Developing a model for training faculty in web based education

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ABSTRACT

This article emphasizes the importance of incorporating the use of Internet and its related technologies to the teaching and learning process in higher education. It provides a detailed description of a training program for faculty in the development of learning environments on the Internet, addressing topics such as: areas to be covered, types of training to offer (whether online, face to face or hybrid), levels of training and the skills which should be mastered on each level, and which tools and software to use. The article also focuses on issues such as the importance of providing adequate support and resources for participating faculty, and describes common problems that are likely to be encountered when undertaking the training task, as well as suggestions for overcoming these obstacles. It is a useful guideline for those interested in developing similar training programs at their respective institutions.

Keywords: Faculty, Training, Internet, Education, WebCT, Online learning, Distance Learning.

1. INTRODUCTION

> Assisting faculty efforts to integrate technology into instruction remains the single most important information technology challenge confronting American colleges and universities. (Green, 2001).

The new communication and information technologies that have been made available through the Internet have the potential to significantly transform the teaching and learning process. (Bates, 2000, 1995; Palloff, 1999). The Internet provides resources that can enrich education, making the process, for students and professors alike, more dynamic, complete, interactive, and stimulating (Khan, 1997). Therefore, a 21st century university must be prepared to cope with the dual task of developing learning environments on cyberspace and evaluating the implications that these interventions have on the education process. (Cole, 2000; SchorKo, 2000). However, in order to successfully carry out this endeavor, support structures and systems that facilitate the faculty's adaptation to these new technologies must be developed (McCormack, 1997; Hannum, 2001, Butler, 2001, Marcinkiewicz, 2001).

This article's main purpose is to describe a training program on the development of learning environments on the Internet for the faculty of the University of Puerto Rico at Mayagüez (UPR-M). The UPR-M is a Land Grant institution comprising the Colleges of Agricultural Sciences, Arts and Sciences, Business Administration, and Engineering. The campus has over 1,000 professors and researchers, and about 12,200 students.

Although we have been providing members of the Department of Social Sciences and the College of Arts and Sciences with this type of faculty training for the past three years, mainly through the Center for Internet Enhanced Education (CECI), this article focuses on the description of a more recent training program which includes faculty from all colleges of our university and which has been coordinated through the Institute for the Development of Online Learning and Teaching (IDEAL by its Spanish intials). Needless to say, the herein described training model used on this latest endeavor has benefited from our previous training experiences.

Institute for the Development of Online Learning and Teaching

The Institute for the Development of Online Learning and Teaching (IDEAL) was created with the purpose assisting and training faculty members who wish to incorporate Internet related technologies to their respective courses. IDEAL provides workshops and individual support and tutoring to faculty members on the use of these new technologies; as well as access to useful software such as, Adobe Acrobat®, PhotoShop®, Front Page®, and Trellix®, among others. Likewise, IDEAL has relevant literature (with magazines such as Presentations, Converge, Syllabus and The Journal, among others) for faculty members who are developing learning environments on the Internet.

IDEAL also collaborates with the Center for Internet Enhanced Education (CECI) in the publication of Hermes, an online and printed journal devoted to the discussion of interesting and sometimes controversial issues arising from the use of the Internet in the education process. Hermes also provides an opportunity for faculty members to share tools, resources, articles, and links regarding internet enhanced education.

2. COMPONENTS OF A TRAINING MODEL FOR FACULTY IN WEB BASED EDUCATION

Selecting the participants

At the beginning of the semester, faculty from all colleges of our university received a letter with a brief description of the project, as well as the URL of the project's website, and the date of a conference on which further details would be described. The conference was offered, and an online application was developed for interested faculty to request selection as participants in the project. Interested faculty members were informed that if they were selected to participate, they were expected to develop an online course or a hybrid course at the end of their training.

A total of 75 faculty members completed the online application. In selecting participants we were mainly seeking that all colleges were represented and that participants had basic digital skills, such as knowing how to use the internet and how to use a word-processor software. A total of 37 faculty members were selected as participants; among these were members from each of the four colleges of our university.

Participants were divided into two groups, one of 19 members and one of 18. During the semester (January-May 2003), each group received three (3) workshops of four hours each, for a total of 12 hours of training. Each group also received two all day training workshops (8:30 am – 4:30 pm) during the summer (June 2003). The workshops were provided in a hi-tech room equipped with laptops, wireless internet connection, digital projectors, two plasma screens, and video conferencing facilities.

Areas to be covered

One of the first questions we must ask ourselves when attempting to initiate a faculty training program is which are the topics and areas to be covered during training. Once the scope of the training process is determined, it is also wise to organize the proposed areas into different levels of training, beginning with the most basic skills, and progressively increasing the degree of complexity in subsequent levels. With the purpose of providing guidelines to facilitate the development of future training models, the following is a description of various levels of training and the corresponding skills that should be developed on each one.

First Level - Digital literacy skills: Our experience in training faculty for over three years leads us to conclude that, for several professors, training needs to begin with the development of the most basic technological skills. Without these skills, commonly described as digital literacy, it is almost impossible to develop learning environments on cyberspace. Therefore, before attempting to train professors in web page design or in the use and administration of systems such as WebCT® or BlackBoard®, the trainer must verify that each participant has mastered the following skills:

1) File management: ability to identify and access files, directories, and hard disk components;
2) Ability to scan images, use digital cameras, and manage basic features of image editing software;
3) Configuration of browser, and storage and access of bookmarks or favorites;
4) Use of search engines and databases;
5) Critically evaluate the quality of the information available online;
6) Use of email, chats, mailing lists, discussion forums, and newsgroups;

7) Use of file compression software: These allow users to reduce the size (compress) of a file to diminish the required storage space and thus facilitate file exchange and sharing; and
8) Familiarization with pdf format and with the use of Adobe Acrobat®.

Second Level - Web Page Design: After participants have mastered the basic skills described on Level I, they will be ready to receive training on the use of HTML editors, which are software used to design and publish web pages. Some of the skills that should be developed on this second level include:

1) Converting word processor documents into web pages;
2) Transferring files using FTP software: Based on our experience, one of the best file transport programs is CUTE-FTP® .
3) Development of web-based presentations using PowerPoint; and
4) Learning how to use an HTML editor to create and publish a web page.

We chose Trellix Web® (now called Cute Site Builder®) as the HTML editor in which to train faculty because it is amazingly user friendly and it has most of the components that professors need to manage their courses on the web. In our experience, faculty members with little or no digital literacy can easily learn how to use Trellix®. Other editors, such as FrontPage® and Dreamweaver®, require more time and effort in order to effectively master their use. Thus, we feel the latter are not appropriate editors for training professors who are beginning to develop these types of skills.

Third Level - Management of a web course development platform: As a web course development platform we are using WebCT®. WebCT is one of the most frequently used virtual platforms by colleges and universities in the United States. Its creators, Murray Goldberg and Susan Salari, began developing WebCT with a grant from the University of British Columbia in 1995. The first edition of this product was available to consumers in the year 1997. In 1999, Universal Learning Technology and WebCT joined forces to promote and commercially distribute this product.

All comparative studies consulted (Firdyiwek, 1999; Frederickson, 1999; Gray, 1998) concur in describing WebCT as one of the best web course development platforms available, particularly because of the variety and amount of resources it provides to students and professors. WebCT offers students multiple learning, collaboration and communication tools, such as: discussion forums, internal email, chat rooms, self assessment tools, image database, glossary, online password-protected grade book, and a calendar on which students and professors alike can post events.

Another virtual platform alternative that has been effective throughout our training is the Internet Classroom Assistant (also known as "Nicenet"). Although Nicenet does not offer all the tools available through more complex systems, it is very useful for faculty members who are just starting out in the process of enhancing their courses with online resources. Nicenet (http://www.nicenet.org) was created in 1995 with the purpose of providing useful tools for distance and collaborative learning. It offers students and professors the opportunity to discuss class related topics online and to submit and access class related documents. We have developed an online instruction manual or user's guide for Nicenet, which can be accessed at the following url: http://www.uprm.edu/socialsciences/nicenet/index.htm.

Fourth Level - Pedagogy and Internet Enhanced Education: In this fourth level we leave behind the technical skills and concentrate on analyzing the pedagogic processes involved in Internet enhanced education. It is, therefore, the most complex level. Due precisely to this complexity, most models for training faculty in online teaching are limited to the coverage of areas described on the first three levels of our model, losing sight of the fact that the purpose of such training is the improvement of the teaching and learning process. An example of a training model that emphasizes this fourth level is the one used in the online course entitled *Teaching Online in Higher Education*, which is offered by the Center of Distant Learning of the University of Texas-PanAmerican. (http://cdl.panam.edu).

In this fourth level, the following topics should be discussed:

1) Teaching and learning styles;
2) Development of learning objectives;
3) Assessment of distance learning;
4) Interactivity as a central element of Internet Enhanced Education; and
5) Instructional design.

Types of training

Another important dimension of faculty training is the manner in which it will be offered. Multiple alternatives are available:

1) Training can be offered entirely online;
2) Training can be made available in CD format, using software such as Viewlet®, available at http://www.qarbon.com**;**
3) Training can be offered in a traditional face to face setting;
4) Training through video or television;
5) Training can be hybrid, using a combination of different types of training (web-based, CD format, face to face)

We have emphasized traditional face-to-face training. However, we have recently begun to complement this method of training with the use of CD format, using software such as the previously mentioned Viewlet and RoboDemo® (http://www.ehelp/com) . We have also developed multiple tutorials which are available online at http://www.uprm.edu/socialsciences/eci and at http://www.uprm.edu/ideal.

Resources and support provided for participating faculty

Providing faculty with adequate support during training is a key element for the training process to be successful. As participants begin exploring these new technologies, and as they attempt to integrate them into their respective courses, it is likely that difficulties will be encountered, and questions might arise. They will need support to overcome these challenges, and having easy and prompt access to it will facilitate their mastering these technologies, while a lack of support could impair their training or diminish their level of enthusiasm and their commitment to the project.

With this in mind, throughout the project, participants were continually provided with individual consulting and support through both, the use of email and face to face support during office hours. Thus, whenever a participant needed help during the process of developing their online or hybrid courses, they could email their doubts or describe the problem to those of us in charge of training, and we would promptly provide feedback through email, or schedule a meeting during office hours to provide face to face support at the Center for Internet Enhanced Education.

Besides the availability of individual consulting, participants were offered additional resources and support. During the first workshop, a project-designed CD with useful tutorials and other tools and materials was distributed to each participant, along with a binder containing printed information and outlines regarding the topics that were to be discussed at each workshop. They also had access to a webpage, specifically designed for this project, on online resources about WebCT®. Likewise, a FAQ (frequently asked questions) page was available as well as a directory of online resources on distance learning. To ensure effective communication between participating faculty and trainers, an electronic mailing list was also created to keep participants informed of the project's events.

Furthermore, as part of our training project, we created an online manual for the development of courses on the Internet. It is available online at: www.uprm.edu/socialsciences/ideal/webct. This manual was used as our guide throughout the workshops. It includes the following:

1) Introduction to HTML;
2) Surfing the Internet;
3) Researching on the Internet;
4) Using email in the virtual classroom;
5) The electronic discussion forum as a teaching tool;
6) Advantages and disadvantages of the cyber classroom;
7) Links and resources for the virtual professor;
8) Implications of Internet use in the teaching process; and
9) Evaluating Internet Enhanced Education

3. IMPACT:

Although this is an ongoing project and the expected date for final development of online or hybrid courses is 2004, several participants have already developed their online courses or their web enhanced courses. As a result, our university currently has available online courses and/or web enhanced courses on the following areas: Biology, Humanities, Social Sciences, English, Agricultural Studies, Business Administration, Engineering, Mathematics, Hispanic Studies and Psychology. At the end of this past semester, we had an activity in which participants presented the courses they had

already developed and/or their work in progress.

As a result of the workshops that have been offered, faculty members have also acquired skills that have enabled them to effectively integrate the use of these new technologies and of the Internet in their teaching processes. Some participants have created their own web pages to further enhance the teaching of their courses.

The overall impact of the project can be described as a transformation and modernization of the teaching methods in the UPR-M. Various professors from our University have started to use laptops and digital projectors to present material to their students during their courses. This ongoing project has also facilitated the creation of two new courses: *Psychology of Cyberspace*, and *Searching and Researching on the Internet*.

Likewise, the development of a culture that values these new information and communication technologies has significantly impacted our students. Student organizations have started to publish websites, and individual students have also discovered the advantages of having a presence on cyberspace.

Our University is not the same as three years ago. Each day, more professors, students and administrative personnel are becoming increasingly motivated to learn about and participate in the web based education paradigm. We have purposely and rapidly begun our transformation, from the traditional transparencies projector to the digital one, from the traditional textbook to e-books and electronic documents, and from the formerly exclusive emphasis on traditional face-to-face classroom interaction to significantly appreciating web based education.

4. DIFFICULTIES AND PROBLEMS: THE DARK SIDE OF THE TRAINING PROCESS

It is necessary to mention the difficulties and problems we have encountered because their acknowledgement makes them easier to handle. One of the main problems in faculty training on internet enhanced education is the issue of providing an incentive to participating faculty. In our case, the professors who participated in the project did not receive monetary compensation, and they did not receive academic workload relief. Their participation, commitment and enthusiasm are therefore highly admirable.

However, various professors have complained that they don't have enough time to practice the skills they need to develop in order to effectively develop learning environments on the Internet. We, thus, highly recommend providing participating faculty in similar training programs with an academic workload relief. We have already achieved that our next group of professors will receive academic workload relief for their participation in the training project.

Another difficulty that we have encountered is how to obtain the funding needed to run the training program. We believe that the University should assign IDEAL a recurring budget, so that its existence and continued support need not depend exclusively on research funds. Last but not least, universities interested in developing similar training programs must develop an institutional policy on distance learning, since it is necessary to define a strategy that can coherently guide the process.

5. THE FUTURE OF ONLINE TEACHING AND LEARNING AT THE UNIVERSITY OF PUERTO RICO-MAYAGÜEZ

The future of online learning at the Univeristy of Puerto Rico-Mayaguez goes hand in hand with the creation and continued development of CECI and IDEAL. IDEAL is now a permanent component of our university. Each semester IDEAL offers workshops on topics such as WebCT, Trellix Web, Nicenet and FrontPage. We also coordinate activities with the sole purpose of providing faculty members an opportunity to analyze, discuss and reflect upon the impact of technology in the teaching and learning process.

We are also interested in research on web based education. IDEAL and CECI collaborate with faculty members on research with Internet related components. For instance, one of our most recently funded research projects involves the development of online training modules for health professionals who work with HIV+ and AIDS patients. The development of these training modules began on

January 2003. Likewise, we are working with faculty from the College of Engineering and the

College of Arts and Sciences on another funded proposal regarding the digitalization of the municipal government of Mayagüez. We have also assisted various faculty members in the task of online data collection, through the use of digital (online) questionnaires.

6. CONCLUSION

The integration of the new information and communication technologies to the teaching process makes it possible to transcend time and space limitations, allowing students to learn in a wide variety of contexts using multiple resources. (Bates, 2000; White, 2000). It is of utmost importance that universities offer support, training, and resources to faculty members who are interested in developing learning environments on cyberspace, because these efforts will result in their being able to provide students a more complete and effective education. We sincerely hope the training model described in this article can facilitate the development of similar training projects at other universities.

7. REFERENCES

Bates, A. W. (1995). *Technology, open learning, and distance education*. New York: Routledge.

Bates, A.W. (2000). *Managing technological change*. California: Jossey-Bass.

Bonk, C. (1998). *Electronic collaborators*. NJ: Lawrence Erlbaum

Brooks, D. (1997). *Web teaching: A guide to designing interactive teaching for the WWW*. New York: Plenum.

Burum, D. (1992). Formative Evaluation of Computer Courseware: An Experimental Comparison of Two Methods**.** *Journal of Educational Computing Research*, 8 (1), pp. 69-80.

Butler, D. (2001, July/August). Faculty development at the grassroots level. *The Technology Source.* Available online at http://ts.mivu.org/default.asp?show=article&id=904

Cole, R. (Ed.)(2000) *Issues in web-based pedagogy*. CT: Greenwood Publishing Group.

Dasher-Alston, R.M. & Patton, G.W. (1998). Evaluation Criteria for Distance Learning. *Planning for Higher Education*, 27 (3), pp. 11-17.

Driscoll, M. (1998). *Web based training using technology to design adult learning experiences*. Chicago: Pfeiffer.

Firdyiwek, Y. (1999). Web-based Courseware Tools: Where Is the Pedagogy? *Educational Technology*. *39*, 29-34.

Fredrickson, S. (1999). Untangling a Tangled Web: An Overview of Web-based Instruction Programs. *T.H.E. Journal*. 26, 67-77.

Gray, S. (1998). Web-based Instructional Tools, *Syllabus, 12*, 18-22.

Green, K. (2001). *Campus computing survey*. New York: Campus Computing Project.

Hall. B. (1997). *Web based training cookbook*. New York: Wiley.

Hannum, W. (2001, September/October). Professional development for teaching online. *The Technology Source.* Available online at http://ts.mivu.org/default.asp?show=article&id=898

Horton, W. (2000) *Designing web based training*. New York: Wiley

Khan, B. (1997). *Web based instruction*. California: Educational Technology Publications.

Marcinkiewicz, H. (2001, May/June). The role of centers of teaching and learning in integrating technology in instruction. *The Technology Source*. Available online at : http://ts.mivu.org/default.asp?show=article&id=863

McCormack, C. (1997). *Building a web based education system.* New York: Wiley and Sons.

Meléndez, J. (1999). *El poder de la educación a distancia*. Bayamón: Editorial de la Universidad Central del Caribe.

Morley, D. (1999) . *Harcourt Guide to the WebCT*. Florida: Harcourt Brace.

Palloff, R. (1999). *Building learning communities in cyberspace*. California: Jossey-Bass.

Reddick, R. (1996) *The online student*. New York: Harcourt.

Schor Ko, S. (2000). *Teaching online: A practical guide*. New York: Houghton.

Verduin, J. (1991) *Distance education: The foundation of effective practice*. San Francisco: Jossey-Bass.

White, K. (2000). *The online teaching guide*. MA: Allyn and Bacon.

Willis, B. (1993). *Distance education: A practical guide*. N. J.: Educational Technology Publications.