Design of Distance Courses[*]
in a Web Learning Environment (WebLIDI)

Cecilia V. Sanz

María A. Zangara

Alejandro Gonzalez

Armando De Giusti

Eduardo Ibañez

LIDI. Instituto de Investigación en Informática LIDI
Facultad de Informática. UNLP.
50 y 115. 1er Piso.
(1900) La Plata, Argentina

ABSTRACT

This paper presents some of the aspects related to the multidisciplinary research process initiated in III LIDI for the development of a learning environment focused on the WEB (WebLIDI). It attempts to gather, in a work group, the technology working logic and the basic notions about teaching and learning.

This project not only aims at developing a distance course design methodology, but also at the possibility of applying it through the WebLIDI environment – based on the principles connected to the pedagogical and technological variables involved in teaching and learning instances.

Some of the decisions taken throughout this process are here presented in detail, ranging from general information of a course to content structuring and evaluation possibilities. Also, the current state of the development – expected to be used experimentally as from the second semester of 2003- is specified.

KEY WORDS
Learning Environments, Distance Education, Interaction, Communication in Virtual Environments, Educative Technology.

1.- INTRODUCTION

Due to the extended and rapid growth of the studies and courses carried out on distance basis by way of technology, it is extremely important to analyze the quality of the presented educative proposals.

Although the "quality" matter of education, in general, and of distance education, in particular, appears in the new educative agenda as a controversial and ambiguous subject, one of the main unarguable points is the importance of the way in which the content and the proposed methodology are structured, in terms of didactical transposition and mediation.

While an full-attendance course or class may begin in a way and end in another, distance courses or classes have less flexibility in this respect, due to their "pre-production" nature. They count with a more planned design because there exists an underlying structure which requires a support that does not depend solely on the professor, thus giving a different shape to the decisions that might be taken during the class. Consequently, the planning phase of a virtual course is of utmost importance since its accuracy will mark most of its quality with respect to the fulfillment of the established objectives.

CITs have the potentiality of enhancing the quality level of the distance education process, even though this is not the only factor involved in its upgrading. A wrongful use of such technology in a quality educative offer may result even more negatively than if it were non-existent [5][9].

---

[*] We refer to the term "Distance Courses" as encompassing semi-attendance, non-attendance and distance courses.

The current Internet-based Formation Telematic Systems (also called Teleformation Platforms or Teaching and Learning Virtual Environments, EVE-A)[1], are virtual formation centers on INTERNET. At present there are several examples of platforms offered in the Web, even though they present some drawbacks in terms of methodological guidelines for the construction of courses and their content organization **[1][2][4][6][8]**.

This project attempts to guide the construction process of distance courses in Teaching and Learning virtual environments by way of a methodology pursuing objectives of educative quality. Moreover, an environment (WebLIDI) is being developed respecting these purposes and reflecting the proposed methodology.

2.- MAIN DECISIONS IN THE CONSTRUCTION OF DISTANCE COURSES

The problem of passing from the content structure to the enabling of meaningful and lasting changes in the learners' cognitive structure has been studied, all of which is something rather complex and requires the involvement of other components of the pedagogical model, such as the motivating situation, the conflict (if it is chosen), didactic activities (compulsory, optional, remedial, etc.), the problems or situations to be solved, the dealing of errors, the interaction work within teachers and students' groups, etc. **[12][13][14]**.

In this way, new technologies are incorporated and studied from a pedagogical model so as to transform the learner's environment in a learning situation.

Consequently, the question of how to reflect these ideals in the developed learning environment is being analyzed.

A methodological proposal to guide the construction process of courses has been developed in a virtual learning process.

In particular, this methodology is being used within the WebLIDI environment **[16][17]**. The design of a course is oriented by pedagogical units called AREAS (**Figure 1**).

These areas are:

- ✓ Introduction / Welcome
- ✓ General Information and Contents
- ✓ Communication
- ✓ Educative Resources
- ✓ Collaborative Work
- ✓ Practical Work and Evaluation
- ✓ Administration

Each of these areas has a specific objective and guides the teacher in the structuring process of the course so as to ease the new roles that are to be played by the teachers in the teaching-learning process.

---

[1] *Some of these platforms are: Web CT, Blackboard, Firstclass, NetCampus, S-Trainning, IT Campus Virtual, etc. .*

These areas are made up of sections and tools. The sections are divisions that are present in some areas in order to organize tools.

Finally, tools are referred to as the teaching and communication instruments that allow the teachers to fulfill their proposal.

The process that the teacher should carry out for the construction of his/her distance course is that of taking decisions in each of these areas, which consist in reflecting, by way of their particular tools, the structure of his/her course. For example, in the Communication area, a teacher should determine how tutors will assist students, and which interaction tools will favor the communication among students within his/her course. In WebLIDI, all these decisions will be accompanied by examples and textual helps based on the experiences of expert teachers in distance education.

One of the areas considered of great importance is that of General Information and Contents, which proposes a guided organizing work of the information so that the teacher - at the time of designing the course – is accompanied by the proposal of the environment.

The professor should think of incorporating tools that represent the objectives, methodology, schedules, information on the course's teachers, and determining the thematic units which make up his/her course as well as incorporating the material for each of these units.

In WebLIDI, each unit may present different criteria of visibility which will allow to generate various work circuits for the different students (this is not available for all the platforms known to the present). For example, a certain unit may be viewed only by a given group of students that has not passed an input evaluation, and whose purpose consists in homogenizing the required knowledge for doing the course.

Another area of special attention is that of Evaluation; it is generally difficult to design this area, and the creation processes of evaluations in learning environments may be messy for teachers. A construction of the evaluation instances of a course in consecutive steps has been designed, in which the teacher should determine the type of evaluation (auto-evaluation, compulsory practical works, exams), define the aspects related to marking and grading, the way of distributing assignments, the terms to hand in projects, etc. Finally, work is being done on the selection or construction of assignments, where the teacher may take previously designed assignments for his/her courses or may create a new one. The assignments may be of different types (selection, development, relation, etc.). The different platforms that include the evaluation area provide different types of assignments. WebLIDI has made an attempt to include a varied collection of assignment types from which the professor may choose.

3.- SCENARIOS

A teacher may opt to choose a working scenario predetermined for his/her course. A scenario constitutes a template that incorporates a set of tools in the different areas of a course. For example, a teacher may want to work with a course only with communication tools and, for it, he/she counts with a scenario "rich in communication" so that, if it is to be chosen, he/she will already count with pre-selected tools necessary for the communication in the corresponding area. This will ease the teacher's tasks in the design of the course.

In brief, there will exist various scenarios so that the teacher is able to select the way to initiate the design of his/her course. In this predetermined scenarios, the areas appear by definition and the tools of each area are already selected. These scenarios are defined taking into account the possible types of courses that the teacher may need. The areas and tools of each of them are related to the type of need to be fulfilled. If the professor prefers to work without predetermined options, he/she can select a free scenario. The free scenario is that in which the teacher may choose his/her desired tools from the design areas.

Finally, the design of a course can be divided in three stages: 1) selection of a work scenario (it can be a free scenario); 2) the work by areas, allowing the teacher to properly concentrate on the planning of the communication within his/her course, how the contents

will be presented and how the students will access to such contents (he/she will be able to pose different pathways according to the students' profiles), which type of evaluation will be incorporated and what type of work or activities will be required, and which collaborative works will be incorporated; 3) the selection of the proper tools of each area. All this process will be guided by the environment by way of proper examples and assistance elements.

4.- SOME OF THE OBTAINED RESULTS. ONGOING RESEARCH AND DEVELOPMENT LINES

Among the obtained results, we can mention the following:

- Different platforms have been analyzed and experiences of their use have been presented in order to find weak and strong points.

- A work methodology has been developed for the design of course in a WEB learning environment.

- The evaluation presented in the different platforms has been analyzed, and a methodology for their construction has been developed so that the teacher can carry out this process in progressive stages.

- The implementation and test of the WebLIDI environment have already been initiated incorporating the suggested methodologies.

The ongoing tasks and the open lines of research and development include:

- The finalization of the first stages of the environment, so as to be able to use it experimentally in at least three different subjects and in the support of the Introductory Course of the Faculty of Computer Science.

- The study of the incorporation of different follow-up mechanisms and analysis of the students' profile in function of the environment use.

- The analysis of the environment quality as a "software product", following the typical metrics for WEB-focused systems.

- The completion of the product development in order to make it available as a tool of free use in the academic environment.

- The research on evaluation techniques usable from WebLIDI, making compatible the technological, security, and quality aspects in the evaluation.

REFERENCES

[1] IEEE Transactions on Education.
[2] ACM Digital Library.
[3] Bransford J., Brown A. y Cocking R. How people learn. USA: Committee on Developments in the Science

of Learning - Commission on Behavioral and Social Sciences on Education - National Research Council. *Disponible en versión completa en INTERNET: http://books.nap.edu/html/howpeople1/* , 2000.

[4] WebCT Site – *http://www.webct.com*

[5] Cabero B. Nuevas Tecnologías aplicadas a la Educación. Madrid. Editorial Síntesis, 2000.

[6] Beer V. The Web Learning Fieldbook : Using the World Wide Web to Build Workplace Learning Environments. San Francisco, California (USA): Jossey-Bass / Pfeiffer, 2000.

[7] Castells M. La era de la Información. Volumen I. La sociedad Red. Bs As. Editorial Siglo XXI. 1999.

[8] Chacón F. Mind-Mapping for Web Instruction and Learning. Franciscan University of Steubenville, 2003.

[9] Abbey B. Instructional and Cognitive Impacts of Web-Based Education. London. Idea Group Publishing, 2000.

[10] Fainholc B. La interactividad en la Educación a Distancia. Buenos Aires: Paidós. Cuestiones de Educación, 1999.

[11] Hanna D. E. et al. 147 Practical Tips for Teaching Online Groups: Essentials of Web-Based Education. USA: Atwood Publishing, 2000.

[12] Litwin E. La Educación a Distancia. Temas para el debate en una nueva agenda educativa. Buenos Aires. Editorial Amorrortu, 2000

[13] Monereo C. Sociedad del conocimiento y edumática: claves y prospectivas. Universidad de Barcelona. Ficha. De la Cátedra de Tecnología Educativa. Facultad de Humanidades y Ciencias de la Educación, 2001.

[14] Salomon G. y otros. Coparticipando en el conocimiento: la ampliación de la inteligencia humana con las tecnologías inteligentes. Revista Comunicación, lenguaje y educación, 1992.

[15] Silvio J. La virtualización de la Universidad: ¿Cómo podemos transformar la educación superior con la tecnología? Caracas: Colección Respuestas. Ediciones IESALC / UNESCO, 2000.

[16] Proyecto WebLIDI. Facultad de Informática. UNLP.

[17] Sanz C., Gonzalez A., Ibañez E. WebLIDI. Un Entorno de Aprendizaje Virtual. XI Jornadas de Jóvenes Investigadores AUGM, 2003.