

# **Learn-by-doing, Web e-ducation & Service Learning: An Integrated Perspective at Sagrado**

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## **Abstract**

The University of the Sacred Heart (USC for its Spanish acronym) is expanding the boundaries of teaching and learning beyond the classical campus' restrictions by immersing its academic programs within three encompassing educational environments: 1) Web-based on-line learning, which follows a "learn-by-doing" model; 2) Community-based activities and 3) Language and foreign cultures throughout the curriculum. Also, the generation of specific Web-based tools allows USC to foster a sense of community and common purpose among the actors of its academic life, and to ease up the tasks related to pedagogic reform. Thus, through integration of classic Liberal Arts curricula -put into context in a social laboratory framework within the community and powered by web-centered didactic and information infrastructure, USC has achieved a unique level of integration of novel and sound pedagogical methodologies within a socially significant course redesign.

## **Introduction**

The University of the Sacred Heart (USC for its Spanish acronym) is a unique University in Puerto Rico that immerses strong and sound academic programs within three encompassing educational environments:

- Web-based on-line learning, through the Distance Learning Institute and the infrastructure, technologies and policies that it is developing; this is the backbone to all other environments and it is based on e-business models "lived" at all levels in the University; it follows a "learn-by-doing" model that uses the following as its own laboratory:
- Community-based curricular activities that enhance and give higher social meaning to learning in context;
- The "Language and Culture Throughout the Curriculum" initiative, which ensures that all students graduate with bilingual proficiency and understanding of another culture.

USC is thus expanding the boundaries of teaching and learning beyond the classical campus' restrictions: in fact we say that "The classroom is the world" and that, socratically, "The time for class is always".

The three programs are thus described more in detail:

- Web-based learning and the liberation of students' boundaries. This paradigm puts the student at the center of the didactic dialogue, and it also allows USC to cater to a changing student population that would be impossible to serve otherwise. Key agent is the Distance Learning Institute.
- Community Linking and Service Learning. This paradigm provides courses and students, throughout the curricula, with socially-relevant, context-based community practice-work; Key agent is the Community Linkage Center;
- Language Across the Disciplines. A program which ensures that students practice both mother-tongue (Spanish) and English language and culture skills within their courses; Key agent is the Language and Culture Center;

As mentioned earlier, the Distance Learning initiative and the Institute form the backbone through which the three academic paradigms are implemented. Web-based services and course components are a few of the systems the Institute built in order to create a culture shift towards web technologies and a sense of digital community. Web technologies allow for a revolutionary transformation of our pedagogies: we believe we are now seeing students at the center of the didactic dialogue, with the teacher playing the role of a facilitator, or that of a guide. Only an experienced teacher can bring together –for her students' benefit, the many academic, literal, scientific or artistic materials that mankind has produced (and that are often available through the Web). Only a teacher can then adapt, interpret or mix these materials for his own students, through web-based collaboration work with his students. A high cultural sense then permeates our work, in that we are convinced that through web-based technologies we can attend the needs of the changing student population (working students, often studying part-time, with families to attend to), and at the same time transform the same way education is thought.

Also, our effort and paradigm is strongly oriented towards the “learn by doing” model. This model ensures (as Schank and Papert argued) that students build their own knowledge which they retain up to a greater extent and actually use in context. It is of course easy to build a “learn by doing” curriculum in computer science: after all, as Schank points out, computers are “doing” devices. What about philosophy, or other abstract areas, people ask. We are convinced that any and all academic areas may be “reformulated” as “doing” courses. As an example, consider the book “More Plato, Less Prozac” by Lou Marinoff. In it, the author, a practitioner belonging to a school of philosopher-therapists, explains how philosophy can be actually used in a practical (even communal) context and how it can help people to answer some of their most troublesome questions –or to formulate the questions in the first place. Though we have not yet attempted to do this, we are convinced this therapy method may well inspire a “doing” course on philosophy!

## **Tools**

Our courses are thus semi-virtual (blended courses, in the current terminology). This is because we are convinced that in the current state of affairs (undergraduate) students do need a (redesigned) contact time with each other and with their instructor, at least once in a while. In the on-line world at Sagrado, students and faculty are so offered tools to enhance their experience and to help them dialogue and collaborate together.

All the tools that follow have been developed in-house at the Institute. This is because we want our students to participate in meaningful projects in which they can practice, experiment and “learn by doing”. Also, all our development efforts are done with Open Source or open standards-

based software: apart from having access to code –which allows to customize it, this has lowered the costs associated with such an enterprise.

A personalized portal for students and faculty has been implemented, that helps to create a sense of community and provides personal course information to the community. The MiSagrado Portal gives students a unified access point to course and academic information, and allows him/her to participate in various activities.



Figure 1: MiSagrado Personalized Portal

LinksKeeper, a cooperative client-server tool that provides users with a drag and drop interface to catalogue Web resources: users drag the resource they want to add (from a browser) over the catalogue item they believe the resource must be in, and drop it there. Last, they annotate it with their own considerations and comments. On the other hand, users who are in need of some specific resource will do the inverse operation, and will have no trouble in finding what they need, since the catalogue is annotated. LinksKeeper is developed in Java, while the server part is developed using Open Source standard software such as MySQL. This application is thus fully portable across platforms, and is freely downloadable from the Internet (users need to subscribe explicitly.)

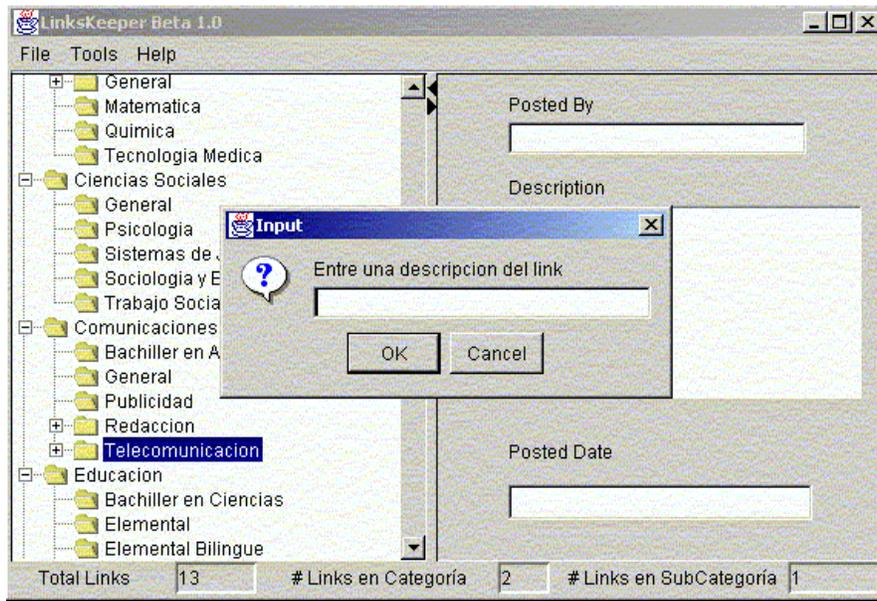


Figure 2: LinksKeeper

Another tool oriented towards faculty work is currently being implemented. It consists of a web-based system to help professors prepare course materials according to our own standards and templates. For instance, it allows to prepare a bibliography while searching the huge ProQuest literature database, and to save it in HTML format in a personal folder –for immediate access. Also, it provides for a tool to generate a course program out of a syllabus.

A Newsletter and a project website (all at <http://ined.sagrado.edu>) form the basis of our knowledge base, and are an excellent vehicle to share web-based educational technologies within and without our community.

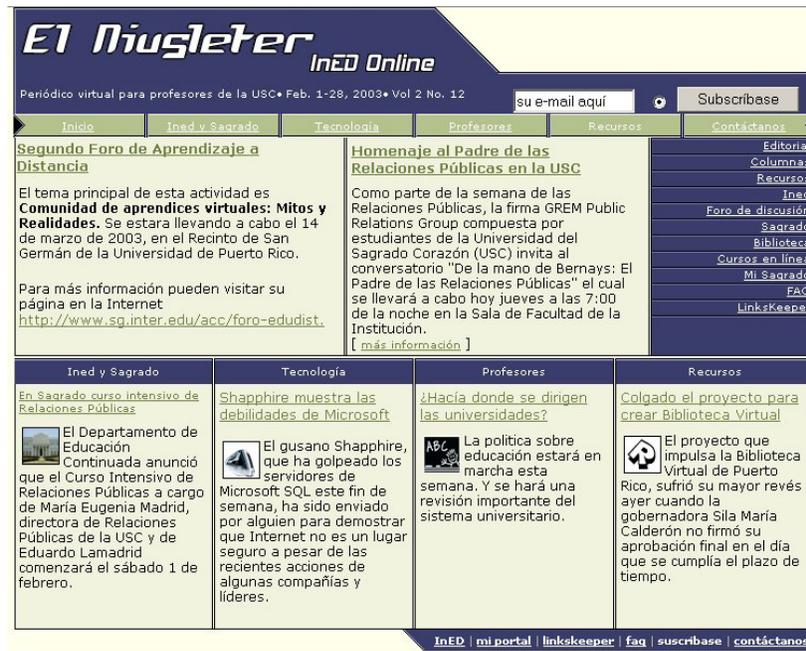


Figure 3: Newsletter

Finally, as a last example of community-enhancing tool, we built an information-rich screensaver. The Sagrado Screensaver was designed so to enlarge our “Web-centered” community to include every person with a computer. Through the screensaver, people get up-to-date information on USC’s calendar of events and activities, news from local and international sources<sup>1</sup>, and also a glimpse at the world’s economic situation. The screensaver has just been released, and we are currently in the process of distributing it.



Figure 4: Sagrado Screensaver

### Learn by Doing & Community Service

As an example of student inclusion in meaningful processes as day-by-day continuous lab experiences and learn-by-doing pedagogy, let me mention the work being done at InED (the Distance Learning Institute), where students run virtually everything: the network systems, programming, web and software design; and at the “Tele Sagrado” TV Center, a TV station managed and run by students that also provides Puerto Rico with a significant service of live reporting from the legislature. In another instance, in a databases course the professor was able, through the coordinated work of the DL Institute and the Community Linkage Center, to design and implement with her students a DB that the Community Linkage Center itself needed and now uses.

We may then assert that our model uses the “learn by doing” paradigm as a concrete laboratory experience in a community setting. Curriculum is transformed through the liberating power of the Web. Learn-by-doing is the effective strategy made possible by this transformation;

<sup>1</sup> In another attempt to incorporate class activities into the described framework, a softbot was developed by the students of a computing course to retrieve and fetch the news headers from the main Puerto Rican newspaper, “El Nuevo Día Interactivo” (www.endi.com).

Thus, students are put at the center of the academic experience; moreover, through the community linkage program, they are immersed inside the laboratory experience of the community, which provides another layer of (locally powerful) meaning and purpose to learning; Learning is thus transformed into learning by doing, in which the laboratory is actually the (real) community surrounding our campus. Since we learn by doing, language experiences (English and Spanish) are also immersed within the curriculum, hence the cardinal program Language Across the Disciplines.

Through fluid integration of classic Liberal Arts curricula put into context in a social laboratory framework within the community and powered by web-centered didactic and information infrastructure, USC has thus achieved a unique level of integration of novel and sound pedagogical methodologies within a socially significant course redesign.

On-line, web-based learning forms the backbone of our strategies, and, as expressed above, it is thoroughly connected and integrated with the community linking and service-learning program (often the real lab –as opposed to the virtual environment of “learn-by-doing” classes that Roger Schank talks about), which provides –as discussed, a higher meaning to university education, and puts it in a relevant context.

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