MULTIMEDIA APPLICATIONS FOR TRAINING IN COMMUNICATIONS

CLAUDE GIMENES[1]   ADELAIDA MATEESCU[2]   MIRCEA RĂDUCANU[3]

[1] *Ph.D., Professor, Senior Member IEEE, National Institute of Telecommunications, Evry, France , E-mail: claude.gimenes@int-evry.fr*
[2] *Ph. D., Professor, Senior Member IEEE, University "Politehnica" Bucharest, Romania, E-mail: mateescu@comm.pub.ro*
[3] *Ph.D., Assistant Professor, University "Politehnica" Bucharest, Romania, E-mail: mircea@comm.pub.ro*

I.   INTRODUCTION

The education is one of the most important directions of development for a country because it helps at people's development and integration in the modern society. In the past we consider that the educational process was equivalent with the school, the class, the teacher, the book, the blackboard and the chalk. All these things are changing because of computers, telecommunications and multimedia software applications that together can be a viable alternative of classical education and can provide solutions for all educational problems: higher access, lower costs and higher quality.

The distance learning is a solution which brings together in the same time people from many locations by an interactive communication. This system uses videoconferences and is composed by two elements: the studio where the teacher speaks and the interactive class rooms where the students are.

The studio has video camera oriented to the teacher and to the documents: slides, papers, computers and monitors for the teacher who has a view of classroom. In the class room, the students have an electronic table, which offers to the students the possibility to request the permission to speak and to ask questions.

The connection between the studio and class rooms is realised by digital channels on radio, by satellite, or by optical cables linked to a high rate (2 Mb/s) digital communication network. This solution for distance learning is very expensive.

Another cheaper solution, very used in our days is the education with multimedia software, multimedia educational CD-ROM. This way is mostly complementary for the classical way of education and cannot substitute it.

Our paper presents the author's experience in realisation of multimedia educational CD-ROM, which was developed from 1996 at National Institute of Telecommunications, Evry - France under Professor Claude Gimenes co-ordination. The project began with our cooperation with other

members of the team. The purpose was to elaborate a multimedia encyclopaedically CD-ROM which presents electronics, physics, telecommunications items. This CD-ROM was dedicated for the first year students at technical university. This was the first multimedia encyclopaedically CD-ROM made at the Institute of Telecommunications from France and Faculty of Electronics and Telecommunication from Romania.

This first product allows us to gather experience in realisation of this type of CD-ROM and to co-operate with a lot of people. After that we continued to cooperate and we realised two other CD-ROM: one for electronics and physics named Bell and other for GSM communications called GSM.

The CD-ROM can be presented in the conference for people who are interested on it.

II. CONTENT OF ENCYCLOPAEDIC MULTIMEDIA CD-ROM

The subjects presented on CD-ROM - PRISMEO (more than 80 articles) are:

- electronic devices and circuits;

- fundamental knowledge for telecommunication;

- microwave circuits;

- optical devices and optical fiber communications;

- communications by satellites.

The subjects presented on CD-ROM – BELL are:

- physics of telecommunication devices;

- nanotechnologies and nanocomponents;

- optical components.

The subjects presented on CD-ROM – GSM are:

- architecture of GSM system;

- technologies of access in GSM channels;

- signalisation system SS7;

- management of communication in GSM.

III. STAGES AND RULES FOR DESIGN AN ENCYCLOPAEDIC MULTIMEDIA CD-ROM

To do an encyclopaedic multimedia CD-ROM with the students in the university implies to respect a lot of rules which leads to a global architecture. If the rules are not respected the final product will be only a group of individual applications. Some of these rules are given in the following.

A subject presented in multimedia area, it called **an article**. Each article contents many

plans (the introduction, the plans that explain the theme, the questions with responses, the conclusion a/o.). The number of plans is different for each article but in an encyclopedic multimedia CD-ROM is better not to have many differences between numbers of plans. Each plan has one or many **sub-plans**. To navigate from an article to other and even to navigate inside of an article must be easy and on the same way. To solve these problems it is necessary to elaborate a menu of navigation inside each application.

The background is better to have light colors and for the font we choose, bold letters if the purpose of this animation is to be used on computers. If the purpose is to make presentation on big blackboards, the background is better to have dark colors and the text light fonts.

The work inside the team means many restrictions. First the coordinator of the project must have a notebook with all the charges to do and decide same rules.

From the beginning it must choose the fill color and the graphical options. If this simple rule is not respected each student choose his color and the collection will not be unitary. The same rules are for the dimension and style of text.

It must impose the rules not to use excessive text inside the animation. It is a fact that usually the students trends to use a lot of text when they do such applications. This is the reason for which we notice that we accept only the basic information, so the essential information. All other information, named secondary information must be expressed by animation, colors, and sound.

It is a fact that it is more agreeable to watch the animation when the objects don't appear linearly from left to right and from up to down.

Another mistake is to bring too many objects on the screen (texts, pictures, and comments). If there are a lot of objects the students will have difficulties to watch and to understand. From this reason we divide a plan in sub-plans.

IV. CONCLUSIONS

This project was successful and the interest of student for multimedia applications was very stimulated. The interest was extended by their proposal to continue this project with another which represents the final diploma work.

After the cooperation with the forth year student we have same remarks:

- Even the activity looks like easy because of a lot of rules to do such application is difficult and need much time.
- It is absolutely necessary to conceive a notebook with each charge and precise rules.
- It is necessary to do a scenario on paper and to fix realist things to do before the software implementation.
- The coordinator of the project must supervise each step for each work group and impose

a uniformity of expression.

- This way to study is very useful for continues education of engineers who work in same domains as a complementary activity for the courses and books.

We can present some sample of articles produced by our students.

REFERENCES

[1] CD-ROM PRISMEO (Software Director) realized in 1996

[2] Puri A., Chen T., *Multimedia Systems, Standards and Networks*, Marcel Dekker Publishing house, New York, 2000

[3] Gimenes, C., Mateescu, A., Răducanu, M., a.o., *Electronique, physique et signal pour les telecommunications*, "Tehnică" Publishing house, 1997

[4] Răducanu, M., *Multimedia Systems and Applications*, MatrixRom Publishing house, 2004