

Making effective use of streaming media in Higher Education

The Dutch Webstroom community

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Abstract

In the Netherlands, institutes of Higher Education work closely together to gain professional experience and knowledge in the field of educational technology. Webstroom is a working group and a community within Higher Education that deals with streaming media and videoconferencing in particular. This paper explains how Webstroom is a facilitated knowledge sharing community, which instruments are deployed and supported by the community, what kind of lessons have been learnt, and how new knowledge is being disseminated.

In the future, Webstroom would like to participate in international projects. An example of this participation might be the creation of a database of streaming media examples leading to a good practise portal. At the Terena Networking Conference we would like to exchange ideas concerning global collaboration on this subject.

Introduction

This paper deals with the way Dutch Higher Education Institutes share knowledge about streaming media¹ and videoconferencing, popularity for which is increasing across a wide range of educational settings. First, the Dutch higher education system and the way different institutions work together will be outlined. The activities and different instruments of Webstroom are then outlined, starting with the Webstroom website which works as the cement, the bricks and mortar for the community. Finally, the results of a number of projects will illustrate some of the most significant results of the working group.

The Dutch Higher Education system

The Dutch Higher Education system is a two-tiered system: on the one hand there are 14 universities, providing academic teaching and research. Typically the teaching programs last four to five years and lead to a first degree. On the other hand there are 60 so-called 'Hogeschole', colleges providing professional education. Typically these programs last four years, including a period of practical work.

In September 2002 the Bachelor-Master structure was implemented to increase mobility and employability of European citizens. This new system is seen as an opportunity to change the way education is provided to students. While the structure of the system changes, new learning technologies like streaming media can be implemented. Distance education is seen as a way to reach new student populations. Streaming video applications are a way to provide *blended learning* and to increase the innovation of the educational system for students nearby. Streaming video applications make flexible learning possible.

Weaving in technology: streaming media

The focus of Webstroom is the integration of streaming media into higher education. The need to digitise learning resources in curricula is fuelled by two major reasons; a broad demand for flexible forms of education, independent of time and place, and being able to put new ideas in learning theory into practice.

The streaming techniques have been available for several years, and after support from Webstroom we see a shift in the learning paradigm. First were the pioneering years, where projects had a strong technical focus. Now there is the trend in the Netherlands for projects where the educational value of streaming media is the main point of interest. As the infrastructure and other preconditions have been set up, from 2002 onwards, experiments are a thing of the past. At this point in time demonstrations of how streaming media can be interwoven in the curricula is key. It is time to harvest the added value of the techniques developed and make it easy to use and adapt, eventually making it an ubiquitous part of delivering higher education to a heterogeneous student population.

¹ Streaming: the simultaneous transfer of video, audio and data over a network (either the Internet or an intranet) so that it is received as a continuous real-time stream. Streaming data is transmitted by a server application and received and played in real time by client applications. The client application in question can begin displaying video and/or playing back audio as soon as enough data has been received and stored in the receiving station's memory buffer. Definition taken from www.terena.nl

Several instruments are used to support the ongoing work in the Netherlands, most notably pilot projects that received funding from Webstroom. It is in this community where peers talk about issues such as standardisation, best practices, Intellectual Property Rights, trends in technique, evaluating the educational benefits, and so on. The success of the projects that were initiated were supported to the other instruments of the working group: the website, mailing list and regularly held meetings.

Collaboration in a multidisciplinary approach

In the past, many isolated projects have led to a number of short-lived successes and failures. To achieve better and more sustainable results, a collaborative approach has been chosen. In the field of ICT & Education there are several initiatives to work together in the Netherlands. The biggest organisation is SURF, which was originally concerned with technical infrastructure and software. SURF Educatie has the task of stimulating and facilitating new and better use of ICT in education. It is set up to increase the pace of innovation in which all Dutch Higher education institutes participate, sponsored by the government. Each institution pays a sum based on the number of enrolled students.

Webstroom - which means 'Workinggroup for Educational Audiovisual Material' - was formed as a subsidiary of SURF Educatie to develop, share and exploit the use of streaming media and videoconferencing in higher education. Members are drawn from Dutch institutes for higher education across the country. There are four pillars represented in the community:

- **Project management:** experts who know how to run a project. They need to combine the expertise of the other 3 pillars that are represented in the community;
- **Content:** content providers know what material is needed and what's available;
- **Technology:** technical infrastructure experts who know how to produce streaming media and are experts in providing the infrastructure that is needed;
- **Pedagogy:** educational technologists know how to make meaningful use of streaming media in education.

The adopted strategy is 'providing and using' to stress all aspects of participation. Every member contributes their knowledge and experiences to the community. The working group gathers at least four times a year to have discussions, presentations and conferences.

Members are working on small projects concerning the use of streaming media in higher education. The philosophy is that big projects take a long time before knowledge is built up; small projects lead to practical knowledge that can be used in everyday work.

The Webstroom website functions as the bricks and mortar of the community. The discussion list and newsletter are the means by which the collaboration is kept alive. To make clear who is in the community, and what everyone's expertise is, we asked all members to provide information on themselves, about their interests and expertise. This way everyone in the community has quick access to the information they need. [During our presentation the website will be shown].

Best practices related to types of usage

We will give a quick overview of some of the projects in the Netherlands that have close links to the working group. In 2002, the Government funded Surf Organisation earmarked funds for projects specifically dealing with streaming. A tender was sent out for project proposals submission. A strong didactical focus was expected in the proposals but apart from this, the scope was very broad. A selection was made and work started immediately. We won't go deeply into each project, but we would like to stress a few words on the objectives and tangible outcomes. We used a common format relating the projects to different types of usage.

1. Re-using a presentation as an interactive learning object: A major motivation for experimentation with streaming media in the educational community is to enable the re-use of presentations independent of time and location.

In a project for Dental Surgery presentations by teachers and guest lecturers are recorded and made accessible for research. The Dublin Core metadata Standard is used for this. To give teachers and students the option to locate videos in the database, a search engine is developed. Users can give one or more keywords to create a search query. When the results are displayed, the user has the option to view the video and to request the details of the description. Teachers were positive about the search capabilities and the quality of the video. They found that the time it took to describe a video was acceptable. By using the web based video library they got interested in using streaming video in their education.

2. Supporting a learning process: When the focus of a learning activity is a process, rather than the learning of pre-defined content, WWW sites integrated with video segments can play a major role in support. They can include documentaries on oral history in the form of interviews.

In a project for Technical Business Administration a business case of a start-up company is illustrated by interviews with staff and founders. The company faces several problems and might well be facing bankruptcy soon. This problem is to be solved by the students in the course: they can access company documents and video footage of interviews with the company members.

3. Developing and accessing a library of cases or units of learning material: Collection of video segments with voice overlay can serve as cases, or units of learning materials, related to a particular theme or context.

In a project for Animal Management footage of animals from the school's animal farm could be observed easily.

In a project for Pedagogy the video library will be digitised. The videos include interactions between children and between children and adults. Students are to make observations and set a diagnosis.

4. Constructing and sharing one's own video and WWW resources: When learning by doing is emphasised, the possibilities for learners to create their own video segments as well as the surrounding WWW environments through which those segments become available to other learners is an example of a new type of collaborative learning.

After pioneering work in the years behind us, it became apparent that new didactical models are needed to embed streaming in an existing course. This was the starting point for the large and ambitious project called Davideon. Three Universities and the largest audiovisual archive participate in this project which goal is to provide distributed access to a large quantity of archive content using a courseware management system. Archive material from the public broadcaster is made accessible through one portal. The material includes current affairs programs, documentary's and so on. Apart from this, material shot by teachers and students will also be available online. The only precondition is that the content is described according to the Dublin Core metadata standard.

All Universities in the Netherlands will be able to access the material selected, as it is stored on a central server called the video portal. New universally deployable templates will be designed for use in future courses. The Davideon project runs until 2004.

The results of finished projects, including an extensive user evaluation were presented in November 2002 During the SURF Onderwijsdagen in The Hague. All knowledge gained is available on the Webstroom website and is accessible for other institutions that are also planning to start projects involving streaming. As the projects delivered such valuable input for the whole community, the government decided to issue a new tender in 2003.

Concluding remarks

In it's two year's existence Webstroom gained a lot of momentum both nationally and internationally. Different instruments were deployed in support of a dynamic community of peers from different academic disciplines. These forms of facilitated knowledge sharing enable professionals to learn from each other and in effect save time, money and energy. Initiating projects with a primary purpose to be result orientated and to disseminate its results proved to be very fruitful. The Dutch government acknowledged the added value of the community and earmarked funds in order for the webstroom working group to stay active in the years to come.

About the author

- 1994 to 1998: BA Information Science, University of Professional Education Tilburg (internship at Holland Media Group, Hilversum)
- 1998 to 2002: MA Film and Television Studies, University of Amsterdam (internship at the British Universities Film and Video Council, London)
- Since 1998, employee of the Netherlands Institute for Sound and Vision (formerly Netherlands Audiovisual Archive), working on European funded research projects. They include:
 - From 1999-2000 Ass. Project manager VICAR (Video Indexing Classification Annotation Retrieval);
 - Since 2000 Project manager ECHO (European Chronicles Online);
 - Since 2001 Project manager AMICITIA (Asset Management Integration of Cultural heritage In The Interexchange between Archives).
- Since 2001 Member of the "Webstroom" working group on the use of streaming in higher education. Editor of its website.