as the choice of items is considered Video Active first and foremost focuses on topics that are capable of enhancing an understanding of the shared histories and interrelationships that have shaped collective European memory and identity and that could be considered having contributed to the notion of European citizenship. Also and at the same time it will select topics that are able to

[4] For example: PrestoSpace (http://www.prestospace.org/), FIRST (http://www.film-first.org/), TAPE (http://www.tape-online.net).

demonstrate the multicultural dimensions that have also shaped European citizenship. On top of that Video Active will explore the historical role of the media in shaping these European experiences.

By definition the content covers the eleven countries involved in the project. Furthermore it is the aim of Video Active to enlarge the group of contributors as early as possible in the project. It is realistic to expect several archives to supply material and in return Video Active will give them exposure. These expanded 'contributors' will supply additional content.

Copyrighs

The rights issues involved in television material are complex. In general, a broadcaster pays for the right to broadcast a programme one or a few times. All further use is subject to further negotiations and payments. As the web has developed over the last decade this situation has changed a bit and contracts have started to cover ‘all rights’ and Internet rights. However this does not mean the material cannot be used – it simply means that a rights examination and clearance procedure has to be followed. Certain agreements have to be made to rights owners or their representative agencies.

The BIRTH project has shown that it is possible to clear the rights on hundreds of hours of significant content without undue expense. In some cases background music or identifiable personalities have had to be edited out, but the vast range of factual material, covering news, current affairs and documentaries, does not have complex or expensive rights issues.

There are unresolved issues because of copyright law differences across the European Union. Until there is no harmonisation of the legislation, some countries insist that material cleared for copyright restrictions under their national law must also be ‘published’ (*streamed* in the case of audiovisual materials on the internet) within the country. To satisfy such restrictions the project will have a flexible technical architecture, allowing material to be physically located (have its streaming server) in any of the partner locations – as well as supporting streaming from the central website server.

Multilingual and/or multicultural aspects

A web portal like Video Active can only be of true value for the users if the issue of multilinguality is solved. In the BIRTH project this issue was successfully tackled by introducing a multilingual thesaurus and the ThesauriX software. The Video Active web portal will be able to handle metadata in different languages (at least ten languages - English, French, German, Dutch, Greek, Italian, Hungarian, Catalan, Swedish and Danish - are going to be supported) and thus enable access to a homogeneous user group.

The different multilingual approaches to navigate through the Video Active content are:

1. The powerful use of multilingual thesauri;

2. Translation of key elements;

3. Timeline view;

4. Articles with hyperlinks.

Ad. 1. The powerful use of multilingual thesauri.
If a user types in a query in his native language, it is mapped to terms in the multilingual thesaurus. Subsequently, a new query is launched, containing translations of the original terms, retrieving items from different countries. BIRTH has built -and adopted- thesauri for the metadata elements: Genres, Keywords and Location. Regarding the keywords, BIRTH offers the users of the portal the possibility to browse a tree-structured list of thematic keywords, available in several languages (the already

existing IPTC thesaurus, http://www.iptc.org/metadata/) and to add additional keywords to this thesaurus if needed. A similar approach was adopted for geographical names. Here, the ISO 3166[5] is used. At this level the multilingual thesauri provide direct tools for addressing multicultural aspects as they enable to search across cultural boundaries. Handling the translation of well over a thousand terms and the export of these terms in machine readable XML is done in a specialised application called the ThesauriX AdminTool. It allows the editing of the thesaurus content in a relational manner.

The ThesauriX AdminTool enables the user to create and manage one or more thesaurus databases by providing an hierarchical ordering of terms, multi-language support, adding relations (e.g. synonym) between terms and more. Beside the creating and editing of multiple new terms and translations, the ThesauriX AdminTool provides the ability to synchronise several thesaurus installations to a master database (figure 3). This offers the archive partners of Video Active the possibility to translate and extend the thesaurus in a simple way - without manually distributing their new terms to the other partners - which is done automatically.

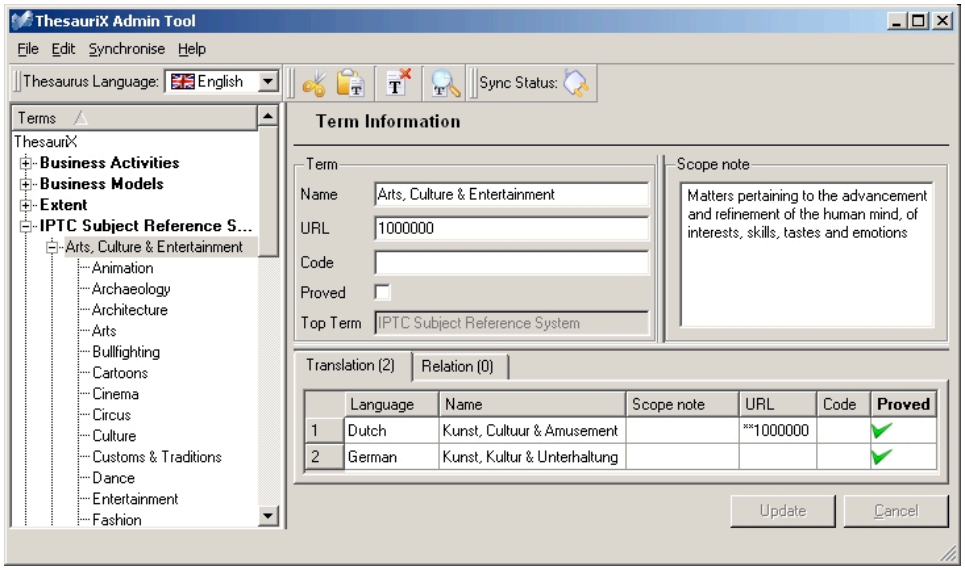

Fig. 3: ThesauriX AdminTool interface as used in the BIRTH project

Ad. 2. Translation of key elements.
As the partners in Video Active all use their proprietary metadata schemes the Video Active project consortium will have to agree upon a common metadata structure. It is expected that some of the elements fields (i.e. title, summary of the contents) will be translated in English and thus act as a uniform access point.

Ad. 3. Timeline view.
For the users, one of the most appealing parts of the Video Active website will be the Television History Timeline, that will provide a visual overview over the milestones in the development of television in Europe. Users can intuitively manoeuvre through the different axes of the website and directly view the content. The timeline view supplies the user with an alternative view on the collection without having to enter search terms.

Ad. 4. Articles with hyperlinks.
The fourth way to access the content in a more or less language independent way is through media articles. Consortium members and academics will write short articles on pre-defined topics serving as introductions to the content on the portal. The articles will be written in each member's native language as well as in English.

[5] http://www.iso.org/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/list-en1.html

Concluding remarks

Once established, Video Active will serve as an actual and future multilingual platform for all heritage organisations with moving image content. This is to be achieved by using in the Video Active project a flexible technical platform to which new collections can be added, enabling the growth of content and potential users over the years. Moreover the portal will provide a wide range of metadata, and will comply with international interoperability standards.

Europe is at the beginning of organising its own electronic cultural and educational resources. There is growing recognition, as in the EC Commission Communication "i2010 Digital Libraries" (COM (2005) 465 final), that a national approach is inadequate to meet the European need to compete internationally in the 'information arena'. If Europe is to counter the explosion in public access to US-based digital library materials (digitised books, newspapers, radio and television), the Commission has recognised that what is needed is European resources of the same scale and significance: a European virtual library. Video Active will prepare the "television holdings" portion of that virtual library.

In practical terms, the consortium members defined an exploitation plan explaining in detail how the output of the project would be introduced into common and individual strategies. In particular, the consortium identified the services and/or the products that could be derived from the project results, based on a scientific/technological survey and on a market survey.

Other archives are invited to join. Video Active is already in contact with additional content providers. These additional parties will use the same architecture to upload parts of their holdings to the videoactive website.

2.3

Introducing XIMPEL – The eXtensible Interactive Media Player for Entertainment and Learning

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Abstract

The use of online video has increased rapidly during the past years. People are actively creating and sharing their videos. These videos are mainly presented in a linear way, while interactivity could be a valuable addition.

In this paper we argue that, based on the increased amount of broadband available, the large number of online videos (e.g. on YouTube and archive.org) and the promising combination of Adobe Flex and XML, it is time to rethink and explore the possible role and form of interactive video in both education and entertainment.

Therefore, we introduce XIMPEL[6], a framework for interactive video, and offer an application that can be used online. The resulting application, developed at VU University, uses existing video material with which users can create interactive storylines, and may be combined with gameplay. This prototype has been used in a serious gaming context for the Clima Futura climate project, and has been tested in various (educational) settings.

In this paper, we will discuss the basic concepts of XIMPEL, its relations with Clima Futura and the technical basics. Furthermore, we present the experiences of using XIMPEL in an educational setting. Our approach to interactive video results in new challenges in narratives and rhetoric, which are also hinted at in the paper. We conclude by indicating possible future applications, and by suggesting further research in the field of interactive media.

Introduction

These days, many people use the internet to actively watch and share videos online. Websites like youtube.com offer the possibility to share these videos with a huge audience. Social networking sites extend these possibilities, by offering easy opportunities to share videos with friends. At the same time, the availability of video material is increasing. Digital video cameras have become affordable, and are even integrated in (cheap) cell phones. Repositories like archive.org also offer a wealth of (pre-recorded) video material, even in the public domain.

Still, the popularity of video on the web does not (yet) result in new methods to represent videos on the web, although the possibilities of (Flash-based) online video editing systems are expanding. For example, with JumpCut7 users can edit and remix videos, and use each other's material. Despite these developments, it is not yet possible to add real interaction; videos are mainly presented in a linear way. To add more interactivity to videos on the web, we have created the XIMPEL framework.

[6] ximpel.net
[7] jumpcut.com

The open XIMPEL Interactive Video Format allows people to create their own interactive media applications, and to share these online. These applications contain interactive elements and can be extended with (serious) gaming elements and scoring mechanisms. XIMPEL is based on Adobe Flex, combined with an XML-based annotation scheme. XIMPEL's component based structure allows for the expansion of the framework with additional elements, such as mini-games and questionnaires.

XIMPEL has received a positive response: various organisations have showed interest in using and possibly extending the XIMPEL platform.

Structure

In this paper, we start by discussing the basics of XIMPEL, including its video description format. Then we look at current applications of XIMPEL in a serious gaming context and in education at VU University Amsterdam. We continue by describing story graphs and narratives. Subsequently we show some rhetoric issues. Finally, we will discuss the conclusions and future work.

XIMPEL basics

An introduction to interactive video

Interactive video is an important element of the XIMPEL framework. A basic property of regular (linear) video is that the sequence of events is already defined. In an interactive video (or *hypervideo*), the user makes choices that influence the presented material. So the storyline of interactive video is determined by the viewer. By making decisions, discovering additional storylines and answering questions, players will make their way through the material.

To define interactive video more precisely, we can use a definition:

> A video application is interactive if the user affects the flow of the video and that influence, in turn, affects the user's future choices. (Stenzler & Eckert, 1996).

So true interactive video should provide something more than standard navigation or information retrieval; it should adapt itself to the choices of the user. However, the dynamic structure of interactive video also creates some issues regarding narratives and rhetoric structure; these will be discussed in a later section of this paper.

XIMPEL technology and features

XIMPEL is based on the open-source Adobe Flex[8] framework. Applications made using Flex can be played on all computers with a web browser and the Adobe Flash plug-in. Interactive applications made in XIMPEL can be viewed locally as well as on the Internet.

In short, XIMPEL offers the following features:

- Customizable, clickable overlays and visuals, which can be used to:
  - Access different branches of the storyline
  - Link to both internal and external information sources
- Customizable questions (during the videos)
- A scoring mechanism to weight the choices made and the answers given
- Modularity, as XIMPEL can incorporate the user's own (Flash) mini-games[9], questionnaires, etc.

[8] http://www.adobe.com/products/flex/

[9] Short and simple games that focus on a certain subject and usually take no longer than a couple of minutes to play

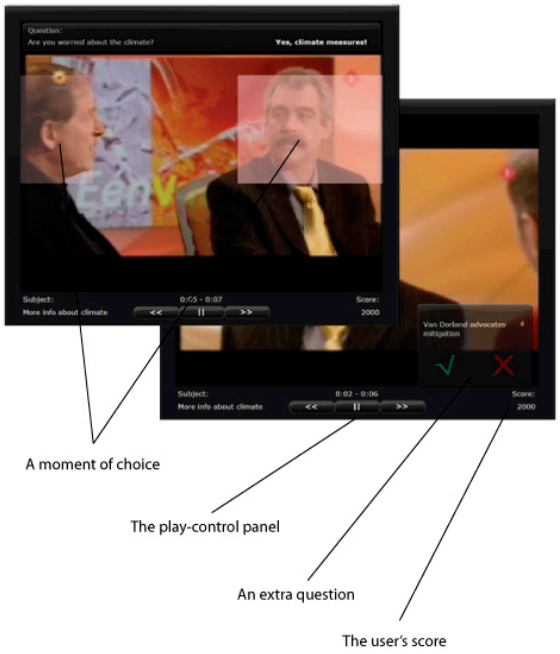

Figure 1: A visual overview of XIMPEL's features

All of the variables, such as the clips to be shown, the branches, overlays, questions and score points, are modifiable through an XML configuration file, which is read by the XIMPEL Player.

Video Description Format (XML)

To clarify the XML-based structure of XIMPEL, an excerpt of an XML-file is given below (available in an online tutorial[10]).

```
<subject name="ExpertDebate">
        <longname>Discussion between Van Dorland and Kroonenberg</longname>
        <score>2</score>
        <videos>
                <video file="debate-01"></video>
                <video file="debate-02"></video>
                <video file="debate-03">
                        <question>Van Dorland is against mitigation</question>
                        <rightanswer>false</rightanswer>
                </video>
</subject>
```

[10] www.cs.vu.nl/~eliens/im/local/intro-iv.pdf

The video configuration file above consists of a playlist. A playlist can contain a number of subjects (which incorporate related videos). These subjects can be linked to each other and provide choices to the user. Video overlays can be used to visualize these moments (clickable areas in the video).

In the basic example there is one subject. It has, besides an internal name, a 'longname'. This is a meaningful name to the subject, which is shown in the XIMPEL player. A 'score' is defined, to assign points to the choice of certain subjects by the user. The video files in the subject are played in sequence. The third video contains a 'question', which is shown during the video. This is usually a statement about the current clip, and it can either be right or wrong (answering correctly results in bonus points).

As described in Eliens et al. (2008), the XIMPEL Interactive Video Format supports the following basic elements:

- subject(s) – with video fragments
- video(s) – to present the material
- question(s) – transitory or modal branching
- overlay(s) – to indicate choice point(s) for branching
- score(s) – assigning points

Several additional options are available for defining the visual overlays on a video (for example by using semi-transparent images).

Availability

Since October 2008, a basic version of XIMPEL can be downloaded from the official website[11], free of charge. With this basic version, it is possible to create your own interactive video application, by editing the XML configuration file. Furthermore, it is possible to configure different settings, like the displayed information texts and images. Basic tutorials to ease the creation of interactive video applications are available.

At a later stage, a more advanced version of XIMPEL will be made available, which allows for the addition of extra components and advanced visual design of the player.

XIMPEL applications

Clima Futura

The first usage of XIMPEL was as a pilot for the Clima Futura[12] project, which involved the creation of a (serious) game about climate change (see Eliens et al. 2007). Clima Futura is a turn-based game, in which the player is confronted with a climate change and its related problems. The player's decisions are reflected in the game result parameters (people, planet and profit). Other important elements of Clima Futura are mini-games and interactive video.

The Clima Futura interactive video pilot offered an introduction to the subject of climate change. A player can make decisions, discover (hidden) storylines and answer questions. The experiences with this Clima Futura pilot served as a basis for the further development of the platform.

XIMPEL in educational settings

[11] www.ximpel.net

[12] www.climafutura.nl

XIMPEL has also been applied in educational settings. The first tryout was during the '*Bètadag*'. The Bètadag is a one-day program for high school students and serves as an introduction to science at the university. They were assigned to create a simple interactive video by following a tutorial and modifying a playlist.

The second application of XIMPEL was in the undergraduate course *project interactive multimedia*. This course was given at the Faculty of Science of VU University and followed by students Computer Science and Information Sciences. The general assignment for this course was:

> To design and develop a moderately complex multimedia application, with both educational and game elements, as part of a communication strategy for some particular goal or issue of societal relevance. (Eliens et al. 2008)

Students had to create a (short) viral video and an interactive version, using XIMPEL. The XIMPEL platform was still in development at that time, so the major question was if students could express themselves sufficiently using XIMPEL. Furthermore, the technical stability of XIMPEL as a platform still needed to be proven.

Results

The results of the course positively surprised us. The students created very diverse applications, and showed us new ideas. The applications can roughly be divided in applications that represented information, provided classifications and even resembled games. A selection of our favourite applications is available via our website. The viral videos can be viewed via the *vumedia* channel on YouTube[13].

The first category of the resulting applications mainly consisted of tours through the VU University. In these applications, users could for example choose a direction or subject to view at branch points. Some applications showed (graphical) selection menus, and users could return to these menus via cycles in the graph structure.

Other applications provided basic classifications, giving feedback to the user, for example by indicating what kind of student the player is or which study to choose (based on the player's choices).

Thirdly, there are the applications that resemble games. One group made an application using a real-life version of the Mario character. The player can take decisions in order to advance through the VU-building. By using the music and typical assets of the Mario game, this was a major step towards gameplay. What it still missed, though, was a clear goal and scoring mechanism.

Feedback

Student feedback after the project was generally positive. While reluctant at first to create interactive videos themselves, afterwards they said that it was simpler than they thought (quoting a student: 'XIMPEL is simple'). Of course, there were also requests by students about additional functionality, for example about a higher number of possible overlays. Many of these requests were implemented later on.

Students also asked if they could add new functionality themselves. To this end, a custom version of XIMPEL was made available. In this version, students could add extensions, provide new functionality, and alter the visual design of the application. Various refinements made by students have already been incorporated into the XIMPEL platform.

[13] youtube.com/vumedia

Story graphs and narratives

The student's assignments in the *Project interactive multimedia* course involved several phases: *concept*, *scenario*, *story graph*, *acquiring assets* and *final production*. The story graphs provided the opportunity to review the complexity of the scenario and how to realize it, so they were an important aspect of the process. Story graphs can be defined as:

> Directed graphs in which each node represents a linear, scripted scene, followed by a decision point. Arcs between nodes represent decisions a user can make. (Riedl & Young, 2006).

The students were free in their exact representation of the graphs. As figure 2a, 2b and 2c show, their results differed vastly, and students showed much creativity in visualizing the graph, using icons and plain text.

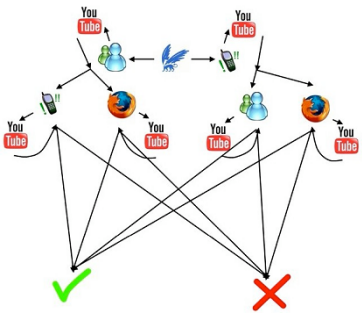

Figure 2a: SMS/MSN (205);

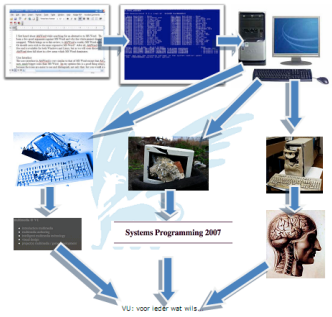

Figure 2b: Course(s) (301);

Figure 2c: Exchange (213)

Students also used different conceptual elements in their graph structure: branching and converging storylines, redundant video material and cycles. These elements influence the narratives in interactive video.

Narrative form

Narrative, in film theory, is defined as 'a chain of events in cause-effect relationship occurring in time - and space' (Bordwell & Thompson, 2001). To make sense of a narrative, we identify its events and link them by cause and effect. Of course, film makes use of linear narratives, in which a sequence of events unfolds without user interaction. In interactive video users can make decisions and thus influence the way the story unfolds. Because of this influence, new challenges with respect to narrative occur.

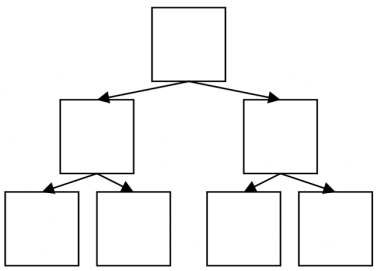

Figure 3: Branching paths

A basic property of narrative in interactive video is the branching structure (figure 3). Videos link to other videos, often providing opportunities for the user to choose between multiple options. An inherent problem of the branching structure is that the user does not see every video. This means that a large amount of video material has to be used. Also, the complexity of a branching video structure steadily increases when new branch points are added. This can partially be circumvented by creating sequences of videos without link opportunities.

In narrative, user interaction can also cause some issues. One is the 'conflict of control and coherence' (Riedl & Young, 2006). The higher the degree of control of a user, the more difficult it will be to ensure that the story remains coherent and the user's actions do not interfere with the causal dependencies. To some extent this can be circumvented by using converging paths in the narrative structure (figure 4), in order to ensure that certain videos are always viewed: to provide *closure*. (Eliens et al. 2008). These clips could be vital story elements.

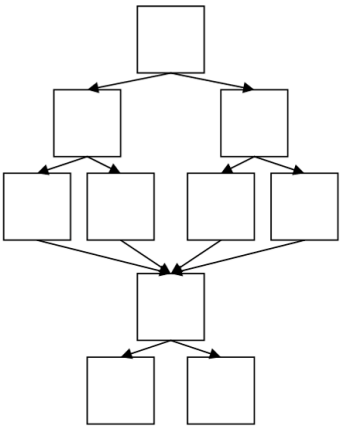

Figure 4: Converging paths in a branching structure

Argument and rhetori

Interactive video is not only about narratives. In video, often opinions and arguments are expressed. If you want to convey a particular message or reach a certain goal, which we can loosely describe as 'creating climate awareness' in the case of Clima Futura, it is needed to consider the rhetoric form.

Bordwell & Thompson (2001) describe, in the context of documentaries, the four basic attributes of rhetorical form:

- It addresses the audience openly, trying to change its conviction, attitude or to take action
- Often, the subject (..) is not one of scientific truth, but of a matter of opinion
- If the conclusion cannot be proved beyond question, the maker often appeals to our emotions
- Often arguments are not presented as arguments, but as observations or factual conclusions

To persuade the audience, different arguments can be used. These can be *arguments from source*, *subject-centred arguments* and *viewer-centred arguments* (Bordwell & Thompson, 2001). Arguments from source try to convince the viewer that the film is a reliable source of information (for example by using a narrator with an authoritative voice). Subject-centred arguments are about the film's subject matter, and often use common beliefs, example and logic. Viewer-centred arguments are arguments that appeal to the viewer's emotions.

Authors of interactive videos can use the argument types in their storyline (depending on the goal of the interactive video application), to influence viewers and their choices.

As Bocconi (2006) states, these argument types can be traced back to Aristotle's categories of persuasion, in his book Rhetoric (1954). Therefore we can distinguish:

- *Ethos*: appeal to the speaker's reputation
- *Logos*: appeal to logic or reason
- *Pathos*: appeal to the emotions of the audience

Rabiger (1998) also discusses different ways a documentary maker can behave. A *propagandist* shows only the evidence supporting predetermined conclusions. A *binary communicator* gives equal coverage to both sides in a controversy. Finally, a *mind-opener* aims at expanding the viewers mind, without manipulating, and presenting a subject in all its complexity.

When authoring an interactive video, it is also possible to behave differently. For example, you can choose to be a mind-opener, expanding the viewer's mind, or be a propagandist. You can decide whether or not you show different views on a subject. Additional challenges can be added, based on the user's choices, by presenting contradicting and complying evidence.

Conclusions and future work

In this paper, we presented the XIMPEL interactive video platform. With XIMPEL, interactive storylines can be created, that may be combined with gaming elements. The first release of XIMPEL is available for download at ximpel.net. We are actively developing the platform, and will offer new features in the future.

Further research in the field of interactive media will contain several topics, like more automated forms of video playlist creation, the inclusion of more game elements and new representations of interactive video.

Finally, the reception of the XIMPEL platform at several occasions, like the DIVERSE 2008 conference, showed that there is a lot of interest in it. In the future we hope to be able to use this interest to improve and extend the XIMPEL platform further.

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Section 3. Videoconferencing in learning and teaching

3.1

Videoconferencing as a New Medium in the Classroom - The Students' Perspective

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Abstract:

This paper describes a survey of student attitudes towards videoconferencing as a new mode of classroom interaction. The data was obtained through a series of questionnaires, observations and interviews, mapping out what students learnt from the experience of participating in a videoconference and what they felt about using this new means of interactive communication with people from different cultural backgrounds.

All interviewees were students at the tertiary level. Two groups were undergraduates from Masaryk University in the Czech Republic, one consisting of law students, the other of students of social sciences. They were interacting with two groups of exchange students, mostly European and Asian, currently studying or preparing to study at the University of Aberystwith in Wales, UK. The findings have shown that the participants had to overcome more obstacles than merely communicating in a foreign language, i.e. English. They had to, among other, acquire a special set of social skills, develop multi-cultural awareness and pay special attention to the technical aspect of the communicative event.

Videoconferencing as a New Medium in the Classroom - The Students' Perspective

The research described in this paper is a part of a two-year long Leonardo da Vinci project started in the Autumn of 2006 and entitled: "Communication technologies and acquiring academic and professional communication skills – an interactive learning infrastructure and new methodology". The project aim is to develop transferable communication skills in English through an interactive learning infrastructure. Even though the project encompasses trainees from both academic and non-academic backgrounds, the present study focuses only on university undergraduates who took part in videoconferences in the spring term of the academic year 2007. The two project partners who participated in this particular stage were the Department of Foreign Languages, Masaryk University, Brno, Czech Republic and the Language and Learning Centre (LLC), University of Wales Aberystwyth, Great Britain.

The students involved in the videoconferences were interviewed and asked to fill in questionnaires in order to find out what they learnt from the experience of participating in a videoconference and what they felt about using this new means of communication to interact with people from different cultural backgrounds.

The respondents were 13 international students (Chinese, Japanese, French, Dutch, Ukrainian etc.) studying at the University of Aberystwith, Wales, UK, and 7 Czech students of Law or Social Sciences from Masaryk University Brno, the Czech Republic. Despite the variety of nationalities, the students shared a common characteristic: none of them was a native speaker of English. Their mastery of the language, as became apparent from their answers, differed significantly.

The results of this study indicate that students consider VC to be a new, exciting and modern means of communication. At the same time, they see it as a motivating method of learning/teaching a foreign language. They are excited about new opportunities to develop communication skills and learn about different cultures through direct interaction with their VC partners. They appreciate the novelty of this means of communication: in each group, there was only 1 person who had previous experience of VC.

The students felt that participating in VC helps them develop self-confidence – they learned that they are able to communicate even though their English, and that of their VC partners, is not perfect. The results might be interpreted as indicating that VC supports fluency on the one hand and conversationalism on the other. Nevertheless, students felt that precision is equally important because its absence hinders the smooth flow of communication, which is, by definition, more restricted that face-to-face discourse.

Participants in VC practice various skills in a real-life environment: these are language skills in general, and communicative (speaking and listening) skills in particular. Equally important, they acquire other skills crucial for modern professionals – social, multicultural, and technical. Their tasks (e.g. presentations on professional topics) promote teamwork. All in all, videoconferencing helps to prepare students for real life challenges of modern world of work e.g. in multinational companies. Furthermore, the participants found videoconferencing motivating and enjoyable: one of the participants, for instance, expressed her appreciation in a message formulated to her fellow students*: "It is a very good opportunity to practice a lot of things. Do it!!!"*

The findings obtained in the questionnaire survey were very encouraging. Together with the experience gained by the teachers who led the individual videoconferencing sessions, the feedback became a springboard for creating new teaching materials for trainees in videoconferencing skills from both academic and non-academic environments. These can be accessed via the project web-page at http://invite.lingua.muni.cz.

Appendix

A questionnaire given to the participants of videoconferences between Masaryk University, Brno, Czech Republic and University of Wales Aberystwyth, Great Britain.

Videoconferencing – Final Feedback by Participants

VCs IN GENERAL

- Why have you chosen this course?
- What did you expect? Have your expectations been met?
- Was it the first time you have participated in a videoconference (VC)?
- What have you learnt from participating in the VC course on:
  - the language level
  - the social skills level
  - the multi-cultural level
  - the technical level
- Did you feel well prepared for the task?
- On which level would you have appreciated more training/preparation? Can you give examples?
- What specific language skills would need more practice?

VC PARTNERS

- What was the most interesting thing you learnt about the people you communicated with?
- Who would you like to have a VC with next time?
- What was the most memorable moment?
- Were your language skills (/those of your partners) sufficient?
- How has the “virtual audience” affect the communication/presentation?

PERSONAL DEVELOPMENT

- Did you find it easy to contribute to discussions?
- When were you most nervous?
- Has it helped you to develop self-confidence?

- What was most beneficial for you personally?

- Do you think that some of the skills you have developed due to the participation in this course will help you in your future carrier? What skills?

- What advice would you give to other students thinking about taking part in a videoconferencing course?

LAST BUT NOT LEAST

- What could be done differently next time?
- Is there anything you dislike about videoconferencing?

- What was the most unexpected/surprising thing you have learnt from the whole experience?

- Any other comments/suggestions?

Thank you very much for completing this questionnaire!

3.2

The role of presence in learning in telematic environments

Mark Childs

Abstract

Over the autumn term in 2006 an undergraduate module was delivered simultaneously between the Universities of Warwick and Amsterdam using a telematic environment consisting of videoconferencing and text-based communication. Participants in this activity were interviewed and their responses analysed against a descriptive framework called the Mediated Environments Reference Model, with respect to the relationship between the characteristics of the environment, the type of learning activity being conducted and the experience of presence of the participants. The evaluation of the module provided an opportunity to gather data regarding the participants' experiences and use these data to test the usefulness of this framework in describing and analysing those responses.

The framework was found to generally well describe the characteristics of the environment. However, a key experience for participants in telematic environments reported by the literature, that of embodiment, which was not included in the responses of the participants.

The Mediated Environments Reference Model

This paper represents the findings of a pilot study conducted as part of a doctoral study examining learners' experiences of shared mediated environments; "mediated" in that the learning activity is located around spaces that are created between the participants in separate locations by the use of technology.

The study

The case used in the pilot study was a module run during the autumn term of 2006, simultaneously at the Universities of Warwick and Amsterdam. The subject of the module was an intercultural analysis of post-dramatic theatre, the cultures being British and Dutch theatre. The sessions were co-taught between two lectures in the Netherlands and one in the UK and consisted of weekly sessions of two hours each conducted via videoconference. There were eight students at the Dutch end and seven at the UK end. Students and staff also stayed in contact via a course blog and forum. My role within the project was originally that of project manager, but this was passed on to the lecturer delivering the module at the University of Warwick once he had been appointed. After that I worked on the study in an advisory capacity, as well as conducting the final evaluation.

Methodology

Direct observations were made of the sessions. After the completion of the module a series of open-ended questions were employed, on the themes listed in appendix 1, in an interview with the Warwick lecturer and, in a separate focus group, three of the Warwick students. These interview sessions were set up to fulfil the evaluation requirement of the project; the questions on the experiences of telematic learning were merged into the project evaluation questions. The three students formed a self-selected sample and are therefore not representative. However, the purpose of this study was not to determine a representative analysis of the effectiveness or otherwise of the videoconferencing sessions, but to employ the descriptive framework developed at that stage as a tool with which to analyse the interviewees' responses, and reflect on the usefulness of the framework. The study is therefore a phenomenological study i.e "on the essence or structure of an experience" (Merriam, 1998; 15)

Experience of telepresence

The videoconferencing was conducted over Internet Protocol and used Macromedia Breeze as its platform. The video elements consisted of two digital cameras at both ends. Breeze allows several camera images to be run at once, as well as several chat boxes and also applications such as PowerPoint. Each one of these appears in a separate window, and these windows can then be positioned on the monitor of the computer. The image from the monitor is then projected onto the wall of the teaching room.

The usual set-up of the Breeze interface chosen for the sessions was to have two camera images of the Amsterdam end, two images of the Warwick end, a chat box for recording notes for the session, a chat box for dialogue and a PowerPoint window. As with most telematic spaces, therefore, it was subdivided into a person space, in which the participants can interact directly with each other, and a task space, in which collaborative work can be located (Buxton, 1992; quoted in Knudsen, 2004).

The camera images at both ends consisted of

- a long-shot establishing the relative position of the various people in the room
- either a close-up of the person talking at that moment, or a medium shot of that person plus the person to their immediate left and/or right, depending on the distance from the camera

> "Lecturer: We decided that we needed two cameras – one that gives a general and another of close-up specific students. If we hadn't had that in both venues, I'm fairly sure that the students would have felt much more distanced from their peers on the other side of the water."
>
> *"Mark: Why?"*
>
> "Lecturer: Because with the wide-shot, you see the various people; the room, the reality. Then if the close-up of the person doing the speaking, you can see their face, their smile."
>
> *Interview with Lecturer.*

The successful experience of telematic communication requires the fulfilment of certain criteria, one of which is telepresence. Telepresence is a term first used by Marvin Minsky (1980; quoted in IJsselsteijn, 2005; 7) to describe the experience of the operator in remotely-operating devices. Telepresence (sometimes shortened to presence) is defined, for example, variously as:

- "A sense of being present at a remote site" (Sheridan, 1992; quoted in Sas and O'Hare, 2003; 523)

- "The perceptual illusion of non-mediation" (Lombard and Ditton, 1997; quoted in Sas and O'Hare, 2003; 523)
- "Suspension of disbelief experienced by users while being in a remote world and not in the physical one" (Slater and Usoh, 1993; quoted in Sas and O'Hare, 2003; 523)
- "A shift of focus of consciousness from the local environment to a remote one" (Lauria, 2000; quoted in Sas and O'Hare, 2003; 524).

A means to achieve this sense of telepresence is to make it more immersive; the more immersive a system is the more likely it is "to engender a high degree of (tele)presence for the participant" (IJsselstein, 2005:8). Displaying the entire space at the other end is more immersive because the viewer has a sense of the spatial reality of the remote site, i.e. it

> "sets up an environment in which students have a spatial verisimilitude. They can occupy a space that is twice the size that it is, as the other half is on the camera. Anyone who is involved in video conferencing generally; I hope that that's what they'd believe. And as for performance studies, that is important. Bodies and space are assigned a role that is accessible and mutually workable."
>
> *Interview with Lecturer.*

Realness" is one of the characteristics of the environment that produces telepresence according to the literature, for example Naimark (1990; quoted in Steuer, 1995; 41)..

There were flaws in the hardware that undermined the telepresence experienced by the participants, indicating that telepresence is easily broken,

> "Student A; It was frustrating when the connection hung up and the illusion of being in the same room was broken."
>
> "Student A: Passing a microphone around broke the illusion too."

However, this does demonstrate that the platform *can* create telepresence; if it did not there would be no illusion to be broken by the failures in the technology. Telepresence cane be improved by making the technology as invisible as possible and as immediate as possible (by removing microphones and removing the need to pause while a microphone is passed round) and also making the technology as reliable as possible (so that interaction isn't interrupted).

Interestingly, one student also commented on the *physical* space detracting from a sense of telepresence:

> "Student C: It felt claustrophobic because we were in a small room. Being in a bigger room it would have been easier to move Amsterdam into the same room."

The relationships between the physical learning space and how this modifies the perception of the telematic space is one that requires further work, but was not explored as part of this study.

Experience of social presence

The second camera image supports the requirement for a second feature of telematic communication, that of social presence. Social presence is defined as the "ability to project oneself socially and emotionally" (Garrison, Anderson and Archer, 2000; quoted in Arbaugh and Hwang, 2006: 10). Social presence in distanced communication is often constrained due to the lack of non-verbal cues which help to convey meaning. For example, the emoticon was invented in order to provide a replacement for these non-verbal cues in text-based communication, since the lack of these cues was noted to increase misunderstandings (Gengler, 2002; 3, quoted in Barrett, 2002). This misunderstanding in telematic communication is more likely when one set of participants is not using their first language, since the verbal cues are more open to misinterpretation. Therefore when communicating across languages as well as sites, conveying the non-verbal cues is extremely valuable, for example:

> "Lecturer: The Dutch, sometimes with exhilaration, manage to state things in a fairly jarring way. I don't say that it's 'crikey what have I done wrong?' But you have to ---
>
> *Mark: There's a directness if it's not your home language. You can't do the general fluffiness that you sort of wrap around things.*
>
> Lecturer: One Dutch student said "I don't agree with you," quite sharply. You could see their smile and eyes as they said it. (So) we're not kind of in an awkward situation. Seeing who you are talking to brings it into a more rational sphere."
>
> *Interview with Lecturer.*

Since the students were Theatre Studies students, it could be expected that they would have fewer problems in projecting themselves through the medium than other students might, due to their performance experience. Some students did see the communication as a performance activity:

"Student C: To be on camera for two hours is a bit disconcerting because you feel like you're performing but you're not."

As the lecturer interviewed noted:

> "They all got the camera the first time stuck in their faces and went "augh." But afterwards, it was okay … generally, they are theatre studies students and so they are extroverts. More so than introverts. It wasn't a problem. Some kind of didn't want the camera in the face as they hadn't done the reading and had nothing to say. But I presume that the camera didn't make them more self-conscious than usual."

It was observed, however, that some participants projected themselves socially and emotionally more than others.

"Student B: Any student who runs up to the camera with a sock puppet you're going to remember."

Theorising about what aspects enable social presence to a greater degree was found to be difficult for the respondents but one comment was:

"Student B: If you can just have fun with something. It's difficult in a very academic strict controlled environment to do that thing, but just being able to go off topic or to make a joke, that enabled someone to make a presence."

Studies of online communication that is purely text-based found the same social cohesive properties of off-topic communications. For example, "Angeli, Bonk, and Hara (1998) conducted a content analysis of a course conducted entirely through CMC. They found that 27% of the total message content consisted of expressions of feeling, self introductions, jokes, compliments, greetings, and closures" (Rourke et al, 1999, 52-53). It seems probable that these off-topic communications would have a similar role to play in telematic exchanges, though research still needs to be conducted to verify this.

Supporting copresence

The platform chosen for the videoconferencing sessions was Macromedia Breeze. The most difficult aspect of using Breeze as a videoconferencing platform is its inability to support two-way audio. The system requires the person speaking to press down a button on the interface in order to talk to the other end. While the button is depressed, the other end cannot over-ride the control to talk, so must wait for the button to be turned off to have the ability to talk. In addition, the software has no echo-cancellation, so if one speaks, ones voice emerges from the speakers at the other end, which is then picked up by the microphone at the other end, and fed back through the speakers at the near end. The result is one's own voice fed back with a split-second delay, effectively rendering speaking impossible.

Workarounds were employed to overcome these constraints. To overcome the lack of echo-cancellation, the speakers were turned off whenever the microphone was turned on. To overcome this gagging of the far side, two different workarounds were employed, the chat box was used as a backchannel and questions were typed into it and a series of hand gestures were developed to communicate with varying success.

"Mark: Were there particular gestures that worked?

Lecturer: Well there was the hand cutting across the neck and I was like, are you trying to kill me or …? The hand to the ear, that means "I can't hear you." Two hands cupped to the ear means I haven't heard anything for five minutes so I've just been chilling out! Big friendly waves, thumbs up to show it's working. All these kind of hand gestures.

Mark: It is difficult at times when they have held down the talk button and you need to say something.

*Lecturer: Y*es they would. Also, they neglect to read text messages.

Mark: I have difficulty keeping an eye on the chat and all the other things

Lecturer: It was a kind of thing where they'd miss me waving at the camera saying "stop talking". Nothing for too long ever."

In addition to telepresence and social presence, one of the other aspects to the experience of telematic environments is *copresence,* defined as "the sense of being together with other people in a technology-generated environment" (Durlach & Slater, 2000; Schroeder, 2002; Slater, Sadagic and Schroeder, 2000; quoted in Zhao, 2003: 445). The link between copresence, social presence and telepresence are shown in figure 2. As can be seen in the figure, videoconferencing is one of the subset of technologies that support copresence.

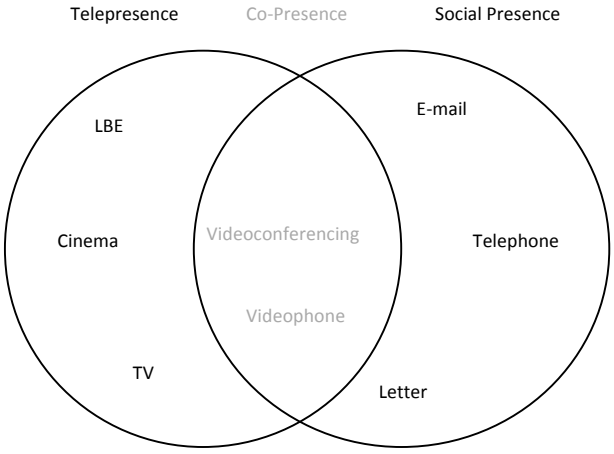

Figure 2. A modification of IJsselstein's graphical illustration (IJsselsteijn, 2005; 9) to demonstrate the relationship between telepresence, social presence and copresence, with various media examples. For clarity, references to virtual presence technologies have been removed. Abbreviation: LBE = location-based entertainment; (IJsselsteijn, 2005; 9)

Despite the inability to have two-way audio, Breeze did support communication well enough for successful exchanges to occur during the discussions.

"The Dutch were saying, "clowns really mean something to you?" And the English students responded, "Nothing." Then the Dutch replied, "Oh yes they do." That sort of thing. That kind of exchange – brilliant!"
Interview with Lecturer.

In fact, videoconferencing was said by the students to support discussions better than it did lectures. Lectures were held to be only adequate if held face-to-face whereas discussions held over the videoconference medium worked sufficiently well.

"Student B: If they're in the same room they have a presence and you can look at them and read their lips. There's something about lectures that is quintessentially …"

Student C: It's got to be in the same room. It's not just visual it's being in the same room with someone."

Student A: It's different in a discussion, because there are points you remember. With a lecture where it's just [speaks in a declamatory manner] me delivering what I've got to say now and I'm not going to stop because that's not a lecture you just deliver what you've got to say and there are questions at the end questions at the end and it's [ends declamatory manner] it's just hypnotic."

"Student A: It's different being in a seminar. The discursive element seems easier because it's interactive. Without the element of interaction, when it's just a lecture that's being delivered rather than a discussion, then there is a tendency to switch off. I found it very difficult to follow."

It is well-established from previous research, for example Childs and Dempster (2003), that the limiting factor with teaching through videoconferencing is the usually poor backchannel properties of the interface, i.e. while teaching it is often difficult to see, and sometimes impossible to hear, the audience. For this reason, a standard recommendation is for lecturers to frequently stop and actively elicit feedback. When this technique was recounted to the students the response was:

"Student A: That's what I mean. That's a very good idea actually. If the lecture had been broken down into say five topics and at the end of each topic we had paused and had a brief discussion now and from both sides we'd asked questions then we would probably have made more sense of it."

It seems, therefore, that discussions through videoconferencing are easier to follow because they are interactive and the lack of physical presence of other participants is therefore not so much of a problem. In lectures, where they are not interactive, the lack of physical presence of the lecturers is a problem. In terms of the categories of experience, this could be explained as the social presence of the participants reinforcing the creation of copresence, and this copresence then reinforcing the participants' social presence, represented in figure 3.

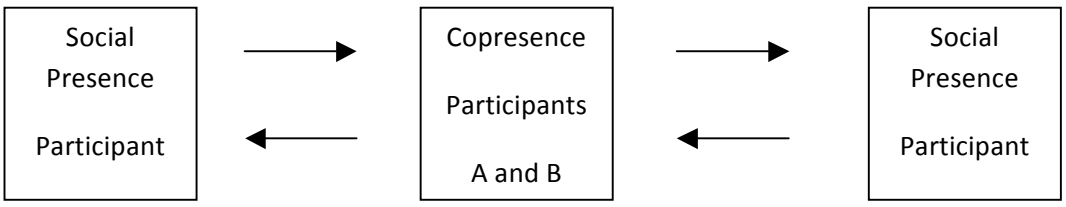

Figure 3: Relationship between social presence and copresence of participants

That is, if one is delivering a lecture, then fostering an experience of interaction and involvement amongst the participants will make them feel more engaged and that they will then feel they are together in the same space. This will then be an effective means to enhance one's own social presence. In short, letting people talk is the only way to get them to listen to you.

Characteristics of the environment

Characteristics of the environment have already examined to some extent in the discussion of the experiences of the learners. One of these characteristics already discussed has been the realness of the remote site because of the sense of it being a real space. This added to the sense of telepresence, however this telepresence could be undermined by other factors.

One of these factors was that passing a microphone around had the effect of "breaking the illusion", in the context of the student's comments this was the illusion of "being there" i.e. of telepresence. Lombard and Ditton's definition of telepresence (1997; quoted in Sas and O'Hare, 2003; 523) seems most appropriate here, in that they define telepresence as "the perceptual illusion of non-mediation". Having to pass a microphone around reminded this student that the session was mediated and hence undermined his experience of telepresence. A characteristic of the environment to be considered, therefore, is how imperceptible the technology is.

Another factor not covered in the framework but mentioned by the students, is the undermining of telepresence by failures in the technology, for example when the connection was lost. At this point in the development of the framework references to this in the literature had not been discovered (perhaps because these were all conducted on more reliable networks). Persistence is therefore another factor to consider.

Telepresence was also undermined by problems with the physical space, another factor to which the literature referred to so far has not included.

The responsiveness of the environment also has been discussed, in that interaction could occur because the platform effectively supported visual feedback to the participants, although the platform did not effectively enable simultaneous two-way audio communication. The strength of the visual signals, however, maintained the sense of copresence sufficiently for the students to establish meaningful and engaged dialogue, overcoming the constraint of having to manually switch the direction of the audio channel.

The role of space has also been mentioned, in both the depiction of space within the "telepresence window" of the interface, and in the laying out of the various windows on the screen. The realness of the space of the other end was referred to by the lecturer, but in retrospect the metaphorical space, i.e. the layout of the various windows, may also have had an impact on the experience of the participants. This was not considered during the interviews but will be followed up in future research.

Changing the layout that may have given rise to this metaphorical space was not possible for both ends within the Breeze platform, however. Breeze is a server side application, i.e. it runs on a remote computer, both ends access that computer, and hence both sides see the same set-up. This means that the layout cannot be configured to meet the needs of both ends.

> Warwick lecturer: From my personal point of view, I didn't like the way that <Amsterdam lecturer> decided to lay out the screen a lot of the time.
>
> *Mark: How would you have done it differently?*
>
> Warwick lecturer: I would have kept the faces in the top left-hand corner of the screen, as they were. I would have had one chat box and I would have had the

> presentation side of things much, much bigger during presentations particularly. I think that <Amsterdam lecturer> had a bigger projection screen so it didn't make much of a difference to them.
>
> *Mark: When the presentation box wasn't in use, I would have liked to have seen more of the room rather than two boxes.*
>
> Warwick lecturer: That's a valid point. It was a lesson in compromise though. There weren't different agendas in terms of teaching and learning but there were in terms of personal interests and steering the students in the direction that we like. In terms of the Breeze layout I left it up to <Amsterdam lecturer> because it was ultimately technology that he was familiar with so…

In other words, the environment was not able to be manipulated, and this had a detrimental effect on the ability to make the experience as immersive as it could have been.

Correspondence of the participants' responses with the conceptual framework

Comparing the responses of the participants with the elements in figure 1, it seems that, for a first test of the framework, there seems to be a close fit. When describing the characteristics of the environment, this was described in terms of the "realness", the responses it enabled, the ability to manipulate it and the use of space, all parts of the framework. In retrospect, the use of metaphorical space to convey meaning and help students make sense of the communication should have been explored in more depth. In addition, participants mentioned two other characteristics; the lack of which they felt impaired their sense of immersion. These were the imperceptibility of the technology, and the persistence of the technology. These will therefore be added to the framework and the literature reviewed for comments on their role in mediated environments. The role of the physical environment may also require further consideration.

Describing the nature of the experience in terms of telepresence, social presence and copresence corresponded closely with the descriptions of the experiences of the participants. These concepts also provided a model for explaining why some aspects of the experience were successful and others less so. The need to promote copresence in order to reinforce ones social presence (and therefore the learning that can take place) indicates that the model will have a practical role in suggesting techniques for learning and teaching in telematic environments.

Where the model is perhaps difficult to apply is in the inter-relatedness of the various concepts. Disentangling the characteristics of the experience from those factors of the environment which give rise to those experiences is problematic; this means that any analysis will blur the two. When considering them here, I have taken the approach of considering the experiences and all contributory factors, then revisiting the characteristics of the environment. This leads to some repetition, but has the advantage of maintaining links between concepts where these occur. This may make the framework difficult to apply in a piecemeal manner, the whole framework needs to be understood before any part of it can be applied, and this may limit the extent to which others may adopt it. Further work in considering how to *apply* the framework in an analysis, rather than only constructing the framework, therefore needs to be undertaken.

Missing bodies: the elements participants did not discuss

Certain aspects of the model, the role of narrative, embodiment and identity were not recounted by the participants. Narrative and identity are more aspects of virtual environments, in which

pseudonymity and storytelling can play a role. However, the literature on telematic environments contains many references to embodiment and they indicate that this is a key part of the experience.

"Embodiment" is the transfer of our phenomenal body on to an external agent (Biocca, 1997). According to Biocca, therefore, where we locate our "self" is not necessarily in our physical body, but can be within the extended body. This is only possible because of the distinction between the phenomenal body and the physical body (Loomis, 1992; Heeter, 1992, 1995; quoted in Biocca, 1997). These distinctions are clarified by Knudsen (2004; 42 - 43) in which he classifies three different types of experience of body:

Physical body – the physically real body

Extended body – the representation of the body as mediated through technology and displayed at a remote site. This can be an image in videoconferencing, or an avatar, although as Knudsen notes "A video mediated extended body is more closely couple to the physical body than a computer-generated avatar" (Knudsen, 2004; 43). This extended body is also a function of the mediating technology in that it can be deliberately manipulated by the technology, or its representation can be unintentionally curtailed by the constraints of the technology

Mental body – "the internal mental representation of a real or imagined body" (Knudsen, 2004; 43). This is equivalent to Biocca's concept of the phenomenal body.

In a study by Heeter, she found that 29% to 31% of respondents "felt as if 'the being on the screen' was their real self", (Heeter, 1995; 200) and that "The percentages were surprisingly consistent across different audiences and different virtual experiences". In this study none of the respondents reported this experience despite the lecturer considering embodiment in the construction of the telematic environment.

> "as for performance studies, that is important. Bodies and space are assigned a role that is accessible and mutually workable."
>
> *Interview with Lecturer.*

This discrepancy may be because of the small sample size. However, it may also be because of the difficulties in articulating, or even conceptualising, embodiment. A consideration for conducting future evaluations may be that some sessions on the theoretical background to mediated environments are required in order to give the respondents the language for describing their experiences. However, this could have the effect of influencing them in favour of adopting the descriptive framework. Further work needs to be conducted on identifying a phenomenological methodology that adequately questions and identifies respondents' experiences without biasing those responses.

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Appendix 1: Questions for engagement in videoconferencing

What are your overall impressions of videoconferencing as a way of learning?

Did you feel you got to know the people at the other end as well as you might in a face-to-face session? Did you feel you interacted with some of them better than others? Got a better impression of what they are like? What are the differences?

What elements about the communication did you feel worked as well as / worked worse than / worked better than face-to-face?

When interacting with the other side, did you feel you were *learning* as effectively as if they were in the same room / not as effectively / the same? What things were different?

How well do you feel you came over to the other side? Is there something you could have done differently to change that?

How could the sessions, or the interactions, been set up differently to improve the communications, interactions and learning?

Do you think the blog helped the interactions in the videoconferencing? How?

Is this something you would want to repeat? If another student were about to take part in videoconferencing what would you recommend to them about the experience?

3.3

Mediated masterclass teaching

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Abstract

Masterclass teaching is an intensive tutoring method used in advanced musical education. It is based on extremely close teacher-student interaction. In an experiment with students of opera singing, a professional teacher and a small audience, we have investigated the feasibility of video mediated masterclass sessions. A high-speed video connection with special viewing equipment, creating eye-to-eye contact between student and teacher, was used. Different combinations of audio quality and image composition were used. The experiment was evaluated through questionnaires answered by all participants. The responses were overwhelmingly positive, indicating that mediated masterclass teaching is a workable proposition. The perceived quality of the educational situation is more dependent on technical video quality than on audio quality. A high-definition close-up image with eye-to-eye contact, supported by a full-figure profile image, and in combination with a stereo sound of consumer electronics quality is sufficient for meaningful masterclass education. The technology provides satisfactory information for the teacher to be able to judge not only quality of singing but also physical performance and anatomical aspects. The necessary sense of emotional contact and intimacy between teacher and student can, indeed, be created in a mediated situation.

Introduction

In the education of singers of opera and other classical music, an advanced and effective form of instruction is the so called masterclass. This is a teaching method where an experienced singer observes, instructs, and coaches one single pupil at a time, usually with other pupils as an audience (Smithrim, 2003). In masterclass teaching, the interaction between teacher and student is extremely close and intensive. The teacher observes and addresses body stance, tone formation, sound projection, phrasing, breathing, etc. and the interaction is both verbal and physical.

Masterclass teaching is an expensive form of training. In addition, experienced, highly qualified teachers are scarce and students often have to travel extensively in order to attend masterclasses. Could the use of high quality video and audio transmission technique alleviate this problem? Would it be possible to successfully conduct masterclass teaching at a distance while still maintaining the close communication, interaction, and sense of presence required for emotionally intense instruction? What are the critical factors in creating a successful mediated pedagogical situation?

In a proof-of-concept experiment, we have tested the practicality and viability of masterclass teaching at a distance. The teacher was connected to his students using a high capacity video and audio connection. The video equipment used was designed to allow eye-to-eye contact between teacher and student. In addition, the teacher had a secondary screen showing the posture of the student. During two actual masterclass sessions in January 2007, with two different students, the audio and video quality was varied in order to assess how technical quality affects the learning/teaching experience.

Our basic assumptions, based mainly on a model by Enlund (2001), were that mediated masterclass teaching can be a useful complement to live instruction, that the technical quality of the audio and video affects the quality of teaching, and that eye-to-eye contact is important in the creation of emotional contact between teacher and student.

Experimental setup

In the experiment, we simulated actual distance teaching by connecting two separate, non-adjacent rooms in the same building by a two-way video and audio connection. It was, indeed, distance teaching even if the geographical distance was only 20 meters.

The two rooms, both rehearsal rooms at the University College of Opera, were similar in size, acoustics, equipment, and layout. The rooms are here denoted as the ”teacher room” and the ”student room” (figure 1). Each room was equipped with a grand piano and had a set of chairs in the background for the audience. The student was assisted by an accompanying pianist in the student room.

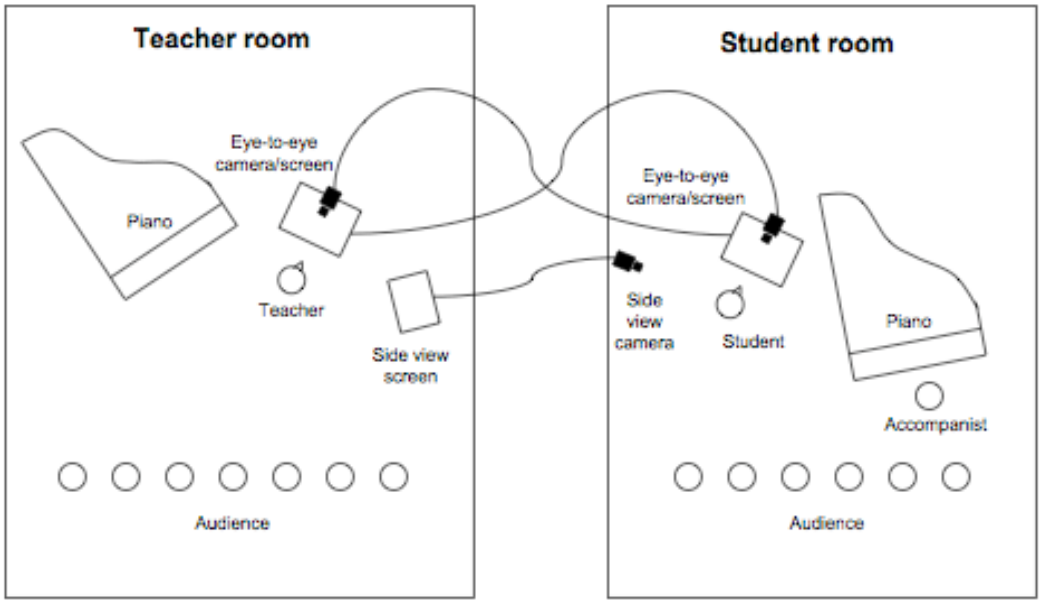

Figure 1: The layout arrangement and visual interaction equipment of the mediated masterclass teaching experiment.

Both teacher and student stood in front of a specially designed video/audio interaction equipment allowing eye-to-eye contact between the two participants (Gullström-Hughes et al., 2003). The equipment consists of a 1.5 meter tall stand with a horizontal flat screen monitor displaying a reverse image that is reflected toward the viewer through a semitransparent mirror. Behind this semitransparent mirror, in the line of sight when viewing the image, is placed a high definition video camera (figure 2). This camera is not visible to the user.

The eye-to-eye video devices are crosswise interconnected. When the teacher looks at the image of the student, he/she will see the face of the student in natural size, and when looking directly into the eyes of the student, he/she will look straight into the camera lens. And vice versa for the student. Thus, the effect is one of natural size face-to-face, eye-to-eye communication (figure 3).

In addition, there was a separate video camera in the student room, transmitting a profile, full-body view of the student to a separate standard 24" television monitor in the teacher room. This secondary screen allowed the teacher to observe the posture of the student, albeit not in natural size (see also figure 10).

The two eye-to-eye devices were connected through a digital link over coaxial cable, with a digital/analog converter at each end. This was possible due to the short distance between the units – in an actual distance communication situation, the signal would be optically transmitted (Wallin, 2007). For recording purposes, the signals were routed to a video server (Tektronix ProFile PDR100) through two dropboxes.

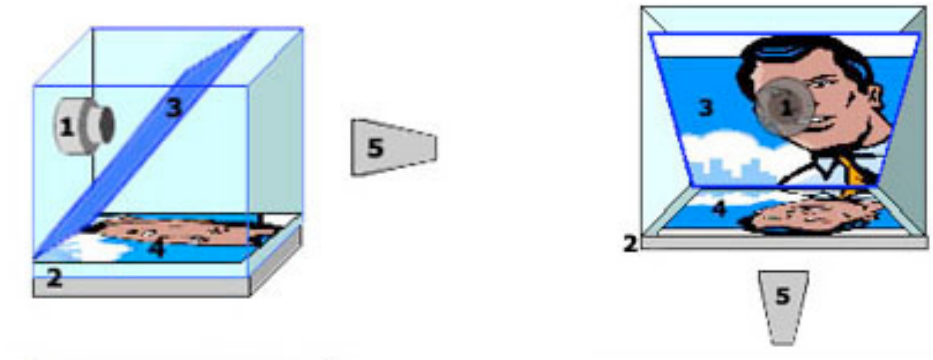

Figure 2: The principle of eye-to-eye video equipment. Side view on the left, front view on the right in the figure. 1. Video camera directed at the user. 2. Flat video screen in horizontal position. 3. Semitransparent mirror, reflecting the screen image. 4. Projected image. 5. User. (Gullström-Hughes et al., 2003).

Figure 3: Mediated masterclass teaching – a view from the teacher room.

In front of both teacher and student we placed two cardioid condenser microphones (Line Audio Design CM3) for a 120 degree x/y stereo registration. According to the manufacturer, they register sound at 100 – 16000 Hz ± 1.2 dB. On the pianoforte next to the student, we placed two instrument microphones (Neumann KM 184), one "looking up" at the pianist from the left and one "looking down" under the piano cover from the right side. The microphones were connected to the speakers via a mixer unit (Allen and Heath GL2000) with integrated amplifiers. Both teacher and student listened to the sound from the other room through two speakers (Audio Pro A4-14 Mk2) placed in front of them to the left and right. This speaker type gives an unusually even frequency response and is generally considered to provide a "natural" sound without coloring. The sound signal was routed from the mixer to the video server for recording. The connection setup is shown in figure 4.

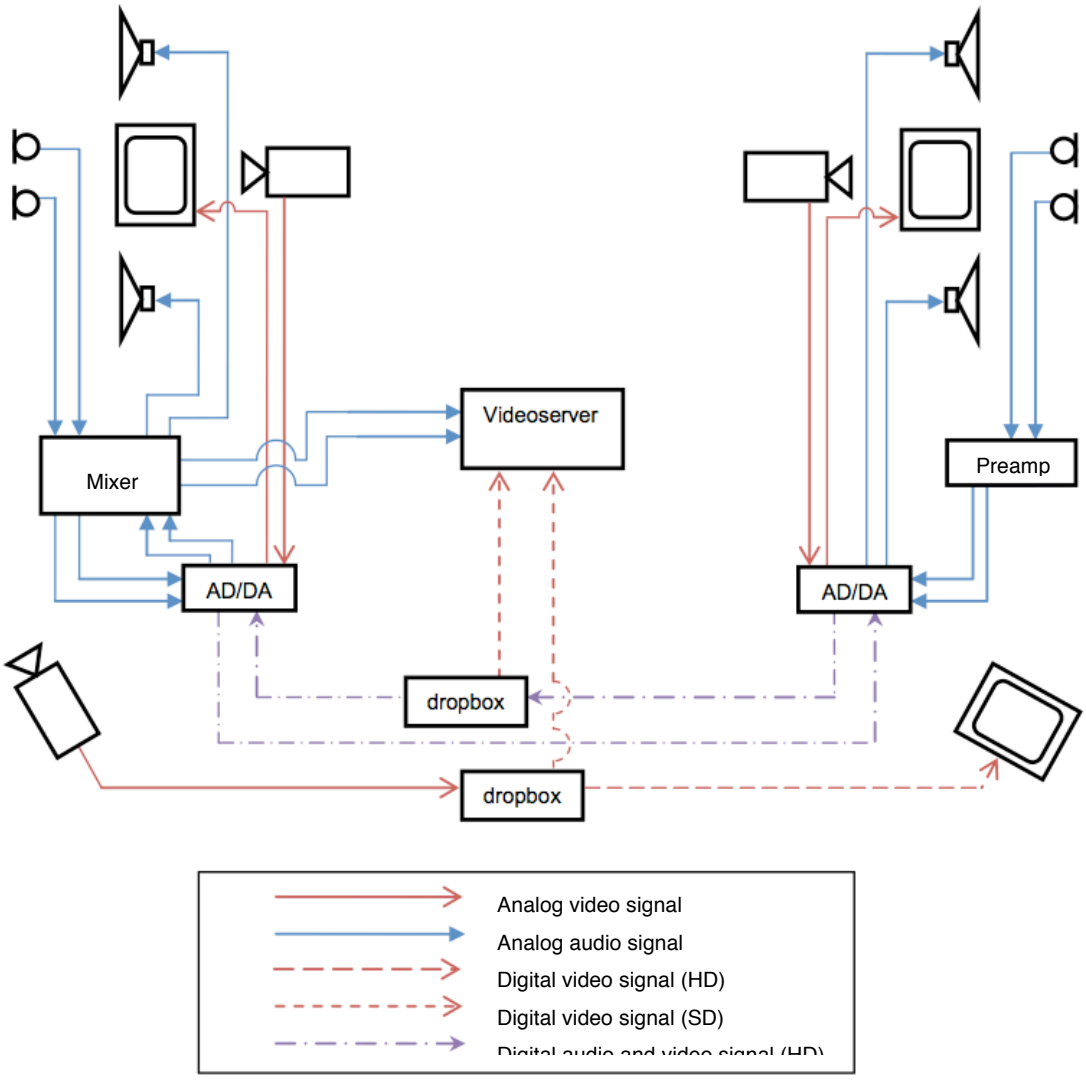

Figure 4: Connection scheme for the mediated masterclass experiment (Wallin 2007).

The tests

Two students at the University College of Opera in Stockholm, Sweden, participated in the master class experiment: Paulina Pfeiffer (soprano) and Joa Helgesson (baryton). The teacher was Petteri Salomaa (baryton), professor in vocal music at the Sibelius Academy in Helsinki, Finland. The piano accompaniment was carried out by Thomas Schuback and Mark Tatlow, both professors at the University College of Opera. There was a small audience in each of the two rooms.

Ten different tests were performed, five with each students, each lasting approximately 10 minutes. Each test had a different combination of student, audio quality and image (table 1). The tests were performed in the order shown in Table 1 with a half-hour break between E and P. We used four variations in audio quality:

- Full quality through speakers. The audio quality corresponds to that of semiprofessional stereo equipment, having a 40 – 15000 Hz frequency range.
- Full quality but with both teacher and student using headphones to exclude ambient sound.
- Low pass filtering at 8000 Hz with monoaural sound.
- Band pass filtering, 300-3000 Hz, monoaural. This corresponds to telephone sound quality.

Case	Student	Audio quality	Image
A	Joa	Full, with speakers	Eye-to-eye
B	Joa	Low pass filtering 8000 Hz, mono	Eye-to-eye
C	Joa	Band pass filtering 300-3000 Hz, mono (telephone)	Eye-to-eye
D	Joa	Full, with headphones	Eye-to-eye
E	Joa	Traditional live masterclass, no mediation	
P	Paulina	Traditional live masterclass, no mediation	
Q	Paulina	Full, with speakers	Eye-to-eye
R	Paulina	Full, with speakers	Zoomed out
S	Paulina	Full, with speakers	No image
T	Paulina	Full, with speakers	Zoomed out

Table 1: The ten different test cases.

In the majority of tests we used the eye-to-eye equipment adjusted to show the face of the counterpart in natural size with the eyes located approximately at the camera position. In two cases,

the images of both student and teacher were zoomed out to show full figures. The teacher had an auxiliary screen showing the posture of the student in profile. In one test case, S, no images were shown and the communication took place through audio only. Cases E and P were reference cases with teacher and student interacting in the same room.

Results

Assessment procedure

The teacher, the students and the audience were all asked to evaluate the pedagogical aspects of each test variation and to comment on how they experienced the teaching situation. Evaluation forms were distributed and they were filled in by everyone immediately after each of the the test sessions. On the form, each person was asked to indicate his/her role (teacher, student, accompanist, audience) as well as his/her location (student room, teacher room). Five questions were then asked concerning perceived sound quality, physical observation, emotional contact, pedagogical quality, and the practical viability of the teaching situation. The questions were answered on a six-level Likert scale. After all tests were completed, the participants and the audience were asked to give general comments on this type of mediated masterclass teaching.

The results reported here can only be considered as indicative. The assessment questions were formulated in an intuitive manner and the number of respondents was very limited – in most test cases 8-9, but in a few cases only 3 or 4.

Sound quality

The question ”how natural does the audio from the other room sound?” was answered on a scale from ”unnatural” to ”very natural” as in figure 5. This and the following diagrams show only the mean values since the number of answers was too small to allow any statistical analysis.

The sound quality was generally deemed to be rather good (>4). Only test case C – telephone quality – received a distinctly lower rating. Surprisingly enough, test case B – low pass monoaural – was judged to have as good a quality as the tests with full quality stereophonic sound. Cases E and P – live teaching – did not receive full marks since part of the audience was in the other room.

> *”The sound seems to come out of a tin can, but since I already have experienced working with better sound quality, this is still acceptable.”* (Teacher, test C) .

> *”The headphones give a much better sound experience but they limit physical mobility.”* (Teacher, test D) .

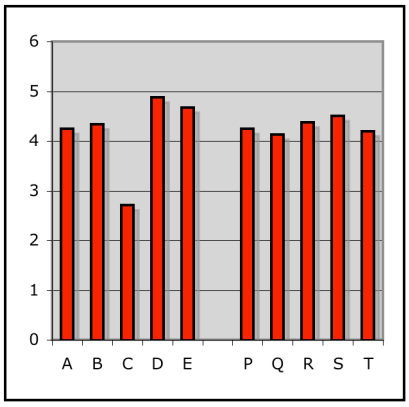

Figure 5: ”How natural does the audio from the other room sound?” 1= unnatural, 6 = very natural.

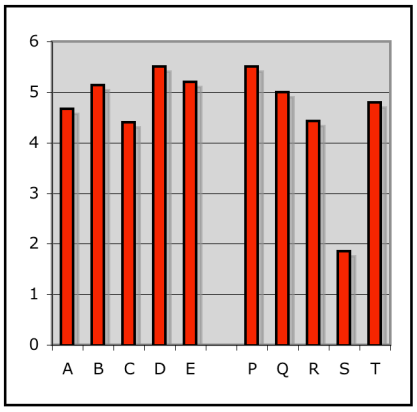

Figure 6: "How well are you able to assess the physical performance of the student?" 1= poorly, 6 = well.

Physical observation

A question regarding the ability of a teacher or observer to assess the physical performance (stance, facial expressions, support, breathing, tensions, etc.) of the student was answered as in figure 6. There seems to be no simple explanation for the variations in rating between the cases, except that the session without video connection (S) was clearly unacceptable.

> *"It is important to have an image background that makes the face and body of the student stand out clearly."* (Audience, test B) .

> *"The profile, full-body view screen is very valuable as a complement to the eye-to-eye screen in judging physical activity and stance."* (Teacher, test A).

> *"Zooming out the image on the eye-to-eye screen has both advantages and dis-advantages. It becomes easier to assess body language but more difficult to see facial expressions."* (Audience, test R) .

Emotional contact

All participants were asked to judge to what extent they did experience emotional contact and intimacy between teacher and student. The results indicate that the quality of contact is not affected by the audio quality (figure 7). The image quality, however, is important: a zoomed-out view or the absence of video is clearly detrimental.

> *"The quality of the contact was partly a result of the unusual communicative ability of the teacher."* (Student, test B) .

> *"In a certain sense the contact becomes more intense in a mediated situation since matters that could be expressed physically in a non-mediated situation will have to be formulated in words."* (Audience, test Q) .

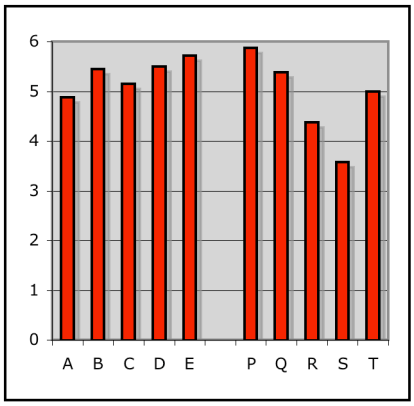

Figure 7: "To what extent do you experience emotional contact and intimacy between teacher and student?" 1= distant, 6 = good contact.

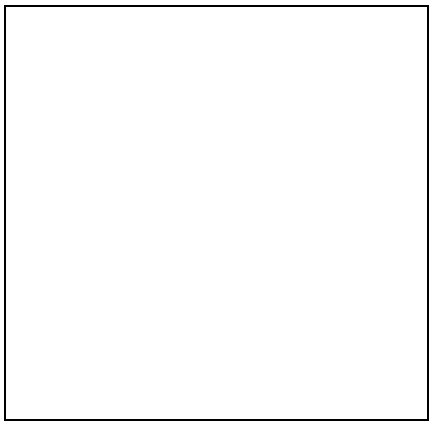

Figure 8: "How well does the pedagogical situation function?" 1= poorly, 6 = well.

Pedagogical quality

The participants were asked to evaluate the pedagogical aspects of the mediated masterclass teaching situation. The ratings were generally very favourable, except in the no-video situation (figure 8). Reduced sound quality (C) and a zoomed-out image (R) had a somewhat detrimental effect.

> *"After a while, you completely forget that the student is inside a box."* (Audience, test A).

> *"The communication between teacher and student is much better than could be expected. As a complement to actual meetings, this is very valuable."* (Student).

Practical viability

Finally, the participants were asked whether they would be willing to participate in this type of mediated masterclass teaching in an actual educational process. The answers were overwhelmingly positive (figure 9). Only the no-image situation was felt to be unacceptable.

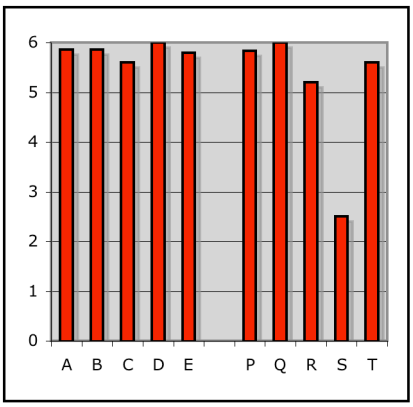

Figure 9: "Would you be willing to participate in this type of mediated masterclass teaching?" 1= not on my life, 6 = eagerly.

> *"The technology is quite acceptable and useful as a complement to—but not a replacement for—live interaction."* (Teacher).

> *"Please, continue to develop this teaching method! I will gladly participate in future experiments."* (Student).

General comments

A number of general comments on the experiments were provided by the participants. Here are just a few selected opinions:

> *"Working in the same room as the teacher is an unsurpassable situation. It creates synergies, impulses and somtimes magical moments that cannot possibly arise without direct personal contact. Still, mediated teaching worked much better than I had expected. […] It should not, however, completely replace physical meetings with the teacher."* (Student).

> *"The technology is clearly usable and can be used to complement live teaching, although not to completely replace it."* (Teacher).

> *"It would be advantageous, if the teacher could control the zoom of the camera capturing the student's face. Sometimes he needs to move in closer, sometimes get a full view."* (Audience).

> *"There were moments when I actually felt like being in the same room as the teacher. He 'stepped out of the box'."* (Student).

Conclusions

The results clearly indicate that mediated masterclass teaching using eye-to-eye video communication is a workable proposition and that technical audio quality plays only a limited role due to the emotional intensity of the learning situation. The perceived quality of the educational situation is more dependent on technical video quality than on audio quality. A high-definition close-up image with eye-to-eye contact, supported by a full-figure profile image, and in combination with a stereo sound of consumer electronics quality is sufficient for meaningful masterclass education. The technology provides satisfactory information for the teacher to be able to judge also physical performance and anatomical aspects. It can also support the creation of a sense of emotional contact and intimacy between teacher and student.

Possibly, the overwhelmingly positive attitude among all participants toward the experiment and concerning the viability of mediated masterclass teaching may be partly due to personality factors. The teacher appeared to have an exceptional ability to create close personal contact even at a distance – an ability to "pass through the screen" (figure 10). All teachers may not be equally skilled in this aspect.

Naturally, the experiment reported here can give only indicative results. A more thorough study would require a large number of tests with several teachers and a larger selection of students. The pedagogical situation should be evaluated by a representative body of professional singers and voice teachers. A number of technical and situational parameters should be varied and the outcomes evaluated to determine the effect of technical restrictions on the educational practicability of this form of distance education. All this still remains to be studied.

Nevertheless, we believe that this simple experiment shows that video and audio mediated masterclass teaching can become a complement to traditional musical education.

Figure 10: Mediated masterclass teaching session – teacher with the secondary display screen in background.

Acknowledgements

The work described here was carried out as part of the activities of the Research Centre for Opera and Technology, a research cooperation between the University College of Opera and the Royal Institute of Technology (KTH), both in Stockholm, Sweden. Financial support from Kulturfonden för Sverige och Finland made cooperation with the Sibelius Academy in Helsinki, Finland, possible.

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3.4

Pearls and pitfalls in video-conferences: Experiences from the attempt of using video-conferences in a Norwegian post-graduate further education for community workers.

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Bergen University College, Norway

Introduction

In this paper we present the experiences gained from several years of developing and expanding a post-graduate further education for professionals working within Social Work or Cultural Work in municipalities in Norway. The overall aim of the one year part-time course, credited with 30 ECTS, is to give professionals knowledge of how to train, support and coach "non-professionals' to assist people to take part in social activities. The Norwegian way supporting people with special will be presented in detail later.

The further education is supported by the Norwegian Directorate of Health and Social Services, and is led by Kristin A. Soldal, associate professor at Bergen University College. From the start it was a blended learning scheme; with 5 three-day gatherings during a year. Between the gatherings the students, all professionals employed in municipalities, working by themselves with different learning tasks before their final exams. It is the only further education of its kind in Norway.

After a hearing among all Norwegian County Governors it became clear that there was a need for this education. However they asked for fewer gatherings (i.e. days spent away from work following lectures and sessions in Bergen) and enhanced use of Information and Communication Technology (ICT) as a learning tool during the course. A third important issue was whether we could de-centralise the education to different parts of Norway.

These demands stemmed from the fact that there was a big lack of social-support contacts and other forms of paid helpers all over Norway. The Norwegian Directorate of Health and Social Services hoped that giving more professionals the opportunity to follow the further education would help to full-fill the goal of "10 000 more people within these services" (Minister Report 40 (2002-2003)).

Background

The Norwegian system of employing social-support contacts started in a small scale in the post-war period. Society responded to individuals with special needs for social contact in their leisure time by employing non-professional, informal helpers to provide this assistance. Engaged by the community they work a few hours per week, as a low paid service for people who need support to be able to participate in different activities.

There were big changes in the organisation of the Health-and Social Services in Norway in the 1990s. First with a "de-institutionalisation" of the services for people with learning disabilities; and later for other groups such as people living in psychiatric institutions. As a part of the big "normalisation

process" in the society there was a housing reform where people living as long-term residents of different kind of institution moved to their own homes.

This coincided with the introduction of a law that endorsed the right of each Norwegian citizen to enjoy an active and meaningful social life, where people with special needs should get support to do this. The overall goals of these processes were to include and integrate people with different disabilities and mental health problems in the local community; which is seen as an essential part of the ordinary, normal life of Norwegians.

Altogether, this led to an increased need for help to manage the leisure time for many people. Even though there are almost 30 000 social-support contacts in Norway at the moment, there is a huge need for recruitment. New ways of using these helpers show that there are interesting possibilities in cooperation with the volunteer sector and volunteer organisations.

Development of this education -headings are not numbered.

Kristin A. Soldal has been engaged in this area for many years. She first put together a course within a secondary school (in Norway this is the ages 15 to 18) for youngsters working as social-support contacts. She took part in developing teaching material (booklets and video) for social workers who recruited, trained and supervised the social-support contacts (Soldal, 1991). Working at Bergen University College (BUC), she later developed courses for social workers and other professionals who were recruiting people working with these low-paid helpers. She has over the years expanded this from being a non-credited course to be a further education within the Higher Education System, credited with 30 ECTS.

From the start, further education was a blended learning scheme, with a clear strategy on how to enhance the students' learning processes by use of ICT between the face-to-face sessions. The leader of the education, Kristin A. Soldal, engaged both people from the Media Centre at BUC and Grete Oline Hole as supervisors in how best to use the Learning Management System (LMS). But during the process of de-centralising the education and reducing the number of gatherings, there was an increased focus on the use of audio-visual elements and ICT communication tools within teaching and learning, as we will show further on.

Pedagogical view

The education rests on a socio-cultural learning theory and use student-centred, task-oriented teaching methods (Biggs, 2003; Ramsden, 1997). Central learning goals are that the students shall get the necessary skills in communication, coaching and project management, and there are many mandatory tasks which demands cooperation and collaboration between the students. From the start it was seen as very important that the students share their experiences, helping each other to new knowledge; and interaction and discussions between were vital. The challenges were how to keep these activities with less face-to-face work.

Decision taken when expanding and de-centralising the study

An important issue was to keep what the students evaluated as the best with the education, as well as adjusting to the new conditions. We deliberately made some important decisions before start of the study in January 2006:

- Established a formal collaboration between University Colleges in South and North Norway; Agder, Tromsø and BUC.

- Appointed local coordinators and teachers at each place, to take care of the teaching and supervision during and between the sessions. The project leader at BUC was supervising the education in all three places, and had the overall academic and professional responsibility.

- Local reference-groups were established to increase participation of local professionals who might take part in the education, either as students or as teachers.

- A well-structured study-calendar was developed with all the tasks, assignments and readings ready from the start of the study, to help and guide the students in planning their own activities.

In adverts for the course, the students were told told that they must have regular access to the Internet, and that it was recommended have broadband access either at home or at work.

Organising the de-centralised education.

As said earlier, there were 3 gatherings - altogether 10 days during a year. Between these, the students worked both on their own and together with peers with different task linked to their own work-situation; thus situating their learning of new knowledge within their own practice (Lave and Wenger 1991, Wenger 1998). There was an extensive use of the LMS both for delivering course material and for communication between students and teachers and between the students (Koschmann 1996). Emphasis was put on making the condition for collaboration as flexible as possible; for instance there was no use of synchronous activities, only a-synchronous communication was needed to solve the assignments (Salmon 2002). Examples of the tasks for the students were: “Use the discussion forum to share knowledge and experiences”, “Reflect on video-lectures and dramatised situations” or “State a problem you have experienced and discuss how to solve similar problems in your own practice”.

Since this further education was located at three different places; efforts were taken to make the students aware that they were a part of a bigger community distributed all over Norway. Even though the main teaching and collaborating between the students took place in the ‘local classroom’, both at the campus gatherings and in the LMS, students were encouraged to meet their peers in a ‘common classroom’ in the LMS, where topics of interest for all students were raised and discussed and messages concerning the student-group as a whole are given

As a supplement to teaching during the sessions, video-lectures and different kind of triggers were recorded. Also video-based cases which triggered and stimulated reflections regarding supervision of non-professionals were made, together with assignments for the students connected to these rich audio-visual resources (Koumi 2006). The students may access and watch the resources whenever it suits them. All these video-based learning recourses are available for free though the LMS. But due to difficulties for students living places with insufficient broad-band, they can be purchased as DVDs if the students prefer this format.

Figure 1: Norwegian map. Red dots indicate students' home-places in 2006.

As we can see, the students live at many different locations all over Norway. Even if each "red dot" indicates where there are between 2 and 8 students living within a 20 kilometres distance; these students cannot collaborate face-to-face. It is therefore extremely important to make assignments and task that promote the wanted learning activities (Biggs, 2003) while they also promote awareness of peer-students and teachers (Anderson 2005). Another way of trying to "create presence" between the students was to use video-conferencing during the course.

Video-conferencing

BUC has for years used video-conferencing as a tool for national and international cooperation with other Higher Education Institutions, but the funding authorities wanted the project to collaborate with the Norwegian Centre for Telemedicine (NST) in Tromsø. NST's major focus has been on serving the health area, mainly within hospitals; but they want to expand to other areas, such as social services, and this study for professionals within their local municipality was a chance to try to use video-conferencing in new areas.

Since the first year there have been some attempts to use video-conferencing; but as a part of the "de-centralisation" project this collaboration was expanded. Each semester, series of lectures were made. Students, their colleagues and others could follow a session where well-known professionals in their field gave a 2 hours lecture. The lectures were advertised as available broadcasts, and were transmitted synchronously to video-conference studios near the students' home places. The number of participating studios varied between 5 and 15 the first year. Figure 2 shows the same map as in Figure 1, but here with blue dots showing the location of the conference-studios used.

Figure 2: Norwegian map. Red dots indicate students' home-places, blue dots indicate localisation of video-conference studios in 2006.

After the lectures, the students were supposed to collaborate and discuss the topic raised, either at the face-to-face meeting in the studio, or in the discussion area in the LMS afterwards. Even though we managed to connect 15 studios in one session; the map shows clearly that many of the students had no opportunities to follow the lectures when they were given. Some of the students had to travel more than 2 hours to come to a studio. After following the lecture and returning to work they had been away for 6 hours, and we found that these could not be mandatory tasks!

The first year, NST put a lot of work into these conferences; and was able to connect as many as 12-15 studios at the same time. But there were technical problems during the sessions, and we found that it was difficult to get a real dialogue between the participants in the different studios. The second year, NST still had the responsibility for the video-conferences, but they were not given the same priority as in the first year. It had been decided to have fewer conferences, and they were sent to the same 12 locations every time. Even though these considerations were made, we also experienced more technical problems this year. As a support for those who could not go to the studios, NST taped and streamed all lectures and made them available for the students through the LMS.

Decision made for the future

After the second year of lectures which were open for everyone in Norway, NST and BUC decided not to continue the collaboration. It was too much effort for all parts compared to the low number of students participating in real-time sessions. Since technical possibilities concerning both video-conferences and the lack of broadband in certain areas made it difficult to have a two-, (or fifteen) way communication between students and lecturers in real-time, video-conferencing lost its purpose for this further education.

After the first weeks it became clear that the students preferred to watch the taped session stored at the LMS after each session. Even students living in Bergen did not join the teachers in the Bergen studio; preferred to use the opportunity to watch the lecture whenever it suited them. This illustrates the "anytime, anywhere" learning in its best sense (Salmon, 2004).

But we were not satisfied with the videos presented for the students. Recording the video-conferences and streaming them on the internet worked technically, but it was not a good solution either for the lecturers or the viewers. The quality of the sound and light was not good enough when the teachers used 'supportive' material. With no editing from the publisher, we noticed that the lecturers didn't feel comfortable being published on the internet. Pauses and chatting were also recorded, and this made the films unnecessary long. For example; during one break there was a session with an empty chair for 15 minutes! The streamed video made it difficult to fast-forward or jump to where the lecture started again.

To improve the quality, the Media Centre made more recorded lectures, recorded professionally with editing: mixing in pictures and text and editing them so that the lecturers themselves could check the quality. This provides the possibility of making new takes if necessary. These screenshots may illustrate how the lectures - of lengths between 5 and 40 minutes - were made:

Figure 3: Lecture addressing the issue of "difference"

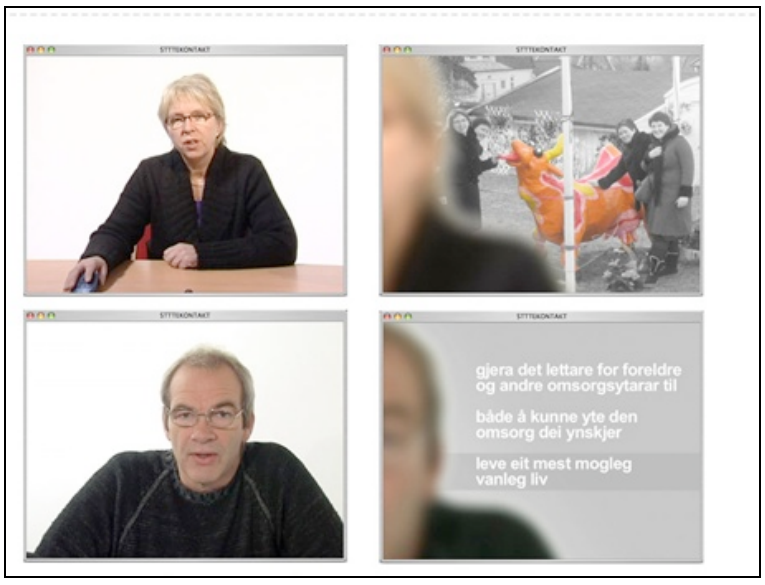

Figure 4 Two different lectures, illustrating different use of pictures and text

These lectures were not made in a technically complicated way. The production-process was mainstreamed for all the recordings, and by this, the Media Centre at BUC made a 'template' which can be used for other educations who wish to enhance their teaching by offering rich media learning recourses without much effort. The lectures is based on "talking heads" but expanded with "head and text" and "head and images" as shown in the illustrations above.

These "simple" productions contrast the dramatized situation in the video-based case made earlier.

Figure 5: This video-case use different angles in the conversation between the professional and the non-professional

Here we deliberately changed the camera-angles to reflect the different sides - or parts - in the discussion. The tasks for the students were constructed to make the most of these different angles. For example, the students were asked to tell us how they saw the counsellor's role and difficulties, while another question was how this situation might be experienced by the social-support contact.

Conclusion

During the years of "decentralising" further education many lessons were learned, and there was a continuous process of evaluating and refining the chosen solutions. In January 2009 the fourth cohort of students located at Arendal, Tromsø and Bergen will start their study. Thanks to the work undertaken, the students have many rich audio-visual learning resources to enhance reflections and discussions among them. These resources and the deliberate use of the tools in the LMS, made former students give clear feedback that this was very important for their learning process as part-time students. We will continue to use video-conferences during some of the gatherings; but will at this stage not try to give lectures by video-conferences for all students between the gatherings. Because we found that simple, but professionally produced video-lectures gave many benefits compared with synchronies video-conferences; both regarding the quality of the material as well as the costs. Thus this was the best solution for all partners.

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3.5

Communication and course design in Video Conferencing

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Abstract

This paper is based on presentations at three consecutive Diverse Conferences in Glasgow (2006, with Alena Hradilová and Libor Štěpánek of Masaryk University in Brno, Czech Republic), Lillehammer (2007) and Haarlem (2008). It is based on research and practice from the Invite Project (sponsored by Leonardo da Vinci) over a two year period from 2006-2008.

It establishes a theoretical foundation for communication in video conferencing as a socially negotiated communications practice in higher education.

Theory is applied to methodological practice in video conferencing to identify an approach to proportional course design through which participants gradually become more independent in planning and communication.

In this context practitioners can adapt video conferencing to their own needs in education and training, but they need to recognise that like other communications media, it is a socially oriented user environment

The nature of communication in video conferencing

With the current increase in the uses of video conferencing in education from primary through to higher education, and in professional communications, it has become necessary to identify factors by which users assimilate this medium into their regular communication practices. Many users are still not confident in communicating via video conference, and at this stage in our research, we still find that the majority of participants in a video conference setting are either using the medium for the first time, or have relatively little experience. This paper traces communication in video conferencing back to its possible origins as a blending of telephone and video technology and identifies the socially negotiated characteristics of its communications processes. It builds on these characteristics to identify strategies for course design in video conferencing.

Baron (1998) argues that when faced with “any new means of communication”, users will go through a period of adaptation in which their communicative behaviour is marked by high levels of formality before they settle into socio-culturally determined patterns of communication appropriate to the medium. Changes in communications technology, particularly in relation to the development of telephone and e-mail, “blend the presuppositions of spoken and written language” (ibid: 134). These in turn have led to significant changes in “the rules of interlocutor engagement” (ibid: 133). As video conferencing integrates telephone, computer and video technologies, users face a new, multimodal

social environment in which communication and literacy practices are open to significant variability in what is considered appropriate among and between user groups.

Snyder (2003: 263) supports initial research in the wider field of information technologies and its ability to "extend and enhance understanding of the ways in which the use of new technologies influences, shapes and even transforms, literacy practices." Luke (2000: 71) argues for the development of "appropriate pedagogies" for the use of electronic and communicative media that reinforces the focus on "what constitutes literacy". This stands in contrast to early views on ideas of best practice in video conferencing, where recommendations of appropriate communication were initially framed through establishing a formal situation (e.g. Constable, 2004).

In higher education, this may be further reinforced through institutional views of learning and the use of new technologies, especially where institutions have invested heavily in technologies and need to carefully consider administration of use. With the emphasis on immediacy of use, manufacturers and retailers of such technology have a "new frontier for business activity and entrepreneurship" (Robertson, 1998, in Snyder, 2003: 264). The guidelines for video conferencing that emphasise formality predominantly originate from educational and professional network administration sources. While these are useful for initial training, they work primarily with basic operating principles and useful methods of getting started, rather than the larger question of how people actually adapt themselves to work creatively or dynamically with these resources.

To begin with the idea that a meaningful technological learning environment should reflect "an 'authentic' context of situated social practice" (Lankshear and Snyder, 2000, in Snyder, 2003: 270), it will be useful to provide a comparative overview of the Digital Rhetorics project (Lankshear and Snyder, 2000, in Snyder, 2003). The project was carried out over a two year period in Australia and created a theoretical approach to literacy and technology that identified three technological dimensions (Snyder, 2003: 269). In the Invite Project the framework of the digital rhetorics project is mapped into a wider analytical framework that situates the specific aspects of video conferencing within the more widely researched area of information technologies and literacy practices.

The Digital Rhetorics project set out to study the relationship between literacy and technology and while the secondary school education sector setting and aims are significantly different to the setting and aims of the Invite Project, it draws a strong parallel for communications development. The tri-dimensional paradigm of the digital rhetorics project was identified as a possible basis for analysing participant communication in the Invite Project. At that stage it had been used with a small number of video conferencing situations and proved to be accurate as an initial framework:

> **The operational dimension** looks at both language and technology. It assesses the type of language system that is needed to operate within communicative settings and how the technology itself operates. They argue here that in terms of language, choice is dependent on "learning how to make it work for individuals' own meaning-making purposes" (Snyder, 2003: 270). In terms of technology, participants need to understand how it actually works, which compares directly with the institutional advice on basic issues in video conferencing.
>
> **The cultural dimension** refers to an understanding of how language and technology are used to participate in the creation and development of social practices. In creating an authentic social context, emphasis is placed firmly on the meaning that students

> are creating in relation to their personal, shared and negotiated experiences and how they will be represented in other modalities.
>
> **The critical dimension** refers to the need to be able to evaluate available tools, which here is interpreted not only through the use of the technology, but also through the use of emerging literacy practices and whether video conferencing discussions help with the critical development of communication practices.
>
> (Adapted from Snyder, 2003: 270)

The three dimensions of the Digital Rhetorics project formed a foundation on which to base an analysis of comparative social factors that would inform motivation to participate and possibilities for creativity, in organising and structuring communication activities. What became apparent from the outset with novice participants, was that the lack of video conferencing experience accounted for an initial formality in behaviour. This may be reinforced by adherence to guidelines on good practice in video conferencing, but a need for formality was also suggested by many participants, as a response to questions on effectiveness of initial video conferences where numerous mistakes were made. Feedback on initial conferences also suggest a level of anxiety and unease with the environment, which was as much due to the unfamiliarity with the equipment being used as it was with the social environment where participants were meeting people from different countries and cultures for the first time. In this context, the first parallel was drawn between social formality (Baron, 1998) and the operational dimension (Snyder, 2003).

As we started to observe interaction in the cultural dimension, where language and technology is used in "participating in 'authentic' forms of social practice and meaning" (ibid: 270), it became possible to see how participants begin to experiment with the variable aspects of creating purposeful communication. With this experimentation a greater sense of playfulness emerges that can be compared with research in other areas of literacy studies (cf. Coles and Hall, 2001: 112). Playfulness in some cases bore its own cultural characteristics in that participants of some nationalities (mostly western European) were more spontaneously playful, whereas others were more traditionally formal (more common with East Asian participants). Despite these obviously generalised characteristics, feedback suggested that those who started in a formal manner often saw the need for greater flexibility or playfulness and those who started in a playful manner often saw the need for greater formality. Nevertheless, this informed the second parallel between social playfulness (ibid.) and the cultural dimension (Snyder, 2003).

What was beginning to emerge here was a complex cycle of interrelated characteristics that could not be directly separated or accounted for individually:

Social formality ←→ **Operational dimension**

Social Playfulness ←→ **Cultural dimension**

Both of these parallels required a more analytical framework or focus to be viewed as a dynamic cycle and this was first represented through the inclusion of the critical dimension (Snyder, 2003). This stage in the process is very much related to evaluation of the uses of technology, language and characteristics of social communication. What is needed for a clear, critical perspective is a framework for structuring communication, which is where the concept of design (Kress & Van Leeuwen, 2001) needs to be considered.

In the transformation from monomodal cultures of the past, where considerations for production or framing of language led to specific representations of either spoken or written discourse, the accession to multimodal cultures has seen a transition to wider considerations of which resources will be used for which representations. Kress and Van Leeuwen (2001: 50) refer to this process as design, in that the communicator takes on an "architectural" (ibid.) role in deciding which aspects of other modes of representation will be useful in the creation of a specific aspect of discourse. In a video conference for example, discussion can be based on individual, collaborative or cooperative tasks where the degree of negotiation depends very much on aspects of how a group of people determine what type of design would best represent their aims for communication. This can be influenced to a greater or lesser extent by teachers or trainers and in this case, the influence depends heavily on participant awareness of the operational and cultural dimensions of video conferencing. The design can also be based on what is technologically possible, as video conferencing has the potential to include a wide range of digital media, such as presentation of web-sites and PowerPoint slide shows.

At this stage the addition of a third parallel between socially negotiated design (ibid.) and the critical dimension (Snyder, 2003) provided a tangible framework through which it was possible to see the three dimensions of the Digital Rhetorics project. As Digital Rhetorics however, focused on computer based literacies, it did not necessarily need to include a parallel social strand that would explain aspects of face to face communication in a remote video conferencing environment. The social characteristics included in the framework for this study, though have provided a strong foundation for the planning stages among the project groups in remote locations.

Social formality	←→	**Operational dimension**
Social Playfulness	←→	**Cultural dimension**
Socially negotiated design	←→	**Critical dimension**

In comparing these operational, cultural and critical dimensions with the notions of formality, playfulness and design as processes that have the potential to inform and interpret each other, it is possible to see how they can be recycled and reconsidered at any stage of the communication process. What is particularly apparent though is how they can form a socially negotiated basis for participation in video conferencing. In defining participation in the terms of this project it is necessary to consider the "participation framework" of Goffman (1981, in Kress and Van Leeuwen, 2001: 86-87). Goffman has identified roles in participation that are particularly relevant in video conferencing situations, through observation of the characteristics of:

- **the principal**, who establishes the position of the speakers;
- **the author**, who encodes the message within specific aspects of language;
- **the animator**, who transmits the message to others—in some cases this role is transposed to a technological device (e.g. a sound system used for a specific effect) by the principal and/or author.

While these roles for participation may be taken by a single person, they may also be shared by different members of a group at different stages of the discussion or presentation. Despite the need to analyse these aspects of participation in much more detail, I would argue at this stage for a greater

community based focus for initial video conference communications, especially where non-professional student groups find it difficult to establish fixed team roles in short term projects. As a follow up to initial training and possibly from 3rd or 4th video conferences onwards, it is more likely to provide stronger facilitation for design and critical evaluation.

Despite the attractions of Goffman's framework, there are underpinning cultural aspects in social groups that determine the roles that people play, which are not always directly observable. Mercer's notion of collective thinking in a community (2000: 106) is particularly useful here, as we can see social groups emerging on the basis of shared history, collective identity, reciprocal obligations and as a result of the social forces at play in these three categories, a fourth category of discourse. The shaping and articulation of discourse is the point at which significant variations on patterns of speech, writing and their modality is represented by different social groups that emerge as individual communities of practice.

According to Mercer, Acceptance into a community of practice is established through the following social conditions:

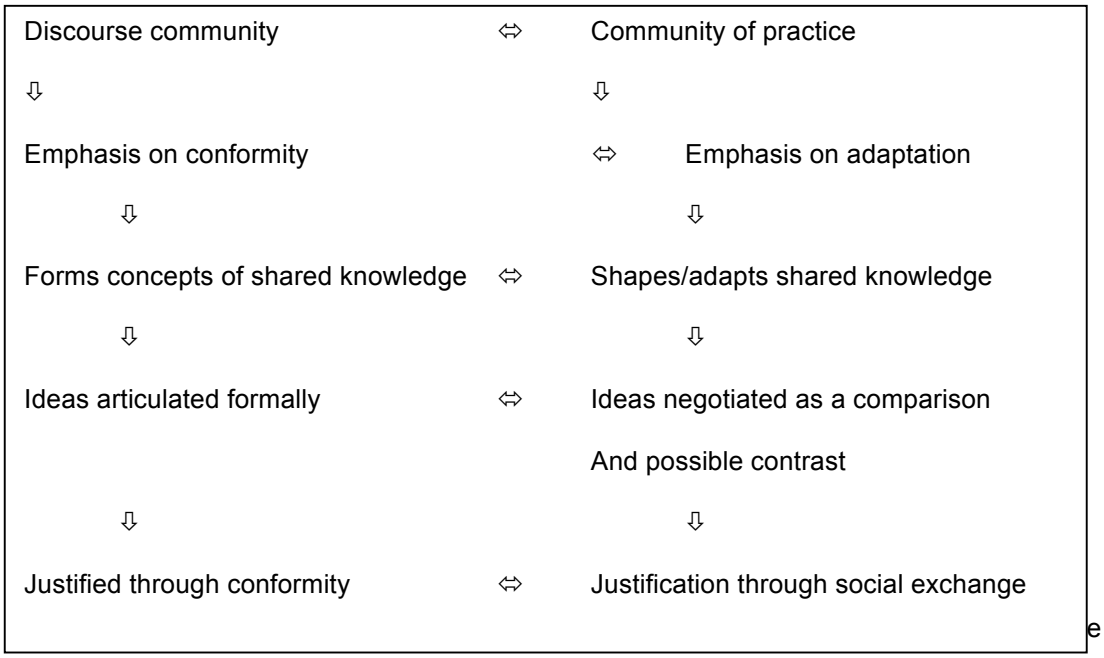
a) **A history:** groups gather and share common experience that creates information and ways of doing things. This can be shared with newer group members.
b) **A collective identity:** through the history, people find a common purpose in what they do and they base many of the group's ideals on this identity. There are often criteria for entrance to a group (academic or professional) or rites of passage (social) that permanently identify an individual as being a member of the group.
c) **Reciprocal obligations:** within each group responsibilities are created, but in the creation of responsibilities measures of trust are established. Standards of behaviour for the groups emerge at this stage.
d) **A discourse:** the language that is used to communicate within the group may be different within different groups. This is often related to family, social and professional characteristics of the group and will determine how members communicate. Identity within the group may be strongly related to the use of language.

(based on Mercer, 2000: 106)

Communities can be further interpreted in different ways, according to who is setting the reciprocal obligations. These can be very formal or they can be much more loosely interpreted. What becomes evident through the literature is that the two main ways of describing discourse emerge through a comparison between discourse communities and communities of practice. A discourse community shapes a socio-academic and professional view of communication that uses established and agreed standards of appropriacy as its measure. It works in a top down manner with specialist informing non-specialists. In an educational setting this is seen through the teacher – student hierarchy, where it is essential for the student to follow regulations and guidelines for how assignments must be completed. This level of working in accordance with systems is a used as a measure of gaining access to the professional community, largely through conformity to standards (cf. Johns, 1997: 57).

Communities of practice however, may evolve and exist within and across discourse communities (ibid.). Communities of practice can be viewed in formal academic, professional, social, or informal ways. In formal academic or professional terms, these may be independent research or focus groups that set their own reciprocal obligations, but which are still very much based of formal patterns of communication and adherence to standards. In a social setting, communities can be based on family, friendship or mutual interest groups. Reciprocal obligations will vary significantly to the more formal

settings described above, but will still adhere to some kind of rules for inclusion; rules that can be viewed as standards of appropriacy in communication and behaviour. The two concepts are interrelated as can be seen in figure 1.



e

The emergence of new communities within the Invite Project is an indicator of a significant social bonding process, in that groups come together for the purposes of taking part in specific tasks of designing video conferences with limited direction from a group facilitator (teacher or trainer). In doing this they develop reciprocal obligations within the groups and reinforce the bonds that identify communities of practice. Considerations of appropriacy within and across these groups are in a constant state of evolution, and as such the theoretical foundations of this project emerge as the observation of a cycle rather than a process with a beginning and an end.

In figure 2, the three parallel strands that form social characteristics and technological dimensions are seen to work in a dynamic relationship where any can inform the others in any sequence, according to the skills, abilities and relationships that exist within and between any given communication groups. The social factors and technological dimensions are brought together in participation and through appraisal and reappraisal of levels of appropriacy. The groups identify with various levels of communities development, resulting in working teams and groups that emerge as communities of practice, which develop characteristics that are both formal in rigour and informal in how ideas are created and shared within the groups.

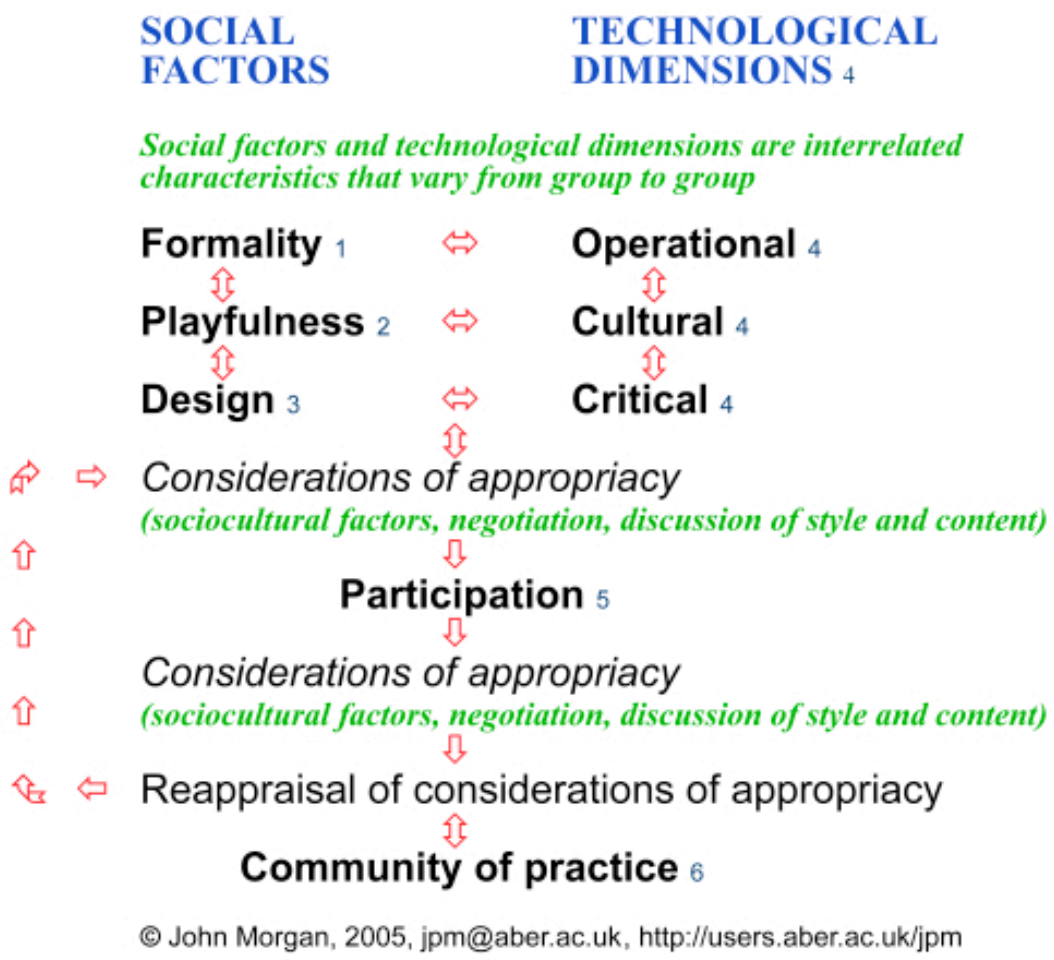


FIGURE 2 Social Cycle

1. Baron (1998); Constable, G. (2004)
2. Coles, M. & Hall, C. (2001).
3. Kress, G. & Van Leeuwen, T. (2001).
4. Lankshear, C. & Snyder, I. with Green, B. (2000).
5. Goffman, E. (1981).
6. Mercer, N. (2000).

Programme planning: from syllabus to materials

A proportional approach to programme design

For class groups observed within the Invite Project it has been important to recognise two factors from the beginning:

a) very few participants have come to the groups with any experience of video conferencing;

b) due to lack of experience there are high levels of both enthusiasm and anxiety about what video conferencing is and how it works.
As a strategy to organise participants through basic training in a manner that would enhance the enthusiasm, at the same time as reducing anxiety, a structural framework was needed that to work through stages of formality and operational difficulties, through to more independent planning and communication.

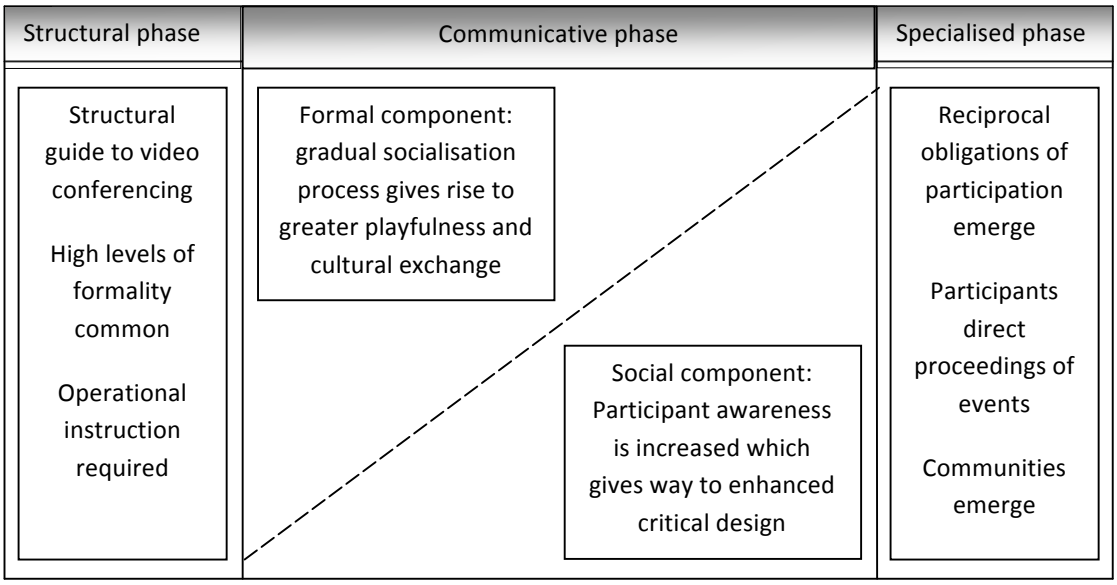


Fig. 3: Proportional approach to programme design in video conferencing

The proportional framework (figure 3) is based on Yalden's proportional approach to syllabus design for second or foreign language learning (1987: 96). It is used to inform strategies for starting a video conferencing programme with a high degree of structure and facilitator control. At this stage there is clear framing and instructing of requirements and possible roles for communicators. High levels of formality may be apparent amongst participant groups and an equally high level of operational instruction is needed to ensure successful first conferences. Groups still provide input on the topics they will discuss and present, which gives them an immediate lead in to the communicative phase.

The communicative phase begins with high levels of formality in which participants are still exploring possibilities for the design of future video conferences and many of the decisions made in relation to observation of recordings of video conferences. Gradual exposure to the video conference environment combined with cultural exchange of information between participants in remote user groups helps participants to socialise through the medium, giving rise to a natural increase in social communication. This will manifest in a number of ways in terms of formality and social acceptance, but it is common for participants to become less self-conscious and more playful in their interaction.

From this stage plans for video conferences take on a new perspective as the social component gradually takes over. There are no clear boundaries in the transition between the formal and social components and elements of each may be used at any stage of the communicative phase. In the social component though, there is a marked increase in critical awareness that informs the design of video conferences. Self esteem tends to increase at this stage, especially if there are no operational difficulties in the process.

The communicative phase does not necessarily end with the specialised phase and it is more accurate to say that they blend into one, especially as participants may have to move back to less secure territory when trying new operational ideas. In the specialised phase however, participants are confident with the design of what they plan and are comfortable opening their proposed topics to remote participants for critical discussion, prior to designing video conferences. A simple methodological example is an exercise in which they will ask for suggestions on what audience participants want to know, see and hear in relation to the topics and the interaction they are designing. At this stage, participants also feel more confident in what they are presenting and as audiences have a reciprocal stake in the other groups' presentations we begin to see the stronger social ties (cf. Kraut et al., 1998) that emerge through meaningful social interaction that is based not only on what participants want to present, but also on what audiences want to receive and through which they want to interact.

Methods of feedback

- Alternative structures for formative feedback

- **Participant to participant (P⇔P)**
  Participants give feedback to each other either within their own project groups, or across project groups and between individuals and groups across remote video conference locations.

- **Facilitator to participant (F⇔P)**
  The facilitator gives feedback to individuals and participant groups on specific issues that they may not have identified themselves. Greater emphasis however, is placed on P⇔P feedback as a more important social negotiation process.

- **Participant to facilitator (P⇔F)**
  Participants either respond to F⇔P feedback as further enquiry or justification of ideas, or provide important feedback from a participant perspective that may have been overlooked or misinterpreted by the facilitator.

During this cycle the facilitator takes the position of participant observer, taking field notes (oral or written) on discussion and written comments. Feedback is primarily generated through a series of reflexive processes, which suggests that they reflect on and critically analyse their own work, the work of their group partners and the work of other participant groups.

Methods of generating feedback include:

- Open qualitative questions that elicit in-depth responses about aspects of the social cycle of adaptation to video conferencing (fig. 1), on the social factors of formality, playfulness, design, and on the operational, cultural and critical dimensions. This is mostly P⇔P.

- The qualitative questions are used to generate open discussions on participation in video conferences and the aspects of communities that may be emerging at this stage. This is mostly a combination of F⇔P and P⇔F.

- DVD and streaming server recordings of video conferences are shown to participants for critical discussion. This is mostly self reflexive and P⇔P.

Reflections on feedback are transferred directly into plans for follow-up video conferences in a manner that encourages participants to make their own independent decisions on all aspects of the social cycle of adaptation (fig. 1). What emerges from this is a decision making capacity, defined here as “elective transferability”. Elective transferability includes the capacity for developing and using communication skills in a range of communication contexts from a combination of institutionally recommended perspectives and socially negotiated perspectives. Participants identify which strategies and skills are most important to their own proposed designs for communication.

P⇔P feedback is the most important method of informing emergent-specialist design, which reinforces participant confidence in using elective transferability strategies. This may also be enhanced through F⇔P, but this represents a more traditional training and mentoring role, which is not as indicative of social negotiation processes. P⇔F feedback does not tend to happen as spontaneously and is tentative at first due to cultural expectations of formality levels between student⇔teacher or trainee⇔trainer. This level of feedback can be very valuable as the facilitator begins to see critical design suggestions from a more assertive participant perspective. Ultimately this is the level of confidence needed among participants to be able to set up video conference communications independently.

Conclusion: belonging to remote communities

Through this project it has become evident that the social cycle of adaptation is a basis on which it is possible to identify characteristics of communication for training and communications development. The most significant conclusion that can be drawn is through a review of the emergence of communities in the development of strong social ties: the ultimate goal of communications training. While communities of practice can be seen as informal gatherings of likeminded individuals who share a social bond, they can also be very formal professional, academic or social groups and as such, patterns of discourse established will vary considerably.

In a video conferencing environment where participants have little or no shared history and collective identity, communication begins awkwardly with reciprocal obligations. The obligations however, are complicated and interrupted by the operational difficulties participants face in a new communications environment. By working through the procedures we have developed with the Invite Project, it is possible to watch the evolution of new community groups where multicultural groups come into contact for the first time.

As participants become comfortable with the environment and the reciprocal obligations of socialised communication, discourse patterns emerge that cannot be anticipated and which are different with each new round of video conferences. Being a socialised process, this means that participants are more than stakeholders in the process; they are the meaning makers and gatekeepers to their own communities that rapidly evolve beyond the decisions made and advised by the facilitator. As such what begins to emerge is a back-tracking into collective identities and emergent shared histories that in a face to face community environment we may take for granted as those are the values with which we have been brought up and through which we have socialised; values that are acquired rather than

learned. What finally emerges through the video conference environment is that many of the patterns of socialisation are actually learned, but at some stage that we may not even notice, we see or undergo an assimilation process where we realise we are effective communicators within a shared understanding of what actually constitutes communication.

In this situation it becomes clear that each video conference exchange will be unique to the participant groups and their shared social understandings. As such notions of "best practice" in training cannot be adhered to, as the needs of the situation will constantly change the requirements of communication and the modalities through which participants actually structure their work. This requires a shift of viewpoint in video conference training, to acknowledge that there can only be "developing practice".

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3.6

Online video examination

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Abstract

The Master programme in Problem-Based Learning in Engineering and Science, MPBL (www.mpbl.aau.dk), at Aalborg University, is an international programme offering formalized staff development. The programme is also offered in smaller parts as single subject courses (SSC). Passed single subject courses are accredited to the master programme.

The programme is online, worldwide and on demand. It recruits students from all over the world. The programme is organized exemplary in accordance the principles in the problem-based and project-based learning method used at Aalborg University where students have large influence on their own teaching, learning and curriculum.

The programme offers streamed videos in combination with other learning resources. It is a concept which offers video as pure presentation – video lectures - but also as an instructional tool which gives the students the possibility to construct their knowledge, collaboration and communication.

In its first years the programme has used Skype video communication for collaboration and communication within and between groups, group members and their facilitators.

Also exams have been mediated with the help of Skype and have for all students, examiners and external examiners been a challenge and opportunity and has brought new knowledge and experience. This paper brings results from a questionnaire focusing on how the students experience the video examination.

Introduction

The Master programme in Problem-Based Learning in Engineering and Science, MPBL (www.mpbl.aau.dk), at Aalborg University, is an international e-learning programme offering formalized staff development. The programme is also offered in smaller parts as single subject courses (SSC).

The programme is online, worldwide and on demand. It recruits students from all over the world. The programme is organized exemplary in accordance the principles in the problem-based and project-based learning method used at Aalborg University where students have large influence on their own teaching, learning and curriculum. It is project based which means that the students each semester write a project report alone or in small groups

The program offers streamed videos in combination with other learning resources. It is a concept which offers video as pure presentation – video lectures - but also as an instructional tool and gives

the students the possibility to construct their knowledge, collaboration and communication (Kolmos et al., 2006; Du et al., 2007).

In its first years the programme has used Skype video communication for collaboration and communication within and between groups, group members and their facilitators.

Exams have been mediated with the help of Skype and have for all the students, examiners and external examiners been a challenge and an opportunity. The experience has brought new knowledge and experience.

Examination in Denmark is regulated by Ministerial Order. Up to 2001 video examination was not allowed. A change in The Order opened up for this kind of examination under strict circumstances. The change was not motivated by the new technological possibilities or globalisation of education and the new marked for international education (L 145; LOV nr 247).

This use in higher education was implemented in 2002. In addition to the Ministerial Order about exams it was said that exams can be arranged as video conference. But it was only for exams where the student was located in a foreign country and a precondition was that a reason was specified. If practical or economic reasons prevented the student for participating in exams in Denmark then it was allowed. It was also a condition that the exam was held at Danish premises. If the exam should be held in another place it should be accepted by The Ministry of Education.

It was decided in the Ministerial Order that the student should be supervised by a guard or inspector appointed or accepted by the institution.

The rules were the same as for on campus examinations (BEK nr 537).

A change of the Ministerial Order in 2004 allowed institutions to arrange exams as videoconferences on or off campus within Denmark. The students ought be watched during the exam by a person appointed or accepted by the institution and no further preconditions were given. In 2006 it was added that the institution should assure that the security arrangements was the same as if the exam was ordinary - on campus. For countries outside Denmark it was added that students could be situated elsewhere than at Danish premises. The Ministry could approve that an institution held exams at other places if the conditions were the same as in Denmark. The university could appoint a person to assist with practical activities in relation to the exam. Besides that it was possible to get exemption from the order (BEK nr 867; BEK nr 231).

As a consequence Aalborg University applied on behalf of the master program in Problem Based Learning in Engineering and Science for exemption so that it was possible to arrange video examinations [1].

Before the exam the student – as student in a group or a single student - must submit a project or mini project report. The report is to contain the project work's problem and results, and an exposition of the application of theory and methods. The report is read by the facilitator who is the examiner during the examination and by the external examiner. The exam is based on a combined evaluation of the report and a oral performance although an independent grade is not given for the project report, as described in the rules in the Examination Policies and Procedures for examinations at The Faculties of Engineering, Science and Medicine Aalborg University 2007 (Examination Policies). What is graded is "whether, and to what extent, the students' qualifications comply with the objectives, competences and academic requirements stipulated for the programme" (BEK nr 867 p. 1)

The exams are oral and performed via Skype with a video camera which allows one to one communication. The examinee is situated in one location and the facilitator and the external examiner in another. The camera used is with ultra-wide-angle lens capturing both examiner and the external examiner. All are wearing headsets and all participants can hear and see each other. No instance of cheating has been reported.

The student to be examined has to be ready at the computer 5 minutes before the announced time.

At the given time the facilitator calls the student via Skype. The responsibility for the performance of the exam lies with the facilitator (the examiner) who opens the exam and acts as chairman.

The examiner says hello and inform about procedures etc. for instance that the examinee is not allowed to receive any help from others and if so – even on suspicion – the examination will be stopped and the examinee has failed. The examinee is also informed about what to do if technical break down happens. He or she shall wait at the computer up till 30 minutes. In the meantime the examiner will call again. A new exam will be held if it is not possible to get contact within 30 minutes. Information about the procedures can take 1-2 minutes.

Thereafter the examinee presents the project report. Up to 10 minutes is allowed for the presentation. After the presentation the examiner asks questions. The starting point for the examination is the project report handed in. Questions are posed based on the objectives of the module; the project groups report and the process analysis (both reflect the objectives of the module) or the mini-project (reflecting the objectives) and answers are discussed. The external examiner can contribute during the examination, for example, by participating in any discussion, putting forward comments and pose questions. The examination including the discussion lasts approx. 25 minutes.

If the Skype connection to the student is interrupted, the facilitator and the external examiner grade the student and Skype back the examinee with the result then the examination is closed.

The procedure for the exam is communicated to the student in advance. It is stressed that the examinee is not allowed to receive any help from others during the examination. The facilitator will at any time interrupt the exam if it is judged that the student receives help from others.

During the examination it is possible to see the examinee and hear if somebody communicates with him or her in an unintentional way. It is not possible to see if any tries to communicate with the examinee from outside the area covered by the camera e.g. receiving help from somebody writing on a blackboard. However it is possible to see if the attention of the examinee is elsewhere – e.g. trying to read a message on a blackboard - out of the area covered by the camera. It is obvious that all the attention, focus and concentration of the student examined is directed at the question posed and the academic discussion focusing the camera, the facilitator and external examiner at the other end of the Skype connection.

Video mediated exams are according to the Ministerial Order on university examinations (the Examination Order) a complicated arrangement and do not relieve video exams although it is possible to get exemptions. Focus is very much on security. The purpose is obvious to avoid cheating.

Cheating is an act of academic dishonesty [2]. When it comes to oral exams on campus facilitator, external examiner and students are sitting in the same room. It is the duty of both the facilitator and the external examiner to overview that the rules are not broken. When it comes to written exams it is typical arranged in a hall or big class room at the university. Administrative staff and a special corps of guards overview the students and keep eyes and ears open being aware of cheating and preventing it. Cheating is under both circumstances not easy.

Exams are summative assessments. They shall document the knowledge and competences of each individual student. If the student gets help from others the assessment will not document the knowledge and competences of the student.

The institution shall secure that the exams are completed under conditions which exclude the student from unintentional communication [3]. Cheating is treated very seriously although sanctions are not mentioned in the Ministerial Order about exams at higher education. Instead it is decided that the institutions themselves establish rules to deal with cheating. (BEK nr 867) At Aalborg University it means expelling from the exam – under serious circumstances expelling from the university (Regler) [4].

There is more than one purpose with exams (Bourdieu & Passeron, 1970; Shuman, 2001; Ewell, 2005; Terenzini, 1989). But one is to measure or value and perhaps transform into a grade the competences of the student or the contribution from courses or projects given to the student in relation to outcomes, skills, knowledge and understanding. The valuing or grading must be trustworthy. It must reflect how well or bad the student demonstrates to have reached the outcomes - the skills, knowledge and understanding. (Jakobsen & Lauvås, 2001). Allowing students to get help from other sides will not reflect the skills, knowledge or understanding of the student examined.

In theory it is easy to imagine that a video mediated examination with the student examined sitting e.g. thousands of miles or kilometres away from the facilitator and the external examiner [5] could temp the student to cheat (as well as an on campus student at a written examination sitting in a hall at the university could be). It is also easy to imagine that it could be easy to cheat because the facilitator and the external examiner cannot see what else is happening in the room where the student is placed. The grading will not be valid and reflect the outcomes of the student, and the exam would loose its value. The grade given will not be trusted.

There could be other reasons for not believing in the grading of students even at video exams. At conventional Danish oral examinations the student and the examiner(s) are in the same room sitting around a table. They can almost feel and smell each other and have close eye contact with each other. If a question is misunderstood the body language will often reveal it. And the facilitator has the possibility to pose a new question.

Video exams are different. They are virtually; there is a media and distance between the student and the examiner(s).

It could also be questioned if it is possible to run a video exam in the same way as an on campus exam. Could the rules mentioned in the Ministerial Order about exams in higher education be kept? Could the guidelines of the university be kept? (See BEK 867 and Addendum). The purpose with the exam is to assess to which degree the scientific or academic qualifications correspond to the learning outcomes. Is this possible when there is a media in between the student examined and the examiner? One could fear that video exams do not give the examiner the possibility to test the learning outcomes thorough and do not give the student a satisfactory frame to demonstrated knowledge and skills. Could the oral exam be arranged as a dialogue between the student and the examiner? The exam form should also meet the outcomes. Is that possible on video? The external examiner or assessor shall see to that the exam demands are in accordance with the outcomes defined, that the exam is completed in accordance with the rules defined, and that he or she has the possibility to participate in the examination or dialogue. But is it possible on video and distance? What is the opinion and answers to these question between those students which have experienced video examination. (It is also relevant to investigate the opinion between the facilitator and the external examiners. This will be done in a later questionnaire)

To investigate this a on line questionnaire were distributed to the student in the full master program as well as to the students on the single subject courses.

Method

The questions formulated were both closed-ended (answerable by checking one of several predetermined answers) and open-ended (requiring respondents to answer in their own words). They were related to the degree in which the respondent though it possible to keep the rules outlines in the Order and guidelines for exams and the extend in which the responders thought the rules and guidelines for examination was keep in the video exams the responders had participated in. There were also questions related to cheating, nervousness, possibilities for discussions, feedback and technical breakdown etc. This paper brings only some of the data collected.

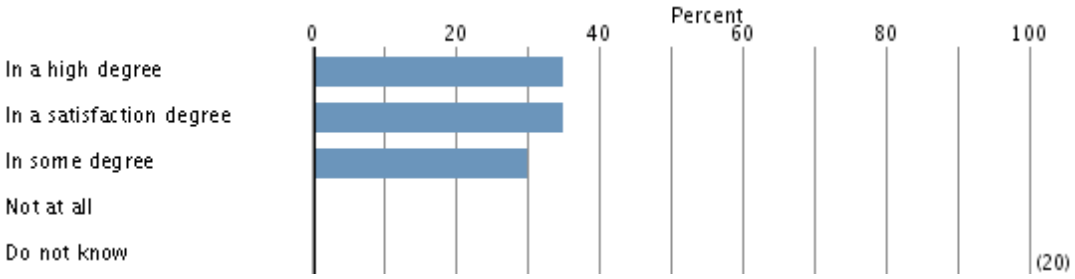
30 responders received the questionnaire. 22 responded of whom 20 completed the questionnaire. It equalizes 67%-73%. Of those responders 11 was students in the Master Program and 11 had participated in single subject courses. A little more than a third of the responders had participated once, a little less than a third had participated 2-5 times and the rest – also a little less than a third - had participated 5 times or more.

Results

The exam form used at project examinations in the master programme of Problem Based Learning are equal to the form practised in on campus examinations at Aalborg University (Addendum; qp.elsa.aau.dk/mpbl) The only difference is that they are mediated by video. Although the forms are equal approximately one third of the responders think that the form do not meet the outcomes in a high or satisfaction degree; see Diagram 1.

Diagram 1. The exam form should meet the outcomes *(N=20)*

Indicate to which degree you think it was possible in the video exam you participated in

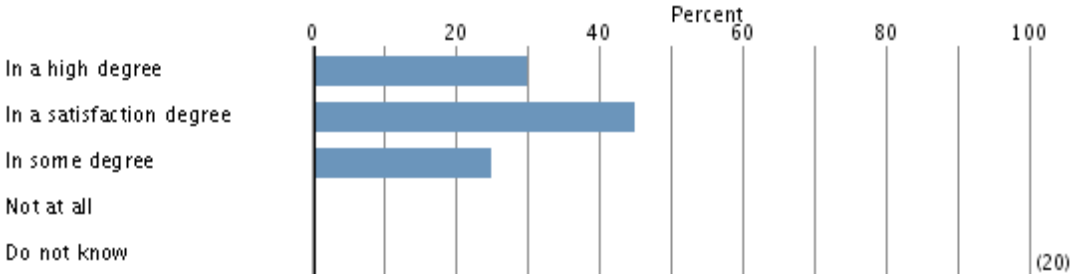


Responders (N=6) with the most experience with video exams (5 times or more) all of them think that the form of video exam met the outcomes in a high or a satisfaction degree (Qvist, 2008).

Not all responders think that video exams give the possibility to assess the scientific or academic qualifications correspondence to the learning outcomes. 3 out of 4 respondents think that it was possible in a high or satisfaction degree to assess the correspondence between the scientific or academic qualifications and the learning outcomes; see Diagram 2.

Diagram 2. The purpose of the exam is to assess in which degree the scientific/academic qualifications corresponds to the learning outcomes *(N=20)*

Indicate to which degree you think it was possible to do so in the video exam you participated in

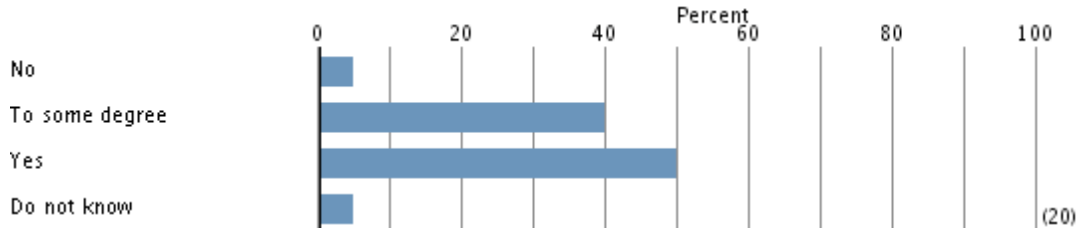


Among the responders with most experience with video exams 2 out of 3 think that it is possible in a satisfactory degree at video exams to assess in which degree the scientific or academic qualifications correspond to the learning outcomes. One third think it is possible in a high degree (Qvist, 2008).

Asking the same question in another way – the video exams give the examiner the possibility to test the learning outcomes thorough – the result is almost the same. One of the responders (5%) answers blank no. Half of the responders answer yes and almost another half respond that video exams give the examiner the possibility to some degree to test the learning outcomes thorough.

Diagram 3. Testing of learning outcomes *(N=20)*

Video exam gives the examiner the possibility to test the learning outcomes thorough

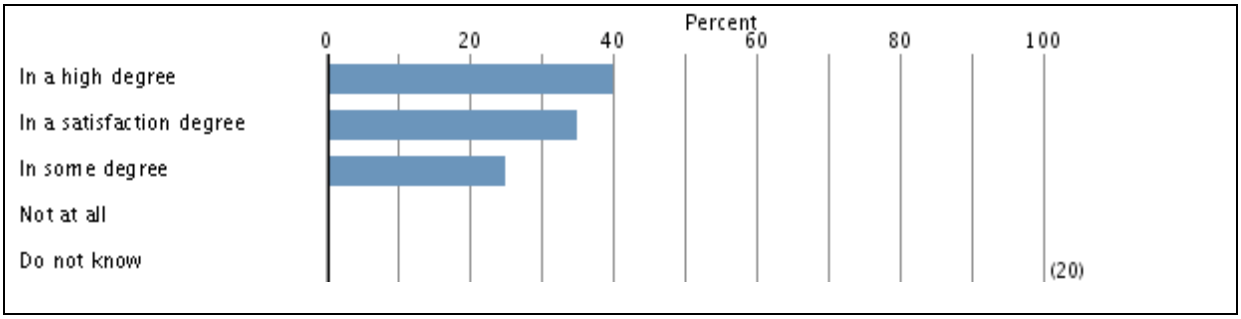


Experienced students respond different to this question. Almost all respond that video exams give the examiner the possibility to test the learning outcomes thorough (5 out of 6 responders. 1 responded that it is so to some degree)

In the Aalborg PBL Model there is a strong tradition for testing the outcomes through scientific or academic dialogue and discussions. Asked to which degree the responders think that this was possible at video exams all responders answered that it was possible in some degree, in a satisfaction degree and in a high degree. None respond that it was not possible; see Diagram 4.

Diagram 4. Discussions during examination *(N=20)*

Indicate to which degree you think a dialogue was possible in the video exam you participated in

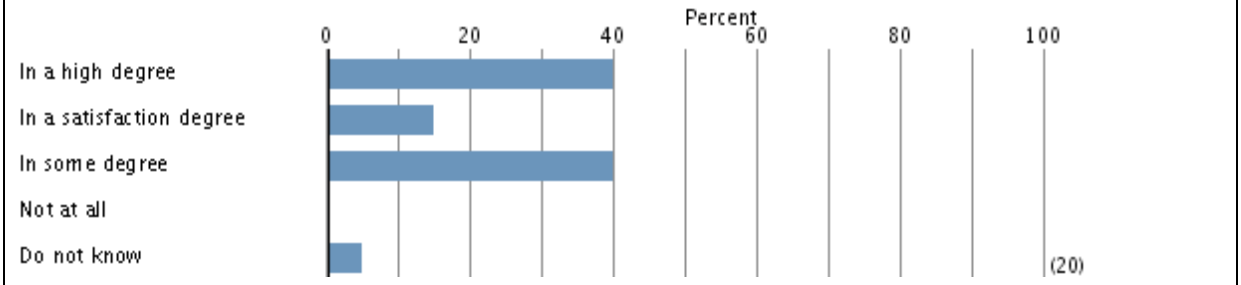


All experienced responders answer that dialogue between the student and the facilitator was possible at the video exam in which the respondent participated – to a high degree – 2 out of 3 – or to a satisfaction degree – 1 out of 3 responders (Qvist, 2008).

The role of the external examiner is defined by order (BEK nr 867). It is among other to control that the rules defined are kept and that the examiner acts as described in the orders about exams and grading at higher education. The ideal is that the students are examined fair and equal. 40% of the respondents – 8 students - think that it is possible in some degree at video exams. The same number – 8 students - answer that it is possible to a high degree; see Diagram 5

Diagram 5. The external examiner should see to that the exam demands are in accordance with the outcomes defined *(N=20)*

Indicate to which degree you think it was possible in the video exam you participated in

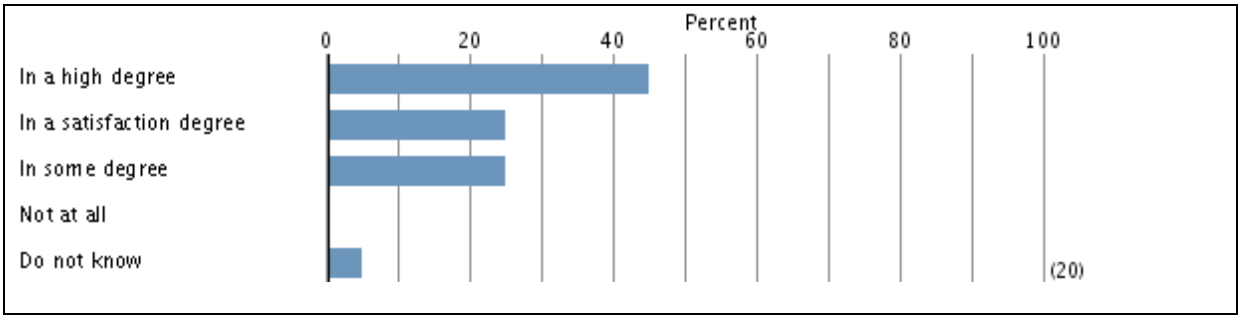


6 experienced respondents all indicate that it is possible to a high degree for the external examiner to see that the demands are in accordance with the outcomes defined (Qvist, 2008)

The responders are asked to indicate to which degree they think it was possible for the external examiner to control that the rules were kept. Almost half the students think that it was possible to a high degree while 1 out of 4 respond that it was possible in some degree.

Diagram 6. The external examiner should see to that the exam are completed in accordance with the rules defined *(N=20)*

Indicate to which degree you think it was possible in the video exam you participated in

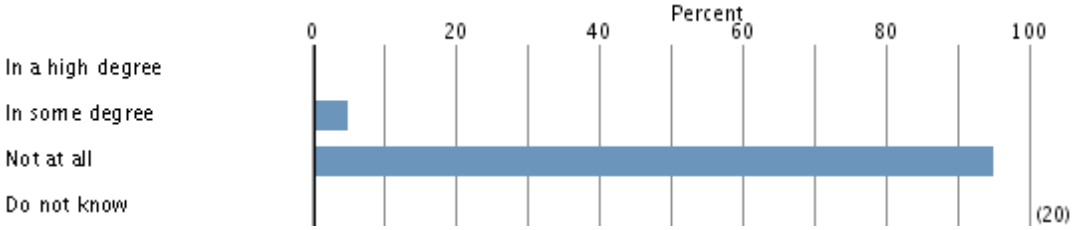


5 experienced respondent's answer that it was possible for the external examiner in a high degree to see that the exam is completed in accordance with the rules defined. And one respond that it was possible in a satisfaction degree.

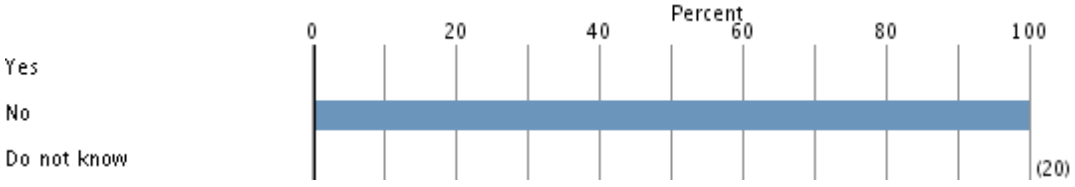
Cheating at exams is an academic crime. At video mediated examinations the examinee and the examiner are physically separated. It might temp the examinee to cheat as e.g. at written examinations where the students is sitting together (but separated from each other and watched by exam guards) in a hall or class room at the university. One respondent admits that he or she had considered – in some degree - to receive help from somebody. But did not do it; see Diagram 7.

Diagram 7. The video exam was virtual and you were physical separated from the examiner during the assessment you may have considered receiving help from somebody *(N=20)*

Indicate to which degree you considered receiving help from somebody



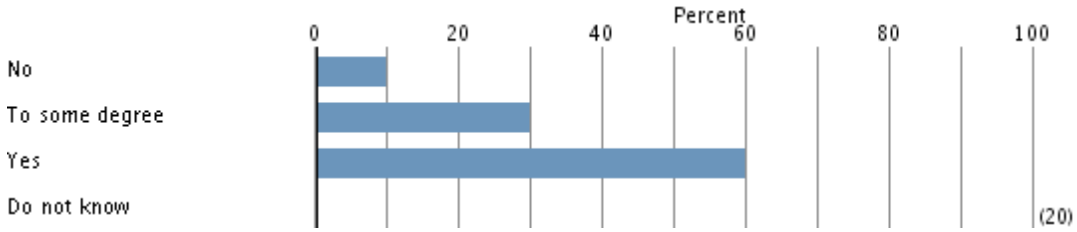
Indicate if it was so that you received help from somebody



The opinion about fairness at video exams compared to conventional oral exams varies. The majority of the responders think that the two forms are equal when it comes to fairness. 12 responder's answers yes to the question – video exam is as fair as conventional oral exam. Half the numbers – 6

responder's answers that it is so – to some degree – while 2 students' answers a blank no; see Diagram 8.

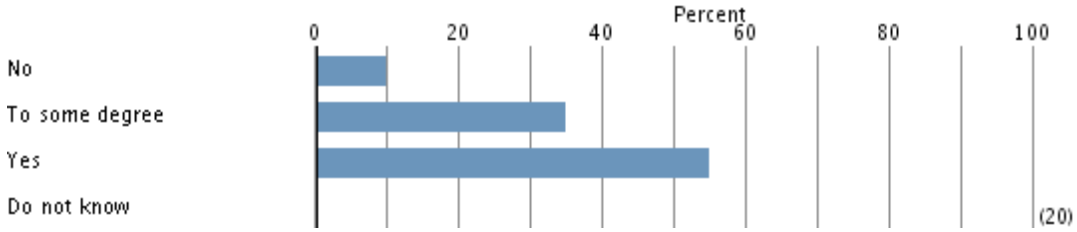
Diagram 8. Video exam is as fair as conventional oral exam *(N=20)*



Compared to the answers from experienced respondents this is lower. 5 of the 6 experienced respondents answer yes to the question - video exams are as fair as conventional oral examinations - while 1 respond that it is fair to some degree (Qvist, 2008)

The opinion of most respondents in the Master in Problem Based Learning in Engineering and Science programme is that video exams give a satisfactory frame to demonstrate knowledge and skills. More than half the respondents answer yes to the question, while 1/3 responds to some degree. One out of 10 is of the opinion that video exams do not give the students a satisfactory frame to demonstrate knowledge and skills; see Diagram 9.

Diagram 9. Video exam give the participant a satisfactory frame to demonstrate knowledge and skills *(N=20)*



The answers from the experienced respondents are more in favor of video exams. One answers - to some degree. 5 answers - yes, video exam gives the students a satisfactory frame to demonstrate knowledge and skills.

Answering the open question – describe what you find bad by video exam – the responders mention sound problems in Skype, the lack of opportunity to use a blackboard, slides and show pictures as supplement to the spoken dialogue, the lack of body language. One respondent formulate it: "Using Skype I had no way of doing what I do best. Take a piece of chalk and start drawing and talking standing by a blackboard. I miss the feeling of being 'present' in the room. The number of technical breakdowns using Skype is just too much to be useful."

On the contrary another respondent answering the open question – describe what you find bad. He or she wrote: "Nothing at all". The questionnaire also gave the responders the possibility to describe what they found god by video exams. Between god things are mentioned that the location could be everywhere and it was relaxing to sit at home in own environment. It could be everywhere as long as the internet connection was reliable; there were no need for travelling. "Video exams have come to stay", a respondent writes, "but need further development to reach its potential" (Qvist, 2008).

Conclusion

At online video exams it is easy to image that cheating is easily practised because the examiner and the examined student is physical separated. Also the (Danish) order about exams has strict rules with the purpose to eliminate cheating at video exams.

At a video exam the student is watched (on video) and it is also possible to hear what is going on in the room where the student is. It is possible to control (to see) that the students has not the attentions somewhere else or is participating in any unintentional communication. The subject discussed during the examination requires all the attention of the examined student - it is high level academic discussions and defence of e.g. theories, methods or conclusions.

Students in the MPBL master programme all responded that they did not cheat or receive any help from outside although one in some degree had considered receiving help from outside. It corresponds with the fact that no incidents of cheating have been reported by any examiner or external examiner in the programme.

One respondent comment that video exams has come to stay, but some find that the form only fits the outcomes in some degree. The more experienced the respondents are the better they think that the form fits the outcomes.

The more experience the respondents have with video exams, the more satisfied they are with the exams and the more positive in their evaluation. Almost all of them think that video exams give the facilitator the possibility to test the outcomes and the external examiner the possibility to watch that the demands are in accordance with the outcomes defined and see to that the exams are completed in accordance with the rules. While all experienced responders found that dialogue between the examinee and the facilitator was possible to a high degree or a satisfaction degree there were responders which found that it was only to some degree.

When it comes to fairness and the question about how good video exams - as practised in the PBL Master program at Aalborg University – are to let students demonstrate knowledge and skills, 10 % of the responders evaluate video exams negative. None experienced responders does that.

Problems with the sound and technological breakdowns are mentioned as negative things, and among positive things are that the location could be everywhere – even at home in a relaxing environment.

This investigation has only given answers to questions related to the Ministerial Order of exams at higher education. But other questions could be raised, e.g. questions about lack of the communication technology and how technology makes the student nervous and incapable to demonstrate academic skills. Some students might be more concerned about technological crash down than others. Video exams might make the student nervous.

It could also be questioned if video exams give the facilitator the possibility to forward critical questions and the student to play the role as a perfect student examined and answer questions, quickly, demonstrate knowledge of concepts and definitions, demonstrate understanding of relations between concepts, argue for theoretical choices and demonstrate theoretical overview and show analytical skills. As well as give the student opportunity to discuss solutions to problems, compare knowledge and solutions and use knowledge in new situations, give the student possibility to answer and to present knowledge and skills during a presentation. But also to offer and receive satisfying opportunities to get feedback in relation to the project. Such question has been raised by Kolmos and Holgaard (Kolmos & Holgaard, 2007) in relation to group exams.

Answers to such questions will be described in a later article.

It should not be forgotten that both 20 responders and 30 students are a small population. Larger populations might give other results. The results in this article reflect the opinion of the responders and are not a documentation of what really happened or the opinion of other stakeholders in the exam. Examiners might e.g. be of the opinion that video exams give the examiner the possibility to test the learning outcomes thorough in a satisfaction degree, that discussion is possible in a high degree as well as the external examiners might think that it was possible in a high degree to see to that the exam were completed in accordance with the rules while one or more examinee was of a different or opposite opinions.

It should also be mentioned that the answers to the same questions related to conventional oral exams does not exist. As well as there are responders which have the opinion that video exams do not give the student a satisfactory frame to demonstrate knowledge and skills there might also be responders which have the opinion that convention oral exams do not give the examinee the possibility.

Notes:

[1] The permission was given under the conditions that the University would secure that the examination would be on the same conditions as if it had been in Denmark. (sagsnr. AAU, Tek-nat 2005-413/06-0011)

[2] See definition in Addendum

[3] The phrase is from BEK nr 766 covering professional bachelor education

[4] In the Ministerial Order on exams covering the primary and secondary educational level cheating results in been expelled from the exam (BEK nr 351 af 19/05/2005). Also at professional bachelor level cheating means that the student are expelled BEK nr 766 af 26/06/2007]

[5] An external examiner is normally from other universities or the industry or from within the university – then called internal assessor or examiner. A certain amount of exams require external examiners from outside the university.

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3.7

What worked & What didn't: A Multi-national Multicultural Project

H. Lori Schnieders & Hans-Jan Kuipers

The aim of starting a joint international module:

This multinational module was concived in 2004. This module originally was intended to be included in a bachelor degree within social work, social education, health, teaching, counseling or other social science concentrations.

The main perspectives of the International Module are based on understanding rehabilitation and diversity in terms of social inclusion or marginalization in society. Complementary to this, is an exploreation of how social work, social pedagogy or rehabilitation methods can prevent marginalisation and enhance social mobilisation.

The delivery method is based on different means of E-learning where students situated in different countries collaborate using advanced video and video conferencing technology.

The overall aim is to give students experience in working together in a multinational, educational environment.

In each annual project groups of bachelor students, who used English as a second language, have worked together on small-scale professional research project. During the initial parts of the ten weeks of their cooperation the students used videoconferencing as a means of communication. At the end of each ten-week period all participants in the projects met in one of the partner universities to present their results. These mini conferences at the end of projects also include social programs for the purpose of team building and as a means to unite the group in exploring similarities and differences. During this intensive week students are expected to finalise their research-papers. They are assessed on the basis of their oral presentation during the mini conferences and the written papers.

In 2006, as an innovation to the established projects a pilot involving one graduate counselling student from the USA was added as a mentor to work with the students in team building and editing the English in the papers. After this successful first step a collaboration was built during 2007-2008 with the University of Southern Maine (USM). Postgraduate students from Maine in the USA, who used English as their native language, have assisted the students from the European partner universities with their spoken and written English. As a result of this expansion of the project with the postgraduate mentors from USM the quality of the bachelor students' presentations improved during the mini conferences at the end of the projects. The consistency and depth of the final papers on the projects has also been advanced.

Participants:

The course is offered basically to students who are already enrolled in the Social Work or Social Pedagogue education in the cooperative institutions. Since it is taught in English it will also be offered to International students travelling in for a temporary residence for the purpose of education in the partner universities. The course can be implemented in other bachelor courses e.g. teacher training, nursing, physiotherapy, psychology.

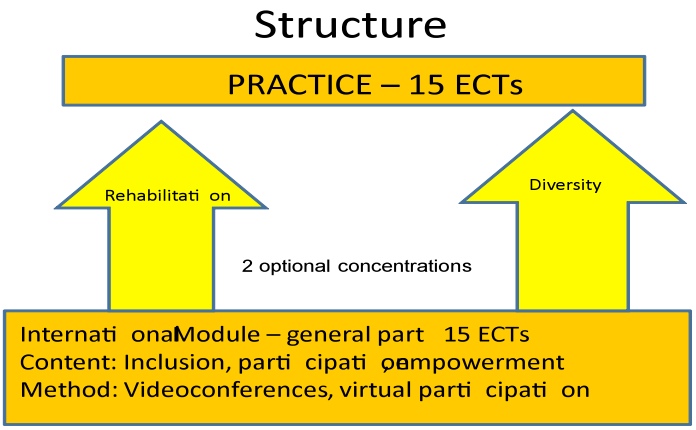
Group based video conference

Module structure:

The Module consists of two parts:

- One general part with two optional concentrations: 15 ECTs.
  The students have to choose one of the optional concentrations.
- One part based on field practice: 15 ECTs

Even though the two parts appear as separate units, they are run parallell to each other starting with practice in August, general part and optional concentrations in October, and intensive course in November. It is required to attend to a 12 week practice placement alongside as part of the total course. The placement is in accordance with the optional concentrations. The structure of the Module is illustrated in the figure below:



General learning objectives

Students will learn:

- To expand their professional competence through cooperation and interaction
- To perform research project work and compare results
- To improve language and cultural skills
- To study in an environment of advanced communication technology

Organisation and work methods

- Sessions in local institutions

  Students will participate in local groups to prepare for videoconferences and reflect on their project work.

- Videoconferences – plenary and project group sessions

  Every institution has a videoconference studio, and the student group in each institution will meet regularly with the other students on videoconferences. These conferences can either be plenary sessions with all students, tutors and mentors or it can be individual project small group sessions to discuss and plan their group assignment.

- Project groups, tutors and mentors

  A project group is a small group that consists of students from all three institutions, (including enrolled visiting students from other institutions) one tutor from one of the institutions, and one mentor from University of Southern Maine, US. In addition to the videoconference meetings,

the group will work on the assignment by online communications. During the process they will be supervised by their mentors, and the tutors of the groups who will go through their drafts, and in the end eventually approve the assignment.

- Intensive course

  During the course, students will meet face to face in an intensive course on a rotating basis at one of the partner universities. At this time they will have a chance to work on their assignment, and do a presentation of their individual research projects

  .

- SURF-group network

  SURF-group is an International community website. It offers a multifunctional E-learning environment for co-operation for tutors, mentors and students. In SURF-group there are possibilities to share documents in order to work together in the project group. The assignments and other relevant information can be uploaded to the team site. The membership is permanent and the names of all participants from previous international projects are available for contact and to exchange ideas in the future.

- New Role of the mentors:

1. The mentor is usually a student who has been through a specific course or program and has often faced and overcome many of the same challenges that the current undergraduate students are now facing.
2. While a mentor may share some characteristics with a tutor, a mentor is different from a tutor.
3. A tutor specializes in content area support.
4. While mentors may provide some content support, they also provide general academic and social support to the protégé/group.

Mentors help the undergraduate students in a variety of ways:

-- Improving study skills
--Helping students to learn to network with peers, and faculty
--Improving self-esteem and confidence
--Improving communication skills, including a clearer sense of what questions to ask when and where
--Strengthening time management skills
--Strengthening academic skills in general leading to student success.

- By organizing desktop video conferences via SKYPE in-between IP video conferences
- edit outline (then Tutor reviews and critiques)
- edit research question (then tutor approves/critiques)
- work as editor while tutor works as teacher

intensive week Rosswein, Germany

Conclusions on the IMP student evaluation 2007- 2008

- During the students' evaluation the **main positive point** that was mentioned, was the possibility of co-operating and learning with students from other countries.
- A point that students mentioned again and again to be improved is related to **time**.
- The number of video conferences and the length of the intensive course we perceived to be too short. Some students remarked, however, that the results achieved during the short time were good.
- Share Point is a useful means but by no means perfect.
- Students think that MSM and SKYPE remains a useful addition.
- More plenary sessions, for that reason are not necessary. The group-based sessions, however, could be partly done without tutors.
- Students were asked to register for the team site directly with educational specialist.
- Students have also suggested we have two videoconferences a week.
- And tutors and mentors should have more opportunities to share experiences.

Communication problems:

- Prior to the start of the semester problems with a fire wall in Mittweida continued to exist. A meeting was organized between ITC coordinators. An educational specialist from INHOLLAND and a technician from INHOLLAND travelled to Mittweida to discuss and solve the problem.

- IP connection issues had to be addressed at each of the universities in all four countries.
  - Germany
  - Norway
  - Maine
  - Holland

Conclusions:

- The intensive course at the end remains a vital part of the project.
- The use of videoconference alone would not be sufficient.
- As a start to the project a social videoconference, which gives students a chance to get acquainted, is important to get the process going.

- A face-book like page within the sharepoint/teamsite should be provided to allow the students to get to know one another before beginning the “group” portion of the project
- Use the “mentors” to facilitate team building before the research begins in the video conferences
- Provide a time to socialize at the beginning of the intensive week

Section 4. Learning and teaching across multiple platforms

4.1

Improving professional practice by using the Internet

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Abstract

The paper recounts the use of a tool, called Physio-net, that integrates text and video as an aid to reflection and which has been developed for a course on professional practice,. Practitioners develop video for viewing by students and can then use these as a developing dialogue between students and teachers, clinicians and physiotherapists.

Initial research into the effectiveness of the tool demonstrate that this is an effective tool for developing reflection by students, and is also of extremely useful as a tool for practitioners to reflect on their own practice. This is also a medium which enables students and teachers to develop skills of balanced and friendly criticism.

The conclusion is that it is the blending of these three, aspects, the use of text, the use of video, and a community of trust between participants, that has led to the successful implentation of the platform.

Introduction

In this article I will present a net based tool which provides opportunities for reflecting on practice and discuss students' and clinicians'experiences in using it. it. The tool, Physio-net, was developed at Tromsø University College in 2003 and has been used for multiple purposes to support students' learning since that date. Here I will address the tool's potential to enhance reflection in order to improve professional practice in physiotherapy, and to generate knowledge from clinical experiences, with the research question: What is learned and why in analysing practice on Physio-net? Before recounting the study, I will give a brief summary of the theoretical framework for the study; the role of reflection in developing praxis, and explain the tool Physio-net and its background.

Reflection in educating professionals

Today, where evidence based practice seems to be more and more established as "the gold standard for practice" within the health care system, and where the relationship between science and practice often is understood as a rather instrumental one, it is important to seek ways to generate knowledge from practice itself. It is important to re-establish the reflective physiotherapist who is professional in the true sense of the word, not merely a technician, exerting results from science. An important

aspect of improving clinical and professional competence is to reflect upon actions and the underlying assumptions guiding practice.

The idea that reflection contributes to better practice can be traced back to philosophers such as Dewey (1938) and Schön (1995). Both emphasize the significance that reflection in – and over practice has for the acquisition of knowledge and the development of the expert clinician. An expert automatically reflects on his or her own practice and regards development of knowledge as a lifelong learning process. Within the field of physiotherapy, the development of the students' and clinicians' clinical expertise have been made the object of research by, among others, Donaghy & Morss (2007), Higgs et al (2004) and Jensen et al (2000).

A quite common definition of reflection in physiotherapy literature is this, quoted from Boud et al (1985):

> Reflection in the context of learning, is a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciation (p.19)

Here reflection can be seen as an individual activity which involves cognition and emotions. Some critical questions from Clouder (2000) regard the nature of the rather unconscious everyday reflection distinguished from the type of reflection which promotes learning. She suggests another definition which focuses on the critical analysis component:

> Reflection involves the critical analysis of everyday practises in order to improve competence and promote professional development (s.211)

This definition focuses on the scope of reflection: improvement of future practice, and opens up for a dialogical and social aspect in reflection, which I find appropriate for my understanding.

Background: The tailormade "Physio-net"

The internet resource Physio-net was made in order to support the students' learning process in a new part-time, decentralised model of bachelor physiotherapy at Tromsø University College. The programme has only run once, with 15 students enrolled in October 2003, who qualified in June 2007. This illustration in fig. 1 gives an idea of the structure:

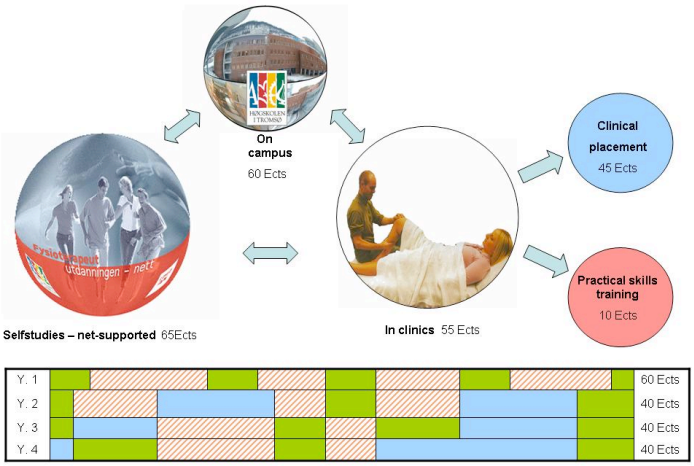

Figure 1: Green areas indicate on-campus periods of 2-4 weeks, shaded pink areas indicate periods of self-studies including weekly, individual practical skills training with the local physiotherapist, and blue areas indicate periods of 4-8 weeks of clinical placements in hospitals or community health services.

This was the first time, as far as I know, that a part time programme was offered in physiotherapy. The University College wanted to offer an alternative programme for those students with family, or other obligations, that were unable to attain a full-time programme in Tromsø. We saw this as an opportunity to innovate and renew the programme in physiotherapy with more emphasis on practice and on self-study. Within the alternative programme, on-campus education consists of 60 European credit points, clinical placement 45 ECTs, as in the ordinary programme, and periods of self-study with weekly practical skills and training with local physiotherapists consist of 65 and 10 ECTs respectively. Physio-net was developed to support the students, especially in periods of self-study, by providing the students with resources and assignments throughout the programme. Physio-net consists of films, text, pictures and internet-resources which is available only to our students and teachers. The idea is that the content will guide and stimulate the students' learning and professional development within a framework where physiotherapy is expressed as a discipline of its own and something far more than put together by submedical diciplines like anatomy, neurology etc.

Physiotherapy is thus seen as a relational, communicative activity that comes out of an encounter between a physiotherapist and a patient, relies both on the physiotherapists' knowledge and competence, on the patients' contributions, and on what they create together in that particular encounter (fig. 2).

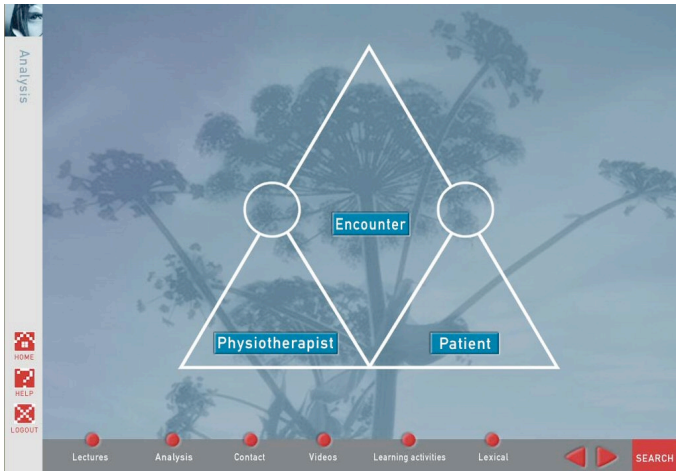

Figure 2: Physiotherapy as an interaction between physiotherapist and patient, where they both bring with them particular competencies and where something is created in that particular encounter.

The study of the tool's impact on reflection

In the particular study we used a specific element in Physio-net which combines film and text. To provide background before discussing what the expert and the students learned from using the tool in analysing their own praxis and what were the effective means in reflection, I will first explain the tool and the different steps in the analysing process.

The tool

First the practioner records themself in a clinical situation with a patient on video. Then the tape is streamed and stored at the server at the University College, and made accessible for the students to work with. They can easily edit the film themselves and divide it into the sequences they find appropriate. Next the hard work of the students describing and analysing what they see on the film begins. In this process they get feedback from a colleague or a teacher. To gain access to the tool, you have to enter ”Physio-net”. Giving the necessary information; username and password, you choose from the menu, in this case: “Analysis”.

Fig. 3 screen shot from Physio-net

Fig. 4 screen shot from Physio-net

I exemplify the guided analysis with “Kari”, which is an expert’s analysis of an assessment situation (figs 3 to 7). We get an overview of all the 55 sequences of this particular examination, where I have chosen sequence 19, which is Body assessment: Functional test: Balance.

Fig. 6 screen shot from Physio-net

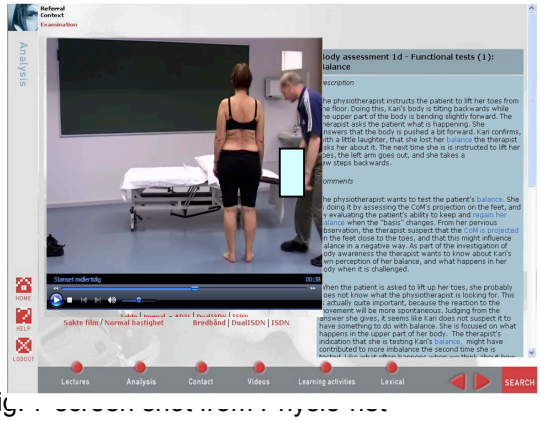

Fig. 7 screen shot from Physio-net

Here the student can see (and normally listen) to what is happening. They can also read the accompanying text which gives a further explanation. The three-dimensional perspective on physiotherapy which emphasizes the relational, communicative aspect in treatment is used as the analytical frame of the comments. Firstly, comments on the physiotherapist’s intentions with tests, observations and palpations are shown. These are followed by reflections on the patient’s reaction to this, and lastly reflections regarding the communication and interaction between patient and therapist are displayed.

The students’ analyses are built up like the experts’, and they make their video into sequences in a similar fashion. The only difference is that we have incorporated a feed back function which makes it possible for students and teachers to be involved in a dialogue of what is going on in the film and the student’s text about it (figures 8 and 9).

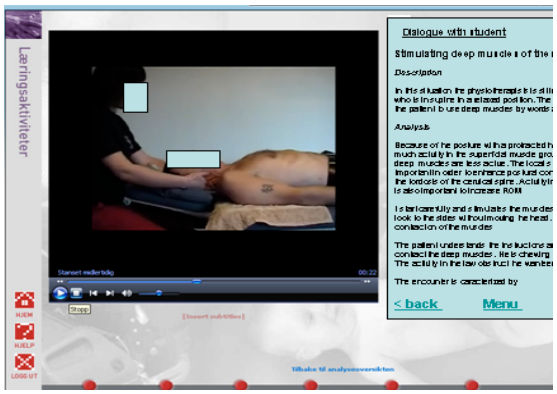

Fig 8: Dialogue about film

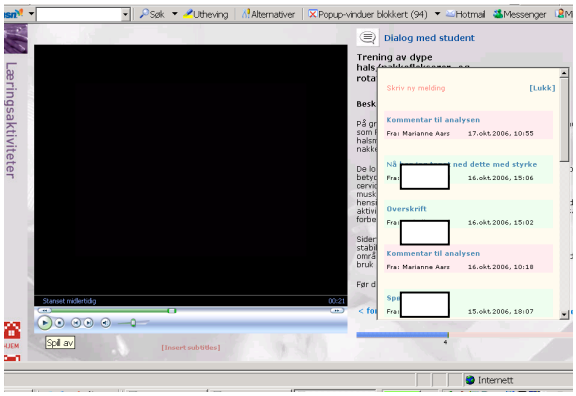

Fig: 9 Feedback function in Physio-net.

Student asks questions, teacher answers and poses new questions, and so on. This makes it possible to discuss each sequence as much as the student wants.

The study: Method and material

The sample of the study is one expert physiotherapist and four students in the beginning of their last year. In the case with the expert clinician, the purpose of making the analysis was to produce material for Physio-net for the students to use in their learning process. I collaborated with the physiotherapist along the way in making her analysis. After she had finished her work, I made an interview with her regarding learning outcomes. In addition, she wrote a personal account to highlight important experiences.

In the case of the students, the 15 students attending the particular class had a compulsory assignment to make an analysis of themselves in a clinical situation. They were all invited to write down their experiences with the assignment in reflective journals, which four of them did. I was the supervisor for one of them. The sample of the four students does, of course, not represent all experiences there are, but merely give an idea of what can be learned by using the tool.

Results and discussion: Learning from reflection?

So what did the expert clinician and the undergrade students learn – and why - from analysing their own practice on net? But first of all – how did they find the task? I have underlined what I believe are key points.

> *Clinician*: ”When I started looking at the video of myself, I thought: This is a gift. Oah: What a tool!
>
> *Stud 1*: ” I really liked this task. It is challenging, but it really looks professional on the net, and think of all the things I may learn from others, seeing their analyses.
>
> *Stud.2*: ”I was over the moon by this task. What a way to learning!
>
> *Stud.3*: ”Despite my bad planning, this has been the assignment I have learned most from. It is learning in many steps: First you have to plan the treatment, then to analyse yourself and the reasons for what you are doing

From these quotes it's clear that they all found the task motivating, relevant and meaningful. If we look into what the clinician learned, this is what she says:

> ”I think the most important lesson, was connected to seeing and listening to the patient. Who is she? What life has she lived? What is her hopes for future life? These are important aspects and influence treatment and treatment outcomes”. (..) ”I've had a lot of critical thoughts about how I related to the patient. Why did I do that? Why did I say that? How did her unwillingness to open up affect me?” ”It was interesting, exiting, timeconsuming and a bit scaring to do this. A lot of tacit knowledge was revealed, explored more or less critically, interpreted and tried to put together differently. (..) I have the project on my mind working with other patients. In that way the analysis-work became a platform for future practice. I try to make small changes to see what happens”

It seems that the clinician has changed focus more to the patient. She is more critical of herself, she is aware of her own knowledge-generating process, and she has made a reorientation regarding future practice. The evidence of learning, with referral to Clouder et al (2000), could be related to the change in practice, and the creation of new perspectives on practice.

The students say:

> *Stud.1*: ”When you make the analysis and pick sequences to work with, you need the ability to find what is relevant and essential. Then there is the professional knowledge part, but we get enough time to seek more information and knowledge if needed.
>
> *Stud.3*: ” Why did I place my hands there? Is this how I instruct the patients and how they react? (..) Looking at oneself treating a patient is something you should do more often.”
>
> *Stud. 4*: ”I spend a lot of time thinking: What is the problem here? What did I do? What does the patient do? (..) It is really helpful to look at my own positions and how I use my hands. I can easily see what I can improve”

The students seem to have learned something about manual skills, clinical reasoning skills and focusing. They also learned about themselves and their relationship with the patient. Even if they are not explicit about future practice, they obviously learned something which promotes reflective praxis. Compared to the expert clinician, they don't say anything about actually changing practice, but they have developed new perspectives on what is going on.

If we look into the model of skill acquisition from the Dreyfus brothers (1986), they outline a process of five steps in clinical competence, going from a novice to an expert. In step 1 and 2 the focus is on performance of manual skills and techniques, while in step 3 the student starts to evaluate the techniques to be appropriate or inappropriate with a particular patient, without being able to adjust them. In step 4 the student has developed an ability to adjust to the situation, based on reflection on his/her actions. In step 5 you are no longer a student, but an expert who is able to intuitively do the right actions. The above quotes from the students imply that they are heading towards level four, were they have identified and recognised what they need to know and how to do it. They are also able to consider different aspects of the situation and analyse systematically their own actions.

On the subject of what was important in learning from this task in analysing your own practice, the clinician says:

> ”What has stimulated my learning process the most, is first of all using so much time to view – and write about my own practice. The critical questions came when writing down.(..) And

> discussing with you and others were absolutely necessary. It gave support and I was challenged. (..) And then the three dimensional perspective (physiotherapist – patient – encounter) was important. I had never learned the same if it wasn't for that structure. It put the person forward and made the physiotherapists place in that person's life clearer. How can we meet?"

What facilitated the students' learning was:

> Stud. 3: " Looking at myself in interaction with the patient gave me moments of sudden insights. A lot of learning by itself " (..) "The work actually started when trying to write down everything. I have an idea of what I do and why when treating patients, but to write it down and make it sound plausible was another story. (..) I found out that it is not until I write down and try to sort out my thoughts that I really understand what I am doing."

> Stud. 4: "The most important lesson from working with this analysis, is how the cognitive process was stimulated while writing. (..) I wasn't really sure what structure I should use, but found inspiration from the guided analyses on Physio-net. I think I emphasized the part about the patient and the encounter." (..) " My supervisor gave feedback on my questions, but no real answers, just new questions which made me think of other aspects. Even if this kind of supervision can be frustrating from time to time, I can now see how much I actually learned from being challenged in this way".

To sum up the effective means in reflection, they were combinations of looking at - and listening to practice, and writing about it. Furthermore the dialogue, with challenge and support from others was important, as was a certain guiding. The structure with the three-dimensional perspective seems to have potentials in such a guiding, both to the clinician and to the students, within this context.

Research regarding the importance of reflection for continuing professional development and students' learning from practice, all focus on the dialogic, critical element in reflection. This could happen working alone, for instance by writing (Bolton, 2005) and by the use of film and text together (Engebretsen, 2006). But most authors emphasize the need for discussions with others, for instance Bolton, 2005, Boud et al, 1985, Clouder & Sellars, 2004, Donaghy & Morss, 2007, Eisner, 1991 and Higgs et al, 2004. Physio-net put all these elements together: the use of film and text, working alone and discussing with others. The tool therefore seems to give very special opportunities to improve reflective competence and professional practice for students and physiotherapists.

So far I have claimed that reflection serves learning as such. This has been opposed by many, for instance Burton (2000), Clouder, (2000) and Higgs et al (2004), who are concerned about whether the reflection is critical enough. Reflection can also serve as conserving and justifying established practice, rather than promote learning, especially when reflection is based on recollection of what happened. The use of Physio-net can oppose this criticism, because the visibility of practice itself and because of the threefold possibility for challenge: the written text, the structure and the dialogue-function. But to actually promote learning and develop practice, the critique from others has to adequate and balanced. From my experience, especially with the students, we have to make careful considerations regarding the students' need for assertion and security, while engaging in discussions over practice. If we scrutinize every aspect of the students' practice, they get frustrated and confused, and limited learning will occur. This concurs with Bolton's finding (2005), who states that too much criticism can be a risk to our whole identity. Therefore we need to adopt an attitude of friendly criticism, collaborating with others if learning and development of practice is the scope.

Conclusions

Internet tools have made it possible to engage in asynchronous discussions over visible practice, and serves as a less private mean compared to other available means so far. Analysing your own practice on net, combining film, text and feedback have strong potentials in the development of reflective clinicians, improvement of practice and in generating knowledge from clinical experiences. The clinician and the students in this particular study became more aware of the patient, their actions, assumptions and the communicative aspect in physiotherapy. What they learnt from doing one analysis of one patient enhanced reflective competencies, which to some extent changed future practice. In order to learn from a dialogical exploration of practice, there must be a fine balance between challenge and assertion, within an atmosphere of trust.

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4.2

Supporting text interpretation and reflection with short video clips: a simple multimedia approach.

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Abstract

Sections of a written text were provided to twenty church members who, after reading, were video-recorded offering their interpretations and views of them. Clips from these conversations were incorporated with the written text in a multimedia resource which was offered for use to interested church members. Phenomenographic analysis of research conversations with ten participants revealed three discrete though logically connected categories of experiences of engaging with the resource. The multimedia material appeared to encourage a sense of belonging to the community, to engage with ideas in the text and the clips, to reflect on issues of lifestyle and attitude and was used strategically by some to encourage others to be involved in reflecting on the subject. The results of this investigation are discussed in terms of aspects of Wenger's concept of Communities of Practice, Vicarious Learning theories and Astley's Ordinary Theology.

Introduction

Texts are frequently read and considered in church settings both in worship services and discussion groups. This investigation explored church members' experiences of using a multimedia resource containing both a text and video clips of people talking about their interpretations and reflections on it.

Faith is a difficult subject to talk about both within and outside church for several reasons, including a sense that religious views are inadequate to share with others, and that faith is constructed on 'commitments and assumptions which ... are difficult to justify and therefore inherently fragile' (Astley, 2002a: 136). Lack of confidence using religious vocabulary and concepts may also impede discussion of religious views and there may be a reticence critically to explore personal, deeply held views in case such examination challenges understandings of self. Yet encountering diverging views is essential to developing a liberating and enabling faith (Hull, 1985: 34).

How might a range of viewpoints be shared when this is perceived as a potentially risky or unsettling task? Might it be helpful to see and hear others giving their views? A co-ordinated presentation of text and video clips was thought to provide a way of exploring this possibility.

Identity of participation, vicarious learning and ordinary theology

Wenger argues that learning requires opportunities to contribute to a community of practice which is valued by learners whose contributions in turn are valued (Wenger, 1998: 227). Access to the practice of a community needs to be given in order to enable mutual engagement. Initially this may be limited "peripheral participation" and observation offers some such limited access (Lave & Wenger, 1991: 78). However there still needs to be a sense both of membership and of making a valued contribution which Wenger terms an "identity of participation:"

> 'We function best when the depth of our knowing is steeped in an identity of participation, that is, when we can contribute to shaping the communities that define us as knowers. ... In this regard, treating people as members of communities of practice does not mean stereotyping them, but rather honouring the meaningfulness of their participation and valuing their membership as a key to their ability to contribute to the competence of the organisation.'
>
> (Wenger, 1998: 253)

When a community of people engages in practice over time, particular ways of thinking, acting and articulating develop, frequently involving language (Tusting, 2005: 41). In faith communities this is through printed words, not only from the Bible but from a wide range of literature (Farley, 2005: 201) as well as personal conversational encounters.

Vicarious learning theory suggests that watching other people engage in dialogue about a subject supports developing knowledge and understanding, and encourages observers to model ways of speaking about a subject based on others' dialogue. It also fosters a sense of belonging within a community (Lee, Dineen, McKendree & Mayes, 1999: 1) and can influence what learners think about learning and how they go about learning tasks (Mayes & Crossan, 2007: 1).

Ordinary theology is the attitude of being attentive to the theological views of adults who have not received formal theological training. Their discourse about theology is likely not to mirror either the form or content of academic theology but its value lies in its rootedness in and relevance to the lives of people of faith (Astley, 2002a: 3). Ordinary theology emphasises the role of learning in the development of faith which is both the product of what people think about that faith, and the processes by which they have gone and go about exploring and discovering it (Astley, 2002b: 22).

A multimedia resource

Means for capturing, editing and distributing video have developed to the extent that facilities for producing video clips of adequate standard are available. Additionally, cultural changes including the development of video sharing websites 'have led to a renaissance of homeproduced video as a popular creative medium for entertainment and even education' (Bijnens, Vanbuel, Verstegen & Young, 2006: 6). What scope, then, is there for using video together with text as a means of encouraging ordinary church members to have access to the views of others as well as express their own views on a subject? Might this encourage fuller exploration of Christian faith and practice?

The insights above suggest that making both text and dialogue available to interested though non-formally trained members of a faith community may support peripheral participation by allowing them to observe other community members speaking about relevant issues, observe discourse in this setting, encourage a sense of belonging and emphasise the importance to the community of all contributions. Additionally, the exercise of creating clips itself facilitates participation.

There are potential difficulties, though. Are the required facilities to create and to view video clips available? Would people not be more reluctant to speak on video than among friends? Would computer technology emphasise individual thought over collective discussion? This investigation explored making and using a resource consisting of text and video, and analysed described experiences with a view to gaining insight into perceptions of identities of participation.

A popular text extending to 12,000 words in sixteen sections about the Lord's Prayer (Barclay, 1956/1975) was laid out in a proprietary desktop publishing software application (PagePlus, 2004). Sections were distributed to twenty church members to read, with a view to responding in video-recorded conversation to the questions: 'What is this text saying?' and 'What does this text mean to you?' Clips of between thirty seconds and six minutes duration were created from these conversations. Hyperlinks to the video clips were placed in the document adjacent to relevant parts of the text. Some background information about the author, and guidance about goal-setting and using the resource was added as an introduction.

The resource was produced as a Portable Document Format ('PDF') file which was distributed with the video clip files on CD-ROM. The video material was also produced as a DVD of the video clips with a simple menu system and was distributed with a printed copy of the text from the PDF file.

Manipulation of the text and video clips was unsophisticated and was achieved using a desktop personal computer and domestic video camera with widely available software applications sometimes termed 'worldware,' whose potential for creating a range of means of supporting learning has, it is argued, still to be exploited fully (Deacon, Jaftha & Horwitz, 2004: 233). The applications used in this investigation allowed all the resources to be produced speedily and without undue complexity.

Findings

General features of the resource which were noted included that it was available when convenient, could be used repeatedly and for suitable durations, and be passed to others. Viewing the resource and hyperlinked clips was not problematic for those familiar with using a computer and viewing software, though issues of training and familiarity were raised with others who had not used PDF documents to a great extent. Limited training to use the chapter feature of the DVD-disc appeared successful.

The CD-ROM format was used by seven participants and the DVD-and-paper by three. Following use of the resource, research conversations captured descriptions of experiences of reading and watching and, where relevant, participating in discussions and speaking in a video-recorded conversation. 105 excerpts from transcripts of conversations were categorised using an approach based on phenomenography (Marton & Booth, 1997) into a set of three ordered and related categories, an outcome space, shown in Figure 1. Independent categorisation of statements reached agreement in 80% of the excerpts before discussion and in 89.5% after discussion.

The most comprehensive category consisted of descriptions that the resource supported or stimulated reflection on personal lifestyle or attitudes. For example, one participant's views on homeless people appeared to change after watching a video clip by one contributor describing a short-term experience of homelessness gained voluntarily:

> “Well last night I was sitting, I had watched the clip with [Name] and I didn’t appreciate when he was younger, in his student days, he lived as a homeless person. ... But I didn’t appreciate he did that and I think you’ve got to admire him for doing it.... It’s made me realise, wait a minute there will be a reason why that has happened to them so don’t be judgemental towards them.”
>
> *Participant CY, para 3.1.3*

Additionally in this category were reports of being aware that the task of understanding the text and reflecting on issues was also being undertaken by others. This awareness led to a strategic use of the text within the conversation to assist others:

> “*What were you trying to get from it so that you could speak about it?*
>
> An understanding what these verses [of the Lord's Prayer] actually meant and to try and get this across to people.” P*articipant DB, para 7.2.1*

Here, arguably, the resource influences attitudes to learning in church by broadening the perception of participation from the individual to the community.

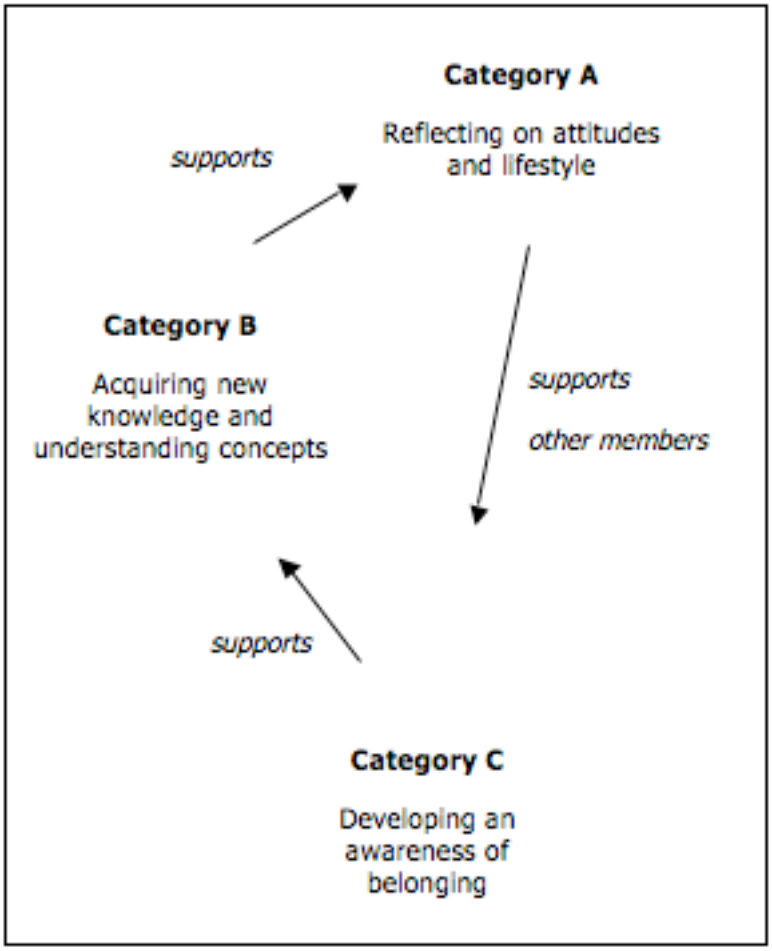

Figure 1 Classifications of described experience

In the second category were reports of gaining knowledge of new facts, or of new technical vocabulary, or of concepts. A number of participants described being able to hear others' views in video clips, though not in the text, as helpful:

> "Also the whole thing about other people's perspective. I thought that was really useful. People said things that I would never have thought of myself and made it really clear to me."
>
> *Participant AP, para 3.1.1*

In the least comprehensive category participants described a sense of belonging with others in the endeavour of reflecting on issues to do with faith. One participant described the experience of being involved through watching clips as preferable to participating in a group discussion:

"*Can you describe how you used the material? What did you do with it?*

You thought everybody was doing it then. You could see folk doing it. It wasn't as if it was just me.... Well it helped me because I really don't like to take part in big discussions, or any kind of show, you know, so it was helpful that I could do that, interact with folk in here.... I was interacting with them because they were in my living room, you know. But they weren't really here, but I wouldn't have probably discussed with them if I'd been face-to-face."

Participant CW, para 4.1

Discussion

The findings suggest that the resource was experienced in a limited number of distinct but related ways, all connected with an identity of participation. The foundational aspect of such an identity was a sense of belonging, that is of feeling qualified and accepted as a member of the group (even if initially near the periphery). The second aspect was acquiring new skills and knowledge and developing an identity as a learner through reading texts valued by the community, listening to dialogue, reflecting on these and offering contributions. Knowledge acquisition is supported by explaining one's current knowledge (Craig, Sullins, Witherspoon & Gholson, 2006: 571) and making videos appeared to encourage this. In the third and most comprehensive aspect of an identity of participation, using the resource encouraged reflecting on lifestyle and attitudes including an attitude of attempting to help others engage with the text and the subject as well as more personal reflections on views and opinions.

Fewer than half of those who contributed video clips attended discussions, partly due to competing activities at arranged meeting times or other commitments. This low level of participation raises questions about collaborating through face to face discussions in this setting. Only a limited number may have grasped the benefit of participation for others as well as themselves. There is no evidence from this study that this resource particularly encouraged meeting to discuss the topic.

Conclusions

An identity of participation that one is able and entitled to be involved in this community of enquiry appears to be a precursor to deeper involvement in this setting. Such an identity may be encouraged both by watching others and by contributing one's own views. Video-recording informal conversations provides one feasible means of capturing these and making them available to others. This may encourage an identity of participation as opportunities for vicarious learning and for expressing developing conceptions and current knowledge are offered. Further research is necessary to determine the extent, if any, video may support an identity of participation in other subject domains and settings beyond a local church congregation.

Acknowledgements

This investigation was financially assisted by The Hope Trust and The Church of Scotland Ministers' Study Leave Scheme and was carried out as part of a research project supervised by Dr Julie-Ann Sime through the Department of Educational Research at Lancaster University whose support and guidance are gratefully acknowledged.

Biography

Grant Barclay is a Church of Scotland Minister researching uses of digital multimedia, and video in particular, to support Christian education, conducted through Lancaster University's Centre for Studies in Advanced Learning Technology. He has previously presented papers at ED-MEDIA 2003 and DIVERSE 2006. Email: grant.barclay@bigfoot.com

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4.3

Hello, England calling

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Abstract

In this paper, we will discuss some communicative phenomena that occurred in interactions in an international e-project involving students from the UK and the US (L1 speakers of English) and students from Sweden and the Netherlands (L2 speakers of English). In the project, the students first discussed cross-cultural issues on an on-line forum. In the second phase, presentations given by the Dutch students were videotaped, and put on the forum for feedback by the native speakers. This feedback (which was videotaped in the case of the UK students, and in writing in the case of the US students) was put on the forum for the presenters to read. We will discuss how the equality between the interlocutors on the forum was affected by the differences in their language skills and by the roles they assumed in their digital video work, and we will discuss the students' exchanges from the point of view of cultural norms.

In this paper, we will discuss some interesting communicative phenomena that occurred in student interactions in an international e-project that ran in the first semester of the academic year 2007/2008. The project involzved students from universities in four different countries: Metropolitan State University (Minnesota, USA), York St John University, (UK), Högskolan Väst (Sweden), and the University of Amsterdam (The Netherlands). The aims of the course varied for each university partner. The York students were on programmes in Communication and in Linguistics; the students from Minnesota were from a variety of courses, but all involving an element of Intercultural skills; and for the University of Amsterdam the project was incorporated into the course 'Academic English'. For the American and British students, the forum discussions formed the input for academic papers they had to write. For the Dutch students the situation was more complex. The general aim of the 'Academic English' course is to make the students more proficient communicators in the international academic world: they have to learn how to write and present academic papers and to debate academic issues in English. A key driver for all concerned in this international project, but perhaps the most important factor for the Dutch tutors, was the opportunity for their students to engage in more authentic discourse than is normally the case in L2 learning and teaching, in order to help them learn 'how to survive when using the language in natural settings' (Kramsch 1987: 246), and to become more aware of the intricacies involved in intercultural communication (Hofstede 1997).

During the first phase of the project, the students posted messages on a discussion forum on a VLE (Virtual Learning Environment, specifically here Desire2Learn), which was hosted by the Metropolitan State University and monitored by the lecturers from the universities involved. The discussions were on set topics related to intercultural issues, ranging from representations of culture, to taboos, media discourses, and attitudes to language varieties. At the end of the forum discussions, the York and

Minnesota students wrote a final paper; the Dutch students used the material from the postings as a basis for a presentation. These presentations were recorded on video, streamed and then posted on the VLE. The York and Minnesota students were then given the task of giving feedback on these presentations, in terms of content, structure, presentation techniques and use of English.

In this paper we want to explore some of the effects these assignments had on the interactions between the students. We will first look at the issue of equality between interlocutors on the forum. Then we will discuss the roles students assumed in their digital video work, and the effect this had on the way they interacted with each other. Finally, we will consider their exchanges from the point of view of cultural norms.

Equality

Looking back over the history of research on computer-mediated communication (CMC), there has been a strand of expectation that CMC would create a more 'level playing field' for participants than is normally the case in face-to-face (f2f) interaction. For example, Van Gelder (1990) maintains that CMC creates a more egalitarian communicative situation because many of the factors which embody inequality in f2f interaction - such as race, gender and accent - are absent in CMC (Van Gelder 1990: 130). Ma (1996) also suggests that 'lack of security, or anxiety, as usually experienced by a 'stranger' interacting with members of the ingroups (Gudykunst 1988: 125-126), is not likely to occur in computer-mediated conversations either' (Ma 1996:179). Among the American and Asian students Ma investigated, it 'was unanimously acknowledged in both cultural groups that status difference was unnoticeable in computer-mediated conversations' (Ma 1996:183).

Taking Ma's findings as a starting point, we could have expected complete equality between the various partners of the forum discussions. However, this turned out not to be the case. The situation was more complex, as a result of the difference in linguistic skills: the York and Minnesota students were native speakers of English, whereas the Dutch and Swedish students spoke English as a second language. In the following analysis, we will concentrate on the effects this had on the Dutch and the English students.

At first the Dutch students were a little daunted by the idea of writing in English to native speakers. They were insecure about their communicative skills in English and their ability to express themselves accurately. This was demonstrated by remarks they made to their native-speaker counterparts on the forum, such as: "To start I want to apologise if my English isn't that good, but I will try to do my best. I study Law at the University of Amsterdam and I took this extra class to spicy up my English[14]."

However, the Dutch students quickly became more confident when the native speakers showed their admiration for the quality of their English. There are frequent instances of this in the forum, such as the following response to an early Dutch posting: "Your English is really good, far better than any attempt I could make to communicate in a foreign language. Hopefully by the end of the course your English will have developed even further."

Another factor which may have contributed to their increase in confidence, was the fact that some of the native speaker texts also displayed spelling and language errors, for example: "I persoanlly dont mind being called either! My friends and 1 use 'woman' when excalming dispair at an individual e.g. 'U silly woman!" In a number of the native speakers, the context of an online forum may have triggered the use of 'netspeak' (Crystal 2001), where adhering strictly to the norms of linguistic

[14] All material from the discussion boards is presented here as originally written

correctness is less important. In her article 'Why email looks like speech', Baron (2003) argues that the informal nature of much CMC writing – and indeed of much contemporary writing in general – is a reflection of the current growing tendency to informality, and comments that emails 'tend to be characterized by informality of style' and 'a psychological assumption (on the part of the senders) that the medium is ephemeral. In this way, many messages are sent unedited' (Baron 2003: 91). Once the Dutch students recognised that even the English of native speakers was not impeccable, and that their English counterparts did not seem overly concerned with accuracy, the Dutch students quickly got over their initial reservations, and started to participate in the forum with gusto, their sense of inferiority having almost entirely evaporated.

Roles and student solidarity

This equality, however, was rudely disrupted by the framing of the second half of the project. Here, the L2 Dutch students were asked to give a presentation in English, which was then posted on the forum for feedback by the native speaker York students. In this phase of the project, the difference in language skills would take on a new life: the expected difficulties of managing pronunciation, vocabulary retrieval and grammar in the stressful context of giving a presentation on camera to native speakers, pushed the Dutch speakers into an apprentice role, while the supposedly 'expert' native speakers found themselves in the teacher role.

The Dutch 'learner' role expressed itself in various ways. We saw it first in discussions of the assignment in class, where the students expressed a strong desire to do well, saying that the fact that they had to perform for native speakers was a huge extra incentive to prepare and perform well. Later, after the presentations had been posted on the forum, we saw it in remarks they made about their own performance.

One of the Dutch students, after watching her own presentation on the VLE, self-commented on the forum: "Oh my God, What a Shock! To give myself an advice: I should practice more in advance and try to be more self confident, to make it less boring... PLEASE tell me your opinions: what should I work on, and how..!"

The 'teacher'/'coach' role was picked up immediately by one of the members of the student's discussion group: "My opinion, as positive as I can be with suggestions are not too major! First off, you did a wonderful job, it was an interesting topic and everything flowed together nicely and it was very easy to understand. Even though my knowledge of the Russian culture is limited, I did know that they do love Vodka, but I didn't know it was connected to their life expectancies or morality rate. Although in your presentation it was made very clear how they were connected and you gave good examples, such as driving, etc."

Pronunciation was also an issue the Dutch students were worried about when they were giving their presentations. It helped boost their confidence enormously if they got positive feedback from a native speaker: "…it's great to read that you liked my presentation and that it was easy for you to understand my English. I don't speak much English, so I was a bit worried about my accent." Again this exchange illustrates the division of student and teacher roles and the importance of positive feedback for the less confident L2 students.

We also see examples of 'teacher'/ 'coach' behaviour in the feedback videos from York St John University. Some students take to the 'teacher' role with gusto. In one case three female York students give detailed, constructive feedback on what might have been done to improve the presentations of three Dutch students. They seem to feel very much at home in the 'expert' role. Their

analysis of the Dutch students' presentations is very critical, and includes clear and concise advice on how to improve content, structure and presentation. They are very polite, and try to balance positive with negative feedback, but still they come across as very strict and direct, e.g.: "We thought the content of the presentation […] was good, but there were a couple of areas that could have been tweaked to make it a bit tighter. […] We really liked the summary that you gave of the opinions from the discussion forum, but we thought here you could have maybe introduced some references that would either support the opinions that had arisen or refute them. And it would have showed that you did some wider reading here." The feedback is very accurate – the Dutch students' teachers agreed with every point – but the impact through the medium of online video was probably harder than it would have been face to face. There was no way for them to see how the Dutch students reacted to their feedback, and to adapt their tone accordingly.

Not all the York students appear to feel this comfortable with their position of coach. In fact, the overwhelming majority seem much more diffident about it than the three female students mentioned above; although they do accept their role, they are at the same time very much aware that they themselves might find it very difficult to give an L2 presentation: "**we** would be terrified [of giving a presentation}, particularly in another language." Also, they distance themselves from their role as givers of feedback: "don't take this to heart; we have been told to do this". In other words: don't blame us, blame our teachers. Indeed, they are full of admiration for a student who does not appear to show any signs of nervousness. ("Are you just naturally brave?"). Thus, although they act out their role, they frequently downplay their supposed expertise.

It may be concluded that, although the teacher/learner roles that were assigned to the students in the feedback assignment might have upset the equality that had developed between the native speakers and the non-native speakers in the first part of the project, most of the native-speaker students were eager to maintain and stress equality and student solidarity, rather than completely adapt to the unequal roles they found themselves inhabiting in the second part.

Cultural norms and online spaces

Ma (1996) sees online spaces as a kind of no-man's land, suggesting that nobody's rules are in play: 'Those from different cultures engaging in computer-mediated conversations do not occupy a common physical space, so they are not bound by any particular set of cultural rules' (Ma 1996: 176). However, others (for example, Reid 1991) have suggested that although there are no obvious 'givens' in terms of social etiquette, rules do have to be negotiated, which means that cultural norms have to be created and are not simply 'absent'. Our collaboration showed some of the ways in which cultural norms were brokered in these spaces.

A first example we will give occurs in an interaction where York students reported some discomfort at their Dutch counterparts' directness ('directness' being a quality which is often ascribed to the Dutch in representations of their culture). In one of the early exchanges a Dutch student starts off a discussion with a quote from Goddard and Patterson (2000) ('words which would be described as obscene in the English language'). She claims these words are commonly used in Dutch. A lively discussion develops in which further reference is made to these supposedly 'obscene' terms. After a while, one of the York students comments that she is "not comfortable with the discussion", adding in a slightly humorous tone that there must "surely (be other) topics (…) more conducive to promoting world peace!"

This exchange triggered another interesting phenomenon which seems to occur frequently in cross-cultural electronic forums - the process of 'moderation'. Hanna and De Nooy (2003) describe this process as the intervention of an official moderator or a member of the group to guarantee the group's

continued functioning. In the above exchange on our forum, one of the English participants appears to be taking control in order to steer the discussion back on course. He comments that the discussion about the use of 'obscene' terms is highly relevant. Indeed, he advises the York student who expressed her discomfort to have a closer look at the subjects on the list since, he argues, the topic anticipates one of the forthcoming subjects, i.e. that of taboos. We find no further comments in relation to the alleged inappropriateness of the subject.

Another problem of intercultural communication arose when some of the Dutch students seemed to take for granted that their audience would understand their references to highly publicized issues in the Dutch media. Thus, when one of the presenters referred to a statement made by a Dutch princess about the sensitive issue of Dutch identity, she automatically assumed her audience would know what she was talking about. The student's inability to understand that her cross-cultural audience couldn't possibly be expected to have heard of this issue was immediately picked up by the York students. They commented that they did not know anything about the event or the person, and suggested that she should have explained the situation to people from a different culture, perhaps even shown the statement in her PowerPoint, since it provided the starting point for the presentation.

Conclusion

We have seen that, in spite of the difference in linguistic status, the L1 and L2 participants managed to establish a good degree of equality at the beginning of the project. We would like to recognise here the powerful role which the more relaxed linguistic norms of discussion boards may have played in this. However, this balance was slightly upset in the second half of the project, when the L2 students were giving a presentation to be viewed and commented on by the L1 students, thus constructing the L1 and L2 participants as teachers and students respectively. The more interactive nature of the discussion boards allowed for more cultural 'brokerage' to occur; however, we need to acknowledge the fact that, despite the inequality of the roles in the digital video work, the L2 speakers' performances were considerably raised by the fact of having to perform for an audience of their L1 peers.

From an intercultural perspective, we believe that all participants – both the native and the non-native speakers of English – have benefited from the project. Hanna and De Nooy (2002) have pointed out that participants of forums have different 'notions of what constitutes acceptable forms of debate (…) according to their own cultural affiliations (Hanna and De Nooy 2002: 72) and one of the aims of the project was to make students more aware of different cultural sensibilities. And indeed, we have seen many instances of a growing awareness of what it means to communicate in a foreign language, with real people from a different culture.

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Section 5. Technical Reports

5.1

Establishing a Media standard for The University of Copenhagen

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Abstract

Since early 2005 the former Academic Support Center - Media (now ITMEDIA) have produced podcasts for the Faculty of Humanities, University of Copenhagen. With almost 30 years of collective experience of producing media (sound and video/TV) at the Faculty of Humanities the jump into these new media seemed to be a natural thing to do. The need for a coordinated effort for the preparation of up-scaling the use of new media in a diverse and vast educational institution soon appeared. This paper will address the challenges and experiences in the process and set focus upon how new media affect administrative, technical, organisational and educational efforts within higher education. Various projects like common media standard, podcast portal and establishing the media backbone for this effort will be discussed.

Key words: Podcast, Enhanced Podcast, Webcast, Streaming Video, Web 2.0, DVTS/N over IP, Feeds Structuring, Podcast Portal, New Media, CMS integration, Production Line and Issues, Copy-right.

Introduction and background

In the last couple of years the increase in bandwidth and the accessibility of high speed broadband for private users have escalated, increasing the use of online video and sound for educational purposes.

At The University of Copenhagen the use of video and sound for educational purposes has been restricted to few subjects and courses, and the distribution have been sparse when it comes to online content. But as foreseen by several developers and researchers within the Internet and software research, among others Jacob Nielsen, the use of multimedia will change the traditional use of the Internet capabilities.

> *Tomorrow's audio-visual receivers will likely have music-on-demand capabilities, so that you can draw from a vast library of DVD-audio-quality music, in effect sporting a multithousand-song 'jukebox' in your very own living room. If Hollywood and the recording industry support such a phenomenon, they will make a fortune charging consumers a few cents per song per play. If they don't support it, the music will cost consumers even less.' Jacob Nielsen & Bruce Tognazzini, in 'Beyond the Browser', article in Inter@ctive Week, 2001*

During the last couple of years ITMedia[15] at The Faculty of Humanities, University of Copenhagen, has been experimenting with podcasts, Webcasts and streaming for educational purposes. The

[15] ITMEDIA (former Academic Support Center) <http://itmedia.hum.ku.dk/> accessed June 10th 2007

productions have been distributed through iTunes, and some of the productions have been awarded with the Prize '"Det Gyldne Snit" at The Danish Research Network Conference (2005[16], 2006[17]).

In 2006 The University of Copenhagen started the process of choosing and implementing a common Learning Management System. The process lasted for one year and should be seen as one example of the current efforts of standardizing the IT-facilities for educational purposes.

During 2006 The University of Copenhagen also have been in the process of merging with the former Royal Veterinary and Agricultural University and The Danish University of Pharmaceutical Sciences, resulting in two new faculties: The Faculty of Life Sciences and The Faculty of Pharmaceutical Sciences.

These two faculties have been heavily involved in developing and using new media, i.e. video and sound in their educations, both in distance education as well as on campus. Also the Faculty of Science has been working with the use of video.

Also the University of Copenhagen is in the process of re-organising into a campus university consisting of four campuses[18].

A part of the new law[19] for the governing of the universities is that each university in Denmark signs a development contract with the Ministry of Science, Technology and Innovation. As part of the development contract between the University of Copenhagen and The Ministry of Science, Technology and Innovation, objective 19, the university has committed itself to conduct experiments within the use of new media, i.e. podcasts, webcasts and streaming media for educational and research purposes. In order to prepare a possible up-scaling of the efforts on new media at the University of Copenhagen, and support the preparation of the efforts of utilising the new media across campuses and in collaboration with other research institutions (universities and health care sector), a small group of stakeholders was formed in September 2006[20]. During the autumn term the recommendations for a common media standard were established. The stakeholders agreed to recommend the use of the MPEG4 standard as common media standard for the University of Copenhagen.

Projects with new media

In several occasions ITMedia has been involved in livestream and webcast events in collaboration with national and international partners. ITMedia has additionally participated in The Danish Research Network workshops and conferences in order to build networks of expertise within the Danish universities. In the following three projects will be discussed:

- The implementation and use of podcasts
- Streaming media and DVTS/N over Internet2 / Geant2
- The use of new media in educational development.

[16] Lad de små børn. Blodige beretninger på hvide vægge <http://www.forskningsnettet.dk/nyhed?28> accessed June 10th 2007

[17] Bogstaven slår ihjel, men ånden gør levende <http://www.forskningsnettet.dk/dgs2006/reportage/> accessed June 10th 2007

[18] <http://www.ku.dk/campus/> accessed on June 10th 2007

[19] < http://videnskabsministeriet.dk/site/forside/nyheder/andet-nyt/videnskabsministeriets-fokus-i-forhold-til-universiteternes> accessed June 10th 2007

[20] Faculty of Health Sciences, Faculty of Science, Faculty of Humanities, Faculty of life Sciences

From august 2005 to present ITMEDIA has been involved in producing podcasts in collaboration both with researchers[21], lecturers[22] and students[23]. Also dissertation defences as well as PhD defences have been podcasted as part of the strategy of communicating research performed at the Faculty.

A brief definition of Live Stream, Podcasts and Webcasts.

A production of a lecture, teaching lessons or other events typically contains various stages where the last is represented by the final podcast. This applies to both audio and video podcasts.

These stages can be divided into the following parts, where some of the parts can be optional depending of the type of event.

1) The announcing of an event.
2) The production of an event with live streaming through the Internet
3) Immediate reissue of an event as webcasts
4) Immediate reissue of an event as WebStream
5) Publishing the event as Video On Demand
6) Publishing the event as podcasts

Live streaming provides the opportunity to broadcast live through the Internet to an audience situated anywhere in the world. The live stream can be open to all, or be restricted to a limited group only. Access to network is mandatory during the event.

Webcasts provide the opportunity to reissue a recorded version of the material brought by live stream. It is possible to watch the event from start to finish, but the recording it self cannot be saved to a file. Network access is mandatory.

WebStream provides the opportunity the reissue a recorded version of the material that was live streamed. It is possible to make jumps in the recording, but not to download the material to a file. Network access is mandatory.

Audio/Video on Demand (AOD/VOD) provides the opportunity to reissue a recorded version of the material that was live streamed. It is possible to watch the material from start to finish and to download the material to a file and watch it again without network access.

Podcasts provide the opportunity to subscribe to AOD or VOD through various podcast channels. These channels are accessible through an XML based subscribing system like for instance iTunes or a homepage containing the podcast channels one wishes to publish. Podcasts provide the end user with the opportunity to keep updated on different channels, and to watch these channels locally.

Building the Faculty of Humanities' Portal

Until now the podcasts and other media productions have been distributed in connection to the events announced on various web sites. In traditional end user design, both interactive and web it is advised to gather as much related information in one spot as possible or organise the information in a rational manner (Preece et al, 1994, Nielsen, 2000, 2006). In order to up-scale and coordinate the efforts, and provide one single entrance point for our end users, it was decided to establish a podcast portal at

[21] Professor Axel Bolvig, Associate professor Eva Dam Jensen, Associate professor Thora Winther
[22] Ph.D, Post.Doc,Erik Granly Jensen, Associate professor Mie Femø
[23] Productions at the MA-level course 'ARKustik' in collaboration with the art museum 'Arken'

The Faculty of Humanities[24]. The portal should serve the purpose of collecting all announcements from the faculty providing the end users; both faculty, staff, students and the public with the opportunity of accessing the productions from lectures, dissertation and PhD defences and productions of interest for the public.

The podcast portal should also provide services for the Content Management System used by the Faculty of Humanities (and The University of Copenhagen). The faculty CMS should be able to 'subscribe' to earlier announced events by linking to the podcast portal through the news facility in the CMS. Thus this would create an opportunity of keeping the CMS news facilities updated automatically through all the phases of an event, from the announcement, through the planning to the final broadcast / publishing.

In order to make this happen it was necessary to create an internal system to handle the different events and their various phases, information and files.

The project was initiated in the beginning of 2007, and finished in a version 1.0 by late March. During the period of the project we learned some lessons concerning the organisational aspects of creating a new channel of communication. The collaboration with IT-services and Communication services, both were stakeholders in parts of the project, required quite a deal of planning and explaining. 'When it comes to technology, things quickly get very complicated' as one of our peers expressed it. New ways of distributing and organising information for large-scale communication affect existing organisational structures (Bates, 1996, 1999), which was our experience in this particular project as well.

Using the podcast portal

The podcast portal is now in use communicating research initiatives and educational / cultural activities at The Faculty of Humanities. Contacts with other faculties at the University of Copenhagen have been established for productions related to the areas of education, research and communication. Several of these productions are related to presenting research, or presenting subjects and educations to potential students.

For distributing podcasts ITMedia at the Faculty of Humanities is still using the iTunes solution too[25]. There have been discussions in the academic environment concerning the connection between a commercial solution and the independent research, but the problem is in fact the same as the use of other commercial products i.e. Mac, Microsoft and so forth, and stems from the delay in the promotion of new media, and the spread to end users (Luhmann, 1996).

The fact is that the generations of students the university are interested in reaching actually use the iTunes solution. Internationally reputable universities like Princeton, Berkeley and Harvard also have dedicated iTunes channels for distributing their lectures[26].

But restrictions have been made. Quite early ITMedia at the Faculty of Humanities asked the faculty management to pay attention to the question of copyright and other aspects of legislation concerning the audio and video broadcast of attendants participating in public lectures and other events. The first inquiry was made in November 2006, and in May 2007 the final answer came from the office of legislation at the University of Copenhagen with recommendations. The situation now is that the subject has been taken into consideration at The Ministry of Science, Technology and Innovation, as

[24] <http://podcast.hum.ku.dk/> accessed June 10th 2007
[25] In iTunes look for Københavns Universitet under Podcast, Education.
[26] A list of universities are available here: <http://media.hum.ku.dk/projekter/ > accessed June 10th 2007

the contract between the ministry and the University of Copenhagen specifically states that the university should make progress in the use of these new media.

The EUNIS DVTS Project April 29th 2007

The EUNIS-project (European University Network of Information Systems) consisted of transmitting a concert conducted by The Philadelphia Orchestra to universities around the world through Internet2 / Geant2. In Europe two universities participated, The University of Porto, Portugal and The University of Copenhagen, Denmark. The motivation for participating in this project was that the use of high resolution video (and high quality sound) over the Internet could be of interest for the University of Copenhagen, especially considering the process of changing the university to a campus university with geographically wide spread campuses. The project could generate experience and documentation for the implementation and use of DVTS/N over Internet2 / Geant2.

The initial invitation was received through Center for Web Based Learning, University of Copenhagen in the beginning of February 2007. During the next couple of months the project changed several times, ending up with a one-way transmission to 5 American (U.S.A) and two European universities. The project required collaboration between the central IT-department at the University of Copenhagen, IT-services at the Faculty of Humanities, Center for Web Based Learning and ITMedia at the Faculty of Humanities. Also issues concerning law, copyright and contact to the press became relevant, and affected the final project regarding the number of audience at the actual concert. The following is a technical description and documentation of the project and the lessons learned.

Photos (fig. 1-3) from the event in technician room 23.0.50 below.

Fig. 1. Test setup: in front sound, mixer and monitor

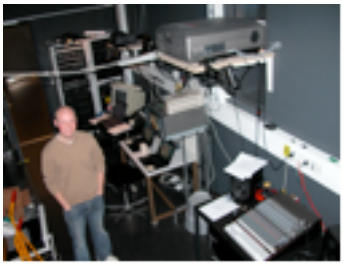

Fig. 2. Rasmus in the test setup

Fig. 3. DVTS reception: Two MacBooks with XP

The DVTS project still indicates that the technology is in an early test phase. The software applications used were beta versions and clearly developed by network specialists with little experience in video production, which could be a weakness. Adopting the methods and working routines used in ordinary television production and transmission through SNG, could add the standardised routines of establishing calls, put-through and transmission, as the only really new in this project is using the Internet for transmissions and not satellites.

A favourable aspect of the event was that EUNIS / The Philadelphia Orchestra were using professionals concerning the video production securing that the video feed from the concert hall was transmitted in a very high quality.

The signal received throughout the tests was in the NTSC format (National Television Standards Committee). The American television system is based upon 525 horizontal lines and 30 frames per second. The map below (fig. 4.) shows the spread of the NTSC system.

The video format during all tests were16: 9 Anamorph (‘real’ 16: 9) – what some use to call broad format. This is why we had to letterbox the image during the concert, as the video projector did not support this format.

When it comes to the quality of the received video and sound signal during all 4 test events (from April 10th to 29th), the result was very positive, actually it surpassed our expectations.

Considering the network challenges all tests were without problems. The only minor thing occurred during the first test April 10th where there was no signal for 10 minutes. This particular problem was solved by the EUNIS partners and was related to the amount of allowed HOPs.

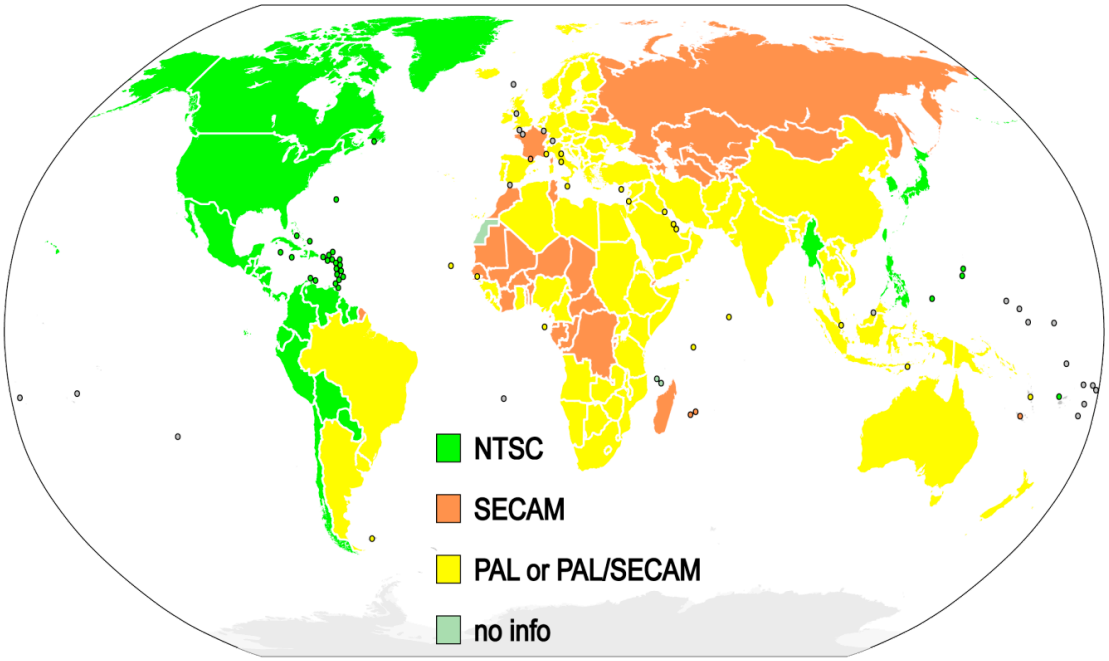

Fig. 4: Map of the spread of the various standards

During the test performed April 28th a minimal sync-flaw between sound and image was experienced. The flaw consisted of maximum 2 frames in a bit rate of 30 fps.

During the tests the April 28th and 29th the video signal was monitored with a waveform monitor and Ikegami TM1570 Broadcast Video Monitor. During the two first tests there was periodically sparks on the sound side. This is usually no problem in ordinary use (conferencing, speech, etc.), but in listening to music it could be a nuisance. These small flaws did not occur during the direct transmission on the evening April 29th. On the image side there were generally speaking only small flaws.

The technical solution as it is for the time being, can be used for university purposes without greater problems. However, although the experience and documentation of receiving now is now in hand we know need to conduct local tests in order to gain experience of transmission. Also gaining experience and obtaining documentation for ordinary signal processing and work routines would be advisable.

The test events

The test events were conducted without the opportunity to perform technical measurements on the incoming video signal. It is profoundly difficult to use sight and hearing to reach the optimal signal processing, and the tests were to a great extent characterised solely by tests of whether the network was functioning.

During the tests the images was transmitted in the NTSC format. The NTSC format contains numerous flaw possibilities when merged with a PAL environment. Not only due to the fact that NTSC contains another standard for lining and colour systems, but also because the DV standard differs from the PAL environment. In the NTSC format 4:1:1 is used as chroma subsampling, where PAL uses 4:2:0 (Fig. 5).

It is therefore recommendable to keep up to the norms, which already has become standardised between broadcasters – not to make it difficult, but keep it simple.

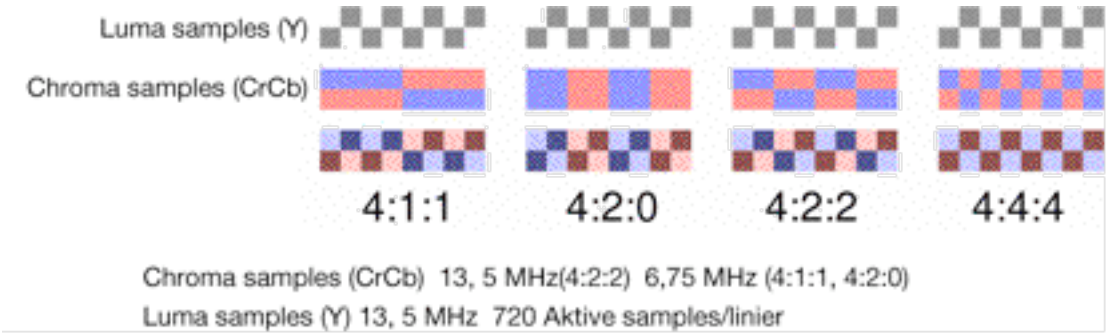

Fig. 5: The various formats according to standards

During the April 29th event we received the NTSC signal changing between to variations;

The video / image material from the concert hall was transmitted with NTSC setup at 75, IRE, meaning that the black level has been elevated and is seen as dark grey.

It is normal for NTSC (except for Japan) that producers elevate the pedestal to 7, 5 IRE (equivalent to +54 ±7 mV) in order to better reproduce details in black. The images from the backstage studio, the slides and text were transmitted with setup to blanking level 0 IRE, probably due to the fact that this transmission was run on different equipment, and that ordinary video standards were used (for instance computer based or equivalent to Japanese NTSC standard).

This had the effect that the video / images from back stage were seen as too highly contrasted and compressed to just black as the video projector in the auditorium was adjusted to standard NTSC setup, which was what we earlier had received during the test events.

In Europe and countries where PAL is standard (except Argentina and Brazil) blanking level or 0 IRE is used as black. The video signal is also measured with different units in Europe and U.S.A.

The American Society of Motion Picture and Television Engineers (SMPTE) are dividing the video waveform between blanking and peak in hundred IRE units, while the Comité Consultatif International des Radio Communications (CCIR) and the European Broadcasting Union (EBU) refers to the actual voltage on a standard video waveform with an amplitude of 1Vp-p in 75ohm (can also be expressed as a percentage of the peak-to-peak amplitude: peak white to sync tips / bottom where 1% = 10mV).

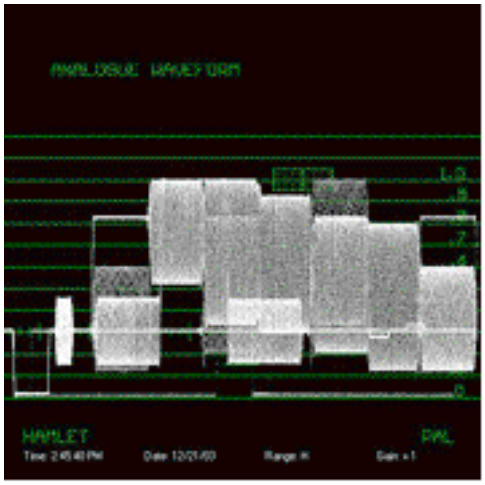

Fig. 6 Standard PAL SMTP 0,0IRE

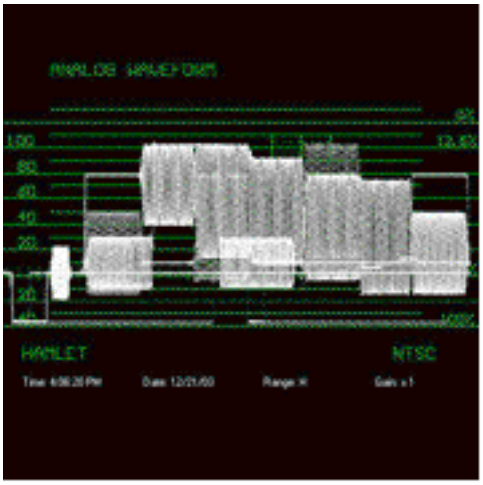

Fig. 7 Standard NTSC SMPT 7.5IRE

The devil lies in the details, and these details are enough to make the images seem too dark or without depth.

The video signal was during the entire event between 120 – 130%, in images without setup 10% lower. The norm is naturally 90 to 100%.

NTSC Peak white level +714 ±7 mV (+100 ±1 IRE)

PAL Peak white level +700 ±15 mV

When the signal is transmitted so close to the limit / clipping level, there is a risk of amplifiers, line-in entrances or other equipment creating distortion, resulting in signal clipping or over-burning of light / white parts of the images. It is not possible to control the white clipping in ordinary video equipment, why it is necessary to invest in rather expensive equipment for signal processing if standards are not kept up to.

The majority of equipment in the cheap end has, furthermore, the flaw or drawback that it does not clip in the top, but if the image is too big, in the bottom, which decreases the down-bound sync pulses resulting in image fall or ‘rolling’ if very light or white areas are part of the image.

In a normal and standardised reception one would typically not have the equipment available to push into the fire wire chain, providing the opportunity to lower the luminance. It is possible to solve this problem by using the Harris X75HD, X75SD HD/SD signal processor during the signal reception.

We solved the problem temporarily by putting a local transmission unit into the chain in the Y/C video connection to the video projector providing us with the possibility of subduing gain in Y and C channels, and giving us the opportunity of adding equipment that compensated to the lack of image sharpness in the projectors image reproduction. At the same time we were experimenting with ‘over compensation’ in the output signal wires, but this showed not to be a permanent solution to this problem.

In a very late stage of the process we were told that the rigging of microphones to the concert would differ from the one in the test events. That did not in itself present any problems, but stresses the importance of keeping up to signal standards and uses an acknowledged line up level.

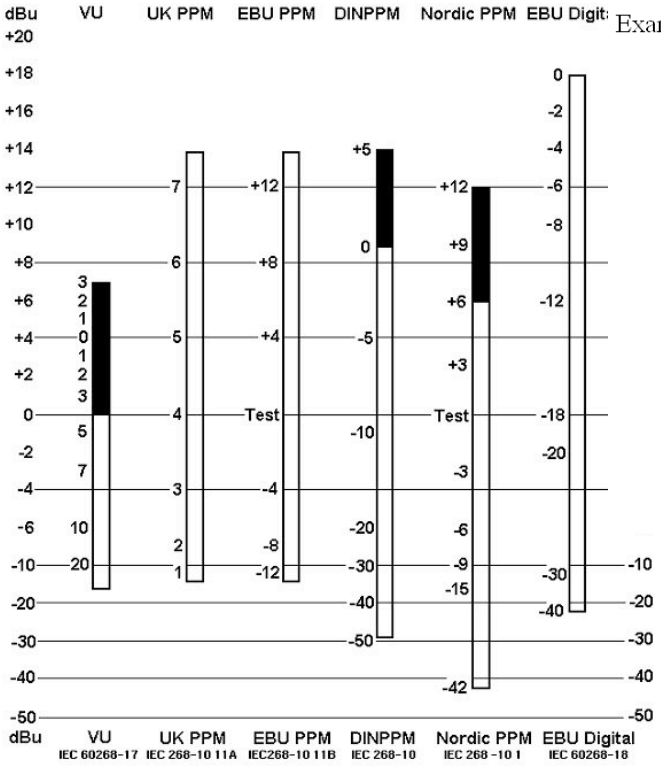

Fig. 8:

Examples of broadcast audio scales

Digital (dB)	PPM	Nordic (dBu)	RMS(BAL) V	P-P (un-bal) V
0		18	6.15	8.7
-2		16		
-4		14		
-6	7	12	3.057	4.32
-8		10		
-10	6	8	1.94	2.74
-12		6	1.54	2.178
-14	5	4	1.23	1.74
-16		2		
-18	4	0	0.775	1.096
-20		-2		
-22	3	-4	0.489	0.692
-24		-6	0.390	0.551
-26	2	-8	0.308	0.435
-28		-10		
-30	1	-12	0.196	0.277

Fig. 9:

We did not ahead of the final event receive any information about level and therefore had to ask for test tone and colour bar.

It was difficult to get a clean test tone. Most of the time the tone was disturbed with background sound from the audience and the out-put level of the tone were not known to us.

The scheme (Fig. 8 - 9) shows the differences in some of the measuring scales that are used around the world.

Line up level in the various scales should be 0dBu = 0.775 v rms, which is equivalent to:

VU = -4dB (from -20db)

UK PPM = 4

EBU PPM = 0

DINPPM = -9

Nordic PPM = 0

EBU Digital = -18,

(USA - 20)

This ensures that the recipient can take precautions to maximum levelling thus preparing for the best possible sound image and listening comfort.

It is of importance for the signal recipient that the signal provider is keeping up to acknowledged levels. During the concert event there was a significant difference between the signal from the concert hall and the level from the back-stage studio. The speaker voice was approximately +10dB over music level and was experienced as somewhat shrill. In addition we were not briefed of when the speech was coming.

Lessons learned

Technically in the DVTS test to be held we had tried to consider the most common occurring problems, by having double of all equipment in all the primary functions. The final image during the concert was however somewhat affected by the fact that we used an 'older' projector (from 2002) and the fact that the sound image suffered from the lack of warmth in the low mid tone area. We also experienced a single blackout in the beginning of the second part of the concert that lasted approximately 1.5 seconds. The blackout has now been located to a malfunction in one of the DV units.

What could be improved in the future

For the next test involving music we should have the opportunity of

- Using a better video projector, minimum 16:9 native.
- Measuring / testing the frequency movement in the auditorium to ensure the best possible sound reproduction
- Blanking out the image through a mini video mixer, or using the DPS-575 Digital processing synchronizer (this model has now been replaced by the X75HD, X75SD Multiple path converter, synchronizer that also support HD) sound has the highest priority though
- Our sound operator has direct contact to the auditorium for securing an optimal PA reproduction

Additionally the auditorium technician room does not apply to minimum requirements for handling this kind of events. The level of background noise, bad acoustic conditions and the poor interior suggests that future test events should be handled through the ITMedia control room. It would be possible to transfer the Firewire IEEE1394 a/b through the fibre network (for instance through a Multidyne DV1394 Firewire Fibber Transceiver using the single mode fibres).

Considering the final event with an audience it should be possible to establish a temporary control room in the auditorium's technician room.

Scheduled tests

Scheduled tests with standard SMPTE or EBU test images and calibrated test tones, Ramp, Sweep, etc., are of great significance in order to maintain the high quality potential for the future that this form of transmission allows, which also makes this project interesting. The permission to record the events (the DV stream) in order to evaluate the signal processing afterwards is of equal importance.

In addition it is important to keep up to the TV standards and signal levels. Thus an overview of the video and sound standards for potential collaboration with partners over sea is crucial to secure the best possible quality for future events, also in collaboration with partners without sufficient in sight in the technical standards.

The Intercom

We experienced several times that it would have been preferable to be able to follow the dialogue between producer and technicians. It would have been easier to ask relevant questions regarding tone, bars, etc., and made it possible to follow the down count cues, discussions of problems and so forth. Commands could have been given to all involved at the same time. The actual InterCom based upon Instant Messenger and text solutions can generate stress to the signal supplier, when one is to communicate with many involved persons and the recipient expects answers. Time is of the essence, which also can generate stress. A better and more integrated InterCom structure could be the solution to this problem. Perhaps it could be possible to create bi-directional intercom connections in future events. Ordinary phone quality should be sufficient. However: a 'command line' channel should have main priority.

Improved dialogue with software developers

The software handling the transmission, networks and video / audio signal were in beta, and we experienced changes in the versions that had removed some of the bugs, but where news ones had appeared. In addition, expectations of functionality as measuring tools or monitoring network connections, video and sound signals and the opportunity of built-in blackout could have been favourable to discuss.

Improved communication from DVTS consortium

If DVTS is to be used generally it is of importance that documentation regarding the application and network settings is in place. It is also important that the applications are part of usability testing, heuristic and expert (Nielsen & Mack, 1994) as well as correction of bugs and errors. We experienced that the applications for Mac were utterly useless whereas the version for Windows were reasonably stabile, but could be improved. Some suggested practicalities below:

- A free university membership of the DVTS Consortium would provide a better opportunity to be part of the collaboration regarding the DVTS or DVBS (Keio University / WIDE Project DVTS Consortium[27]).
- The development and use of pre-feed/ sender-id sign with logo (EUNIS Feed up ident) in order to identify transmitter to receiver. There is no need for a complicated solution – just a print transmitted with camera before the feed (Fig. 10).
- Development and use of what could be named as "DVTS Technical Standards Agreements"; simple definitions and agreement of common technical standards – for instance in the form of schemas ensuring all participants in a collaborative project know what, where and when the receiving signal occurs and in which format (Fig. 11).

[27] DVTS: <http://www.dvts.jp/en/>, WIDE: <http://www.wide.ad.jp/index.html> accessed June 10th 2007

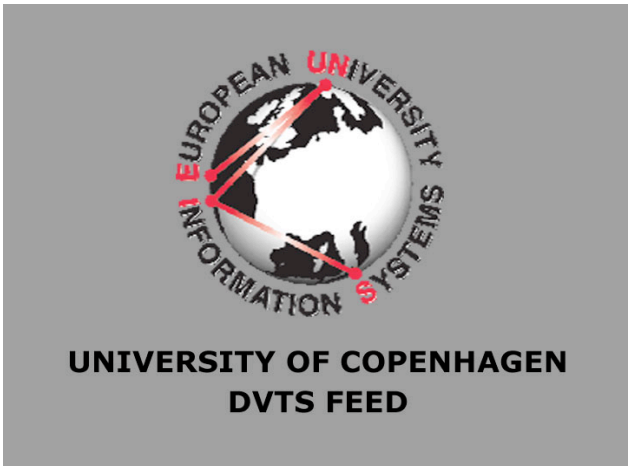

Fig. 10: Example of how the pre-feed sender-id could look like for the University of Copenhagen

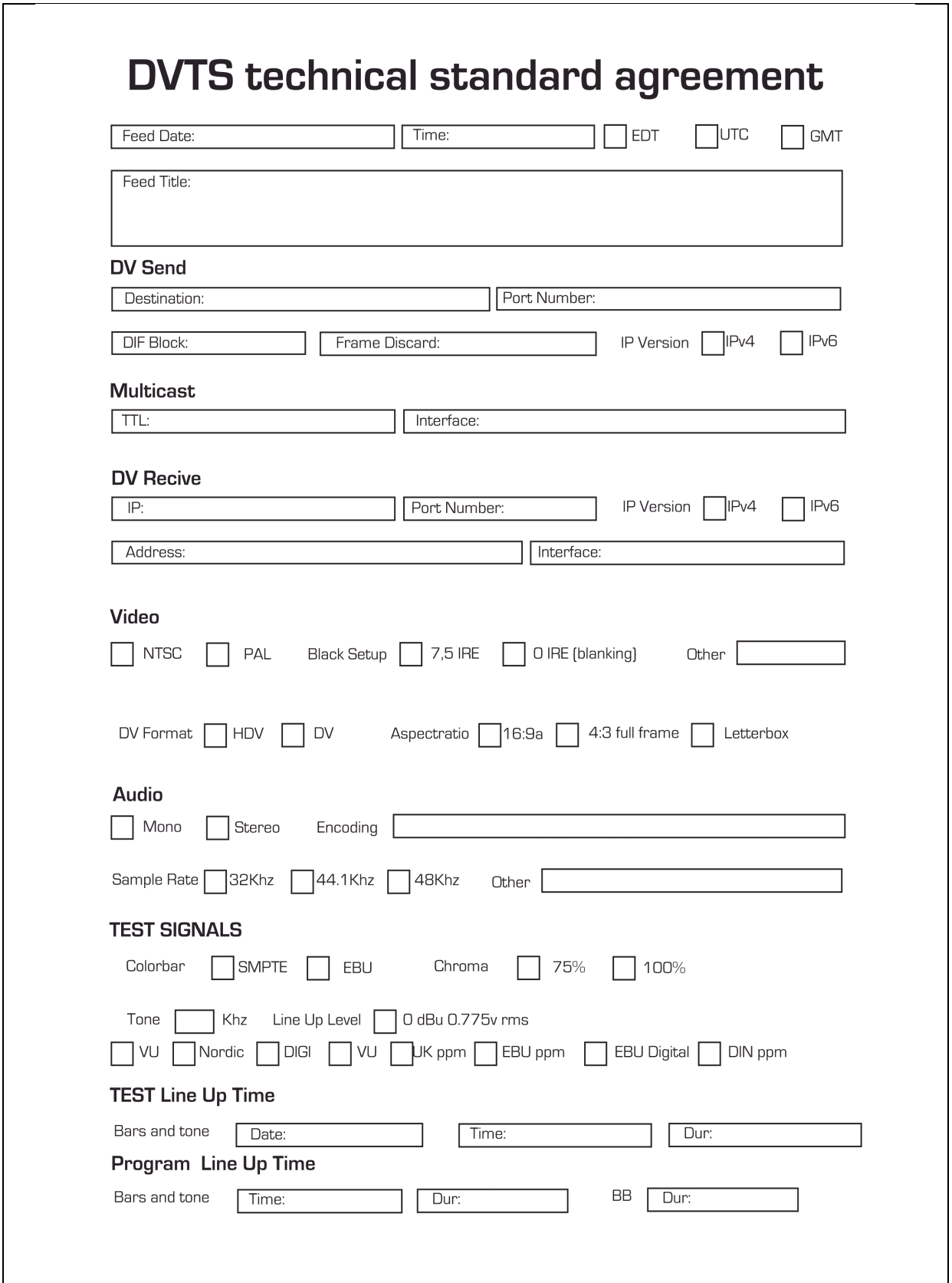

Fig. 11: Example of how a DVTS Technical Agreement could look like

In advance of the concert transmission we received a well-composed plan for the program containing a list of prc-times and duration of the transmission itself. This document would have been perfect if it had contained information about test signals in the pre- and postfeed sessions

Development and use of a test segment

It is important to recognise the distinction between two types of test signals: the measure ring test, and the feed-test. The measure ring test signal should consist of a combination of known test signals for performance measure ring on digital video signals. It is not recommendable to rely on only a test image and one test tone.

Flaws and disruptions in the DVTS feed will fool the application to reproduce the last received block, which is why transmission and / or network errors cannot be identified depending on a single colour bar and a 1 KHz test tone. 1 KHz can easily 'hide' within a signal block and thus will not reveal line breaks.

It is recommended that a constant 'update' of the image take place in order to reveal pauses or frame drops in the stream. Establishing a constant update could be done by using test images for digital transmission med encapsulated animations – a quite expensive solution – or by simply separating the signals. For instance by sending a static image, like colour bars, and matching with a non-static sound, for instance classical music. Or by sending a static tone, for instance a 1KHz test tone matched up by live images of some kind, for instance an analogue clack with linear movement of seconds.

The signal used for testing equals the signal used during the feed test itself. It is important that the signal received during the test is as equal to the sound in the final transmission as possible. Furthermore it is highly recommended that lots of internal tests is performed in order to gain the sufficient experience in maintaining and using the applications and video equipment.

During local or internal test fast communication, same time zones and language can ease the learning and documentation process in order to prepare for collaboration worldwide. Therefore local partners for tests could be one of the first steps.

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