M-2009

EDUCAST@UPORTO - CHALLENGING ACADEMICS IN WEBCASTING

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Summary

Driven by the new ways of delivering contents, especially pod casts, but also by the particular needs of working-students and students with special needs, the NTE unit decided to implement a simple, autonomous and portable method of streaming and recording classes.
The key elements would be autonomy and simplicity, since it is impossible to help, on-the-scene, each teacher and each class.
To achieve this goal we had to have in mind the campus users' configurations, the fact of the classes happen not in the same room, nor in the same computer, the teachers' knowledge in audio/video capturing and infrastructures needs and cost – hardware and software. These issues lead us to choose Windows Media Encoder, along with Windows Media Services on the server side. The streams were then embedded on HTML pages on our LMS – WebCT Vista and Moodle.
The teachers haven't noticed absence increasing in the classroom and students seem to look at this as a tool to improve the learning process. There were statistical results – number of hits, time on-line consulting the tool – that supports the continuity of this project in our academic community.

1. Introduction

In the school year of 2003/2004 the University of Porto began a pilot-project to create conditions for, in a systematic and sustained approach, increase the development of pedagogical contents in the University, on a blended-learning perspective. It fit in the context of the mission of the IRICUP of *"stimulate the cohesion and the institutional spirit of the University of Porto, through the dynamics of the cooperation between their agents and contribute for the their projection to international and national level, promoting the excellence of their activities"* and governed itself by an assembly of general objectives to reach:
  • Improve students' learning outside the classroom;
  • Improve the research autonomy of the students;
  • Privilege strategies that utilize elements of the student activity, involving reading and performing of small tasks which coach the hypothetical-deductive reasoning;
  • Publish, in skimpy, quick form, objectives of learning and respective bibliography;
  • Increase the accessibility in dislocated students;

• Acquire experience in distance T&L through the Internet.

In the subsequent years the e-learning project of the U.Porto had a sustained growth. Also the quality of produced materials as well as the technology used by the academics in their production was high.
With a personal investment of the teachers in this field of New Technologies in Education one would expect the growing of interest in parallel e-learning activities such as: e-portfolio, computer based testing, online repositories, pod casting.

2. Context

In 2007/08 the GATIUP – Office of Support for the New Technologies in the Education of U.Porto - presented to the educational community the possibility of freely diffuse through the World Wide Web face-to-face classes with the purpose of increasing the quality of the b-learning approach.
In this initial stage, and having in mind the work plan developed for the e-learning project, contacts were established with teachers already engaged in e-learning and highly motivated to the use of NTE. One found a small number of teachers interested in web casting which became perfect for the pilot-project of EDUCAST@U.Porto.
In 2007/08, 2 teachers of different Faculties (Faculty of Engineering and Institute of Biomedical Sciences of Abel Salazar), took part of this project. The importance of a pilot year is high once it allows setting procedures, demands, difficulties and identifying the existent infrastructure (hardware and software). Also is evaluated the reliability and quality of the service offered which in the future will allow (or not) the campus extent.
The basic concepts of this initiative center in the portability, autonomy and facility of the system to implement, with an aim to use the most minimum resources (stuff and human necessary), but producing the maximum quality for the service. When speaking in maximum quality we refer to the possible one with the means chosen, having, evidently, a clear commitment between resources and quality. The general objectives of the EDUCAST@U.Porto project are:

• Deliver to the largest number of students the exact content of face-to-face classes;
• Create content repository for subsequent consultation;
• Share scientific knowledge with the community;
• Improve means for a more efficient b-learning;

3. Technical Resources

3.1 Software

In order to set the operability of this project the technology to adopt was defined.
The plug-ins necessary for the players had to be chosen having in mind the users privileges restraints in the faculties machines – which left out, for example, RealNetworks – but, fundamentally, in the facility of use on the part of the Professors. In this way, the choice fell about the Windows Media and his Encoder, for several reasons:
• Possibility of setting the configurations previously for that the teacher only needs to carry the PC and initiate the emission;
• Possibility of Web diffusion and record in the local disk simultaneously;
• The technical supporting team dominates the software;
• Possibility of use of the FCCN streaming server;
• Facility in the configuration of the server through publishing-points with username and password.

3.2 Hardware

At this stage, in which we have a small number of teachers, we are using a streaming server from FCCN. However, the evolution of this project can oblige us to have a server of our own.

This solution - *Windows Media Services* plus *Windows Media Encoder* (WME) – allows a very easy setup of the network system. With a laptop connected to eduroam and with WME, the user only needs to load the file provided by the technical team and, when asked, insert his username and password. In a few seconds you are ready to start broadcasting.

With hardware easily carried by one person, its possible put the project on the move. We assume a laptop with a reasonable processor (net books probably won't work) and 512 MB, wireless ability and webcam and microphone should be the minimum requirements.

The most important variable for a quality service is sound and image capture in the classroom. Of course a mini-dv cam would be great, but it's far more expensive and not as good to carry, so we recommend webcams with USB connections. Thereby, and after a search to these items we advised some options in the market.

Concerning microphones it was a more difficult question. Not only for the greater offer in the market, but also because it was needed to establish different kinds of use. So, wo types of profiles were drawn: lab classes – should be more interactive allowing students to participate and talk with the teacher; theoretical classes – the teacher takes the main role and the students have few or none intervention.

Therefore, we believe these two ways of delivering should lead users to choose between a multidirectional or unidirectional microphone. Again, the office pointed out some options in the market.

3.3 System configuration

How we've been demonstrating, it's very easy and simple to implement this system. For the usage itself, the technical team should assure the webcam and microphone are working, along as WME. After these basic configurations, should build a WME profile to adapt not only to the teacher's objectives as well to the hardware characteristics. This profile should concern:

•   Audio and video sources
•   Outputs, as for the server and/or local file
•   Codecs and compression rates – be aware of the domestics users
•   Attributes and metadata
•   Plugins, for instance for a watermark or logo

This setup was then saved in a file with the name of the course and send out to the teacher. The students can watch the live broadcast – if the teacher wants them to – or can later watch it, going to the university's learning management system (WebCT) where a HTML page was built with an embedded and a menu with the total streamed classes.

3.4 Implementation on user side

To start broadcasting the teacher should open the WME file with the name of the course provided by the technical team. When asked, should insert his username and password provided also by our office.

After a few seconds click "Start Encoding" and should broadcasting live into World Wide Web. In the end, just click "Stop".

3.5 Archive

For a later review of the videos, they are saved in the server once broadcasted. Despite of FCCN have asked careful with the free space on the server, we have not found any problem. However, we have to manually move the files to our server. Once this is done, the links are setup and organized in a HTML page.

4. Operability

With this paper we intent to describe the experience in the year 2007/08. The teachers involved in this year had different subjects, which allow us to test the system also with different groups of students and see how they react to this kind of technology.

In one of the courses, it was broadcasted the teacher's image while giving the lectures, while in other course they preferred to broadcast only the slides, this mean a screen cast along with teacher's voice.

Even though the support included a step-by-step tutorial with plain language, one element of the technical team was always present in the start of the classes to ensure a successful start-up of the session. After two lectures with the presence of the technical element we've seen the teachers had become autonomous and were able to do it alone.

5. Results

The teachers who have participated in this project belong to the Faculty of Engineering of the University of Porto, the course Construction Management, and the teachers of the course Medical Semiology belong to the Abel Salazar Biomedical Sciences Institute.

In the scholar year 2007/08, first year of the Project, 10 sessions were recorded by the teachers and 857 were accessed by students. Despite a high number of clicks, students didn't spend a lot of time watching each video.

Also the absence in the theoretical classes did not increase, one of the teachers' biggest fears.

In a simple poll 93% of the students said this tool was "very useful".

6. Conclusions

No major issues were found in the year 2007/08, and the ones that happened were easily overcome by the GATIUP and the Faculties' technical offices when necessary.

The major difficulties broadcasting are the copyright issues and data protection, strong reasons why the teachers feel reluctant and more preoccupied than we would expect.

The fast and simple procedures are a strong mark and the added-value for the students is significant. However, the main issue will be teachers will and there open mind to record classes.

At this day there are 5 active teachers, 346 students regularly visiting recorded classes in a total of 3429 access. Until the end of first semester there were 43 streamed classes.

This year the courses were move to the university's new learning management system – Moodle – encountering no issues with that.

References

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