

ICT in a Portugal-Cape Verde distance education program in Multimedia in education and training

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Abstract

In 2004, the Calouste Gulbenkian Foundation¹, a major international philanthropic institution with headquarters in Portugal, invited the University of Aveiro², Portugal, to organize an education and training program in advanced ICT topics for Cape Verde. The target audience should be higher education staff, including teaching staff and technical support staff, and the topic focus should be on technologies to support development of distance education in Cape Verde, a strategic asset in an archipelago type country.

This paper presents the general characteristics of the blended learning type program developed, under implementation since January 2006, and identifies the current and future role of technologies to support interaction among students, among students and tutors and, also, for the final Master's thesis viva.

1. Program presentation

The distance education program includes a 2 years Master's program in Multimedia in Education, and a set of 8 short duration training courses in topics related to multimedia technologies. The Master's program [1] includes the following main subjects:

Year	Semester	Course topic	Credits
1 st	1 st	Development of Educational Multimedia	3
		Communication Technologies in Education	3
		Distributed Learning Management Environments	3
		Educational Software Evaluation	1,5
	2 nd	Multimedia and Cognitive Architectures	3
		Distributed Learning Communities	3
		Seminar (dissertation project)	3
2 nd		Dissertation	-

Each course topic has a duration of 4 working weeks, with the exception of Seminar that lasts for 8 working weeks, and includes two 3 daylong face-to-face sessions. Each course is pedagogically organised on a learner centred basis. This is achieved by an activity oriented work plan, which drives the attention of learners through a set of challenges that are directed towards learning objectives and outcomes. For each activity an initial set of learning resources is provided, but extensive research on further information resources is strongly recommended

¹ www.gulbenkian.pt

² www.ua.pt

and actively promoted. Students, organized in groups, strongly engage in asynchronous interaction based on discussion groups, a privileged strategy because it allows for time and space flexibility. However, learners are free to use synchronous communication, although experience tells that this kind of tool is used basically to support short discussions mainly related with logistics issues (who does what, time organization, resource identification, etc) or to quickly generate consensus relating to “long” lasting unsolved issues. Figure 1 outlines the operational model used in each subject of the Master’s program.

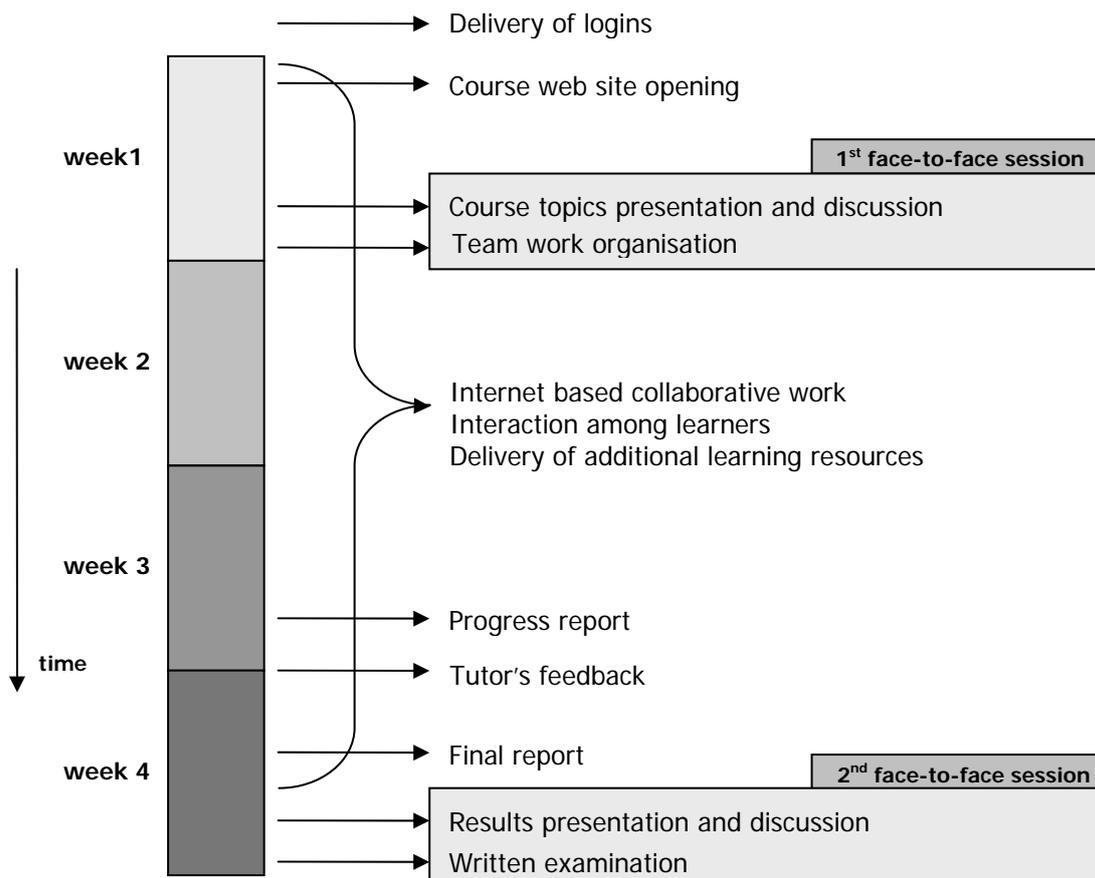


Figure 1: Operational model of each course of the Master’s program in Multimedia in Education of the University of Aveiro.

According to the Portuguese law, the final Master’s thesis must be presented and discussed with an academic tribunal, in a 90-minute public session. 3 professors compose the tribunal, at least one of them from another University.

In parallel to this Master’s program, a set of training courses in multimedia technologies are being organized. 8 subjects were selected from 17 available at the eLearning@UNAVE.pt ICT distance education program³:

- Introduction to Multimedia
- HTML programming and web pages development
- JavaScript programming

³ www.unave.ua.pt

- Digital image edition
- Digital video and audio edition
- Multimedia scripting
- Multimedia authoring
- eLearning technologies

Each topic has a 4-week duration, with a 3 daylong face-to-face session in the first week. Work in the following weeks is organised according to a model similar to the one used for the Master's program.

2. Technological support

The distance operation aspects of the organizational model adopted for the first year subjects of the Master's and for the training courses, mainly rely on an LMS-Learning Management System. Currently the Blackboard Academic Suite™ is being used. The LMS provides tools for document delivery and sharing, and asynchronous and synchronous communications among students, located in different islands of Cape Verde, and among students and tutors located in Aveiro, Portugal.

The program included the creation of a resource centre in Cape Verde, actually installed at ISE-Instituto Superior de Educação, located on the country's capital, Praia. This resource centre is equipped with 10 desktop computers, printer, scanner, digital photo and video cameras, wifi 54 Mbps hotspot and a dedicated ADSL 512kbps Internet connection, limited, however, to 128kbps on the upstream. This resource centre is permanently available to the students and is also used to hold the face-to-face sessions.

Beyond the extensive use of the LMS to support the distance activities, experiments on the use of blogs and wikis are being carried out providing additional contexts for interaction and shared knowledge construction. For this purpose a local installation of Wordpress Multiuser⁴ and MediaWiki⁵ are being used. To allow students to easily follow all posts and comments produced by the community members (20 blogs - teachers and students) some RSS feed aggregation tools (Netvibes⁶ and Google Reader⁷) were introduced and used along the courses. These additional tools are proving to be very effective, because students started to look at the Web in a different perspective, increasing the sense of community inside the class. Most students had low technological skills and this situation made it difficult for them to become Web content developers with traditional Web development tools. The use of blogs and wikis contributed to the modification of this scenario, and was a starting point and a challenge for students to develop their technological skills. The use of blogs also had a special impact on the strengthening of personal relationships between community members. Within each individual blog, teachers and students had the opportunity to publish content related to the course topics,

⁴ mu.wordpress.org

⁵ www.mediawiki.org

⁶ www.netvibes.com

⁷ www.google.com/reader

as well as content of a personal nature, giving each student a space for self expression, essential for community members to share personal experiences, interests and expectations. This form of communication, usually difficult to develop inside the LMS discussion forums, had a key role on the establishment of stronger connections between community members and had a positive impact on the growth of communication during the course.

Currently, videoconferencing is being prepared, also, to help support the 2nd year operation of the Master's program, which comprises the thesis preparation that requires strong interaction, on an individual basis, between students and their supervisors. Furthermore, videoconferencing will be mandatory for the final master's thesis public discussion, as a cost effective alternative to displacing to Cape Verde a huge number of professors for the vivas.

The University of Aveiro has a videoconferencing studio supporting H.320 and H.323 communications. It is a high performance facility installed by the Portuguese national computing agency (FCCN⁸), and runs over a 1Mbps dedicated connection. It provides a high bandwidth pipe with end-to-end Quality of Service (QoS) and transit-delay guarantees. However, its investment and operation costs and its end-to-end high quality are not compatible neither with the limited budget of the project nor with the technological options available in Cape Verde, namely as far as the upstream ADSL connection bit rate is concerned. Currently, a more modest, but cost-effective, portable H.323/H.264 desktop PC based option is being identified and will be installed for trial operation starting October 2006

3. Conclusions

Current technologies offer a wide range of solutions for distance education, namely for programs involving distance education in developing countries, such is the case briefly reported in this paper. The challenge is to reach effectiveness articulating i) a pedagogical model that is in tune with the learning outcomes pursued, ii) budget, iii) available technology in the target countries.

References

[1] Ramos, F., Moreira, A., Blended learning in a Master's Programme in Multimedia in Education - a critical view, proceedings of EADTU'05-European Association of Distance Teaching Universities Conference, Rome, November 2005.

⁸ www.fccn.pt