

## **Bidirecional Multimedia System for Monography Defense at Distance**

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This work presents some findings about the use of a bidirecional multimedia system and the web as a medium to carry out monography defenses as under-graduate and graduate final works at distance. This system uses interactive bidirecional communication through audio and video linking the institution headquarters to distant poles throughout Brazil. Since this system resources are easy to use and their costs are low, it optimizes the evaluation process, keeping professors and students synchronous communication. Traveling costs are diminished, interactivity is maintained and new technologies are introduced, based on Internet services.

**Keywords** learning; higher education; communities of learning;

### **1. General remarks**

#### **1 Introduction**

In graduation or under-graduation courses, the associated pedagogical project must contemplate the evaluation methodology to be practised explicitly. As a final evaluation instrument, the elaboration of monographies is an widely spread alternative in the academic scope of present courses in higher education. At the end of its elaboration, the monography must be appreciated by a Defense Committee and defended by those students who wrote it. The defense allows the evidence of students' subject domain and permits the Defense Committee evaluate other abilities rather than that specific knowledge, as the organization of the presentation and the thematic. Distance education brings a new reality in the Brazilian scene considering UNINTER group, with FACINTER INTERNATIONAL and FATEC INTERNACIONAL.

Under-graduation and Graduation courses are distributed to about a 400 associated centers to benefit thousands of students with distance education methodology, based on the satellite Brasilsat B1 which links the headquarters of UNINTER in Curitiba, Paraná, in the South of Brazil, to poles throughout the whole Brazilian territory, composing the biggest park of receiving points in Brazil.

The system was conceived to permit alive teleclasses, with interaction by 0800 (telephone), as well as periods of tutorship with tutors of high professional qualification. This system makes the group UNINTER a pioneer in the satellite broadcasting to Brazilian territory. The graduation courses offered by FACINTER (International College of Curitiba), one of the institutions of the Group UNINTER. Reaching distant poles and applying the online monography defense, the Defense Committee can interact with the students.

he Defense Committee, composed by three teachers used to go to the students cities. Travelling expenses were high since many cities are too far from urban centers in the South. The development of Multimedia

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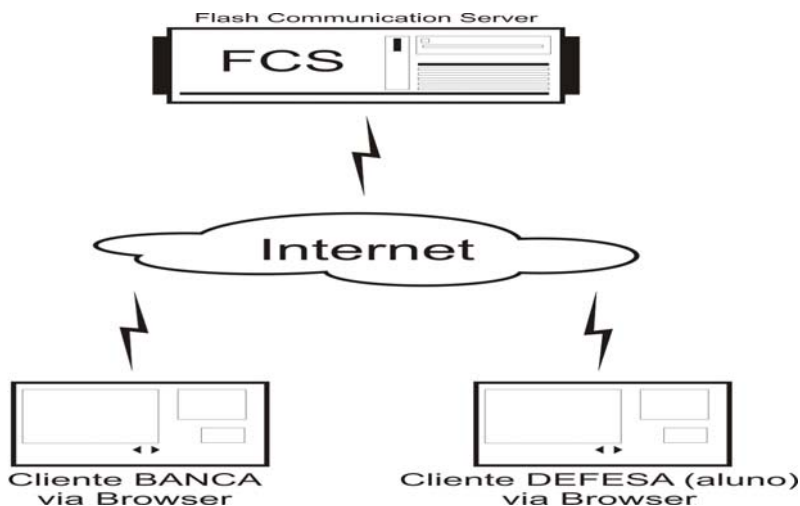
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Bidirectional System (MBS), a collaborative environment with audio and video, in real time, has been considered a technological alternative to monography defense. Bidirectional Multimedia (Flash Communication Server) can be used with success. MBS was obtained to transform into reality the monography defense and provide efficiency in the process at a low cost.

From UNINTER headquarters, the Defense Committee can evaluate students presentation and maintain interactivity, using the MBS, linking quality and technology. It consists in a representative and qualitative plus to students offered by the courses. Users can access Internet anywhere at any time. In Brazil, Internet access is a reality. It is easy, it is not difficult to find a place with access to Internet. You have just to pay a certain amount and you may use a system in flash, using a multimedia server. Since it is easy to use the technology and the cost of the system implementation is low; it contributes to make use of these resources, therefore the environment are of easy operation and it does not present difficulty for who goes to present its work.

## 2 Bidirectional Multimedia System

The Bidirectional Multimedia System is a system that links point to point, with audio and video, as in a videoconference, with slides commanded by the remote operator, and can be used in some areas, as that presented in this work. There are a number of advantages; therefore, it makes communication possible, synchronously, with low cost and low consumption of time on Internet since you can use a specific server for such (flash communication Server). In terms of pedagogical aspects, the technology introduction causes positive impact some times; therefore, it becomes a challenge to the educative process, opening new horizons for the educational research, breaking down old rules still present in our system. The aspect of the synchronous interactivity brings up the possibility for teachers to interrupt students speech at any time and for students to justify their work. Whenever the defense committee requires. Distance is overcome in a a very short time. No more than 2 seconds are necessary to “jump the time obstacle”. It shows a great viability to use this system in education. Among some stories, a student revealed that once communicated the results, the emotion of the students who defended their monography was great. The demonstration of satisfaction of success in using the conference via Internet, the practice of a new paradigm is an issue which destrys the myth that these systems are not effective for the educative process.



### 2.1 Multimedia Resource Server

This is a multimedia resource server, using technology Flash (Adobe - Macromedia) which makes it possible to link different and distant poles to communicate to each other. It also allows to share audio video and other resources, such as text and graphics (images, drawings, films, etc..). The main characteristic of this technology is the low consumption, that is, the availability of high taxes

of transference is not necessary, in the way that the system is operated with satisfaction. Delay (reply time) in cases tested in operation does not surpass 2s (two seconds) and this rate is considered very good for a system based on web.

This server allows to transmit audio and video with taxes from 60kbps, with reasonable resolution, allowing that some users to connect simultaneously. Sharing resources multimedia, it is what he exists of new in terms of technology for web. This server is also considered as a streaming server, according to its supplier. It is enough to install and have the plug flash in its browser the plug-in of flash..

## 2.2 The Web page

You can access the Web page. As you load it, it asks permission to use its hardware resources, that is, web cam and its microphone. It places the image of the user in the screen and, if its interlocutor is connected, he starts to receive the image immediately and the system is ready to operate. Some adjustments of microphone and web cam are natural. The environment consists of an area where they show the slides presentation, an image of the presenters and the Defense Committee image is shown as picture in picture, with the local image small, the remote image appears in bigger size.. Below of the images, we have the arrows of movement of slides, where the presenter moves to the front or to backwards according to the presentation. The audio comes with the video, making possible immediate interaction with the presenter. The connection is extremely easy, without few problems for the user.



## Necessary resources

The Flash player can have access to peripheral hardware of its computer, cameras, microphones and slide bars USB and Firewire. It states clearly that it is possible only with the user's permission. For the operation, it is necessary to have a web camera, a microphone and its correct installation in the system. The computer has to support multimedia resources, as well as an Internet connection with 128 kbps so you can upload, download files and to get resulted satisfactory results. There have been a number of defense sessions for monography defense in the under-graduation courses at FACINTER, with distant cities such as São Luiz - Maranhão, Iguaçu Falls and Chopinzinho, with full satisfaction following the same demandings of evaluation in the face to face system presently in most higher education institutions.

## **Conclusion**

As information regarding savings, only in the first semester of the 2006, with defenses using system, about R\$ 25,000.00 (8 thousand Euro) were saved.

The introduction of such technology to benefit the processes of monography defense represents quality enhancement in the use of multimedia resources and Internet. It represents also a meaningful step capable to promote great results for education institutions. The Technological Coordinations and their team goes on working to present new resources to overcome obstacles and to offer possibilities of speeding the processes of course conclusion, benefiting a great number of under-graduate students.