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From a Generic to a Customized Framework: Paving the way for WebCT

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Abstract

Institutions of higher education specifically residential colleges and universities are becoming rapidly aware of the significant role played by communication and information technologies in teaching and learning. It is becoming a major challenge to these institutions to keep pace with technological change and gain a competitive edge vis-à-vis other institutions and rapidly emerging virtual settings. However, conversion from traditional modes of instruction to new technology-enabled teaching and learning paradigms, that shift the focus from teacher-centered instruction to student-centered learning, has been hindered by resistance to change displayed by numerous faculty members. There was accordingly an urgent call for the development of orientation mechanisms during the transition stage.

In response therefore, to the absence of understanding and appreciation of the need for change, a generic technology-enabled teaching and learning framework has been constructed, illustrating key entities, types of interaction and course related activities facilitated by technology.

The main purpose of the framework has been to provide a conceptual view of an integrated environment within which educational goals are realized along a continuum that extends in-class and beyond. Within this context, learning technologies that can be used by students outside of class, do not replace traditional face-to-face instruction and interaction in the classroom. Faculty, many of whom display resistance to change, would then be able to appreciate, conceive and question technical and pedagogical issues associated with the desired changes, prior to the adoption of a specific instructional tool. This approach had an observable impact on the stimulation of the interests of faculty in adapting and accepting new technology-enabled learning and teaching tools and paradigms.

To effect a smooth transition and pave the way for the introduction and institutionalization of one of these tools, namely WebCT in our institution, a customized framework specific to this tool was then derived from the previously constructed generic framework by a mapping process. This framework in conjunction with other demonstrations has been utilized to display the capabilities of WebCT to a receptive audience that has already been orientated as to the importance of technology in instruction.

Guided by the framework and in parallel to the above, preparatory work has been in process to set the stage for implementation taking into consideration alternate scenarios for different portfolios of users. The outcome was extremely impressive. We were overwhelmed, but concerned about sustaining this initial success. Surveys were thus carried out to measure the impact of our strategy, and help us address problematic issues.

In this paper, we present our strategy for the conversion of traditional modes of instruction in our institution to new technology-enabled teaching and learning paradigms.

Background

Our study and approach were developed within the context of a residential university environment namely, the American University in Cairo (AUC). Problems impeding progress during the ongoing process of introducing new technologies into teaching and learning followed a familiar pattern similar to that in some other peer institutions. Accordingly, resistance to change and concern about time involved in learning and using new technologies were among many obstacles encountered. A study of these problems by the center for Academic Computing Services (ACS) at AUC suggested a lack of a broad conceptual view of a

technology-enabled teaching and learning environment on the part of faculty members. This realization has driven us to rethink our approach towards the support of technology in teaching and learning. The methods used so far had centered around training to those who expressed interest as well as extending technical support on a one to one basis to early adopters who were eager and willing to implement new technologies. Furthermore, due to the absence of instructional tools supporting a comprehensive environment, technology was adopted on a piece meal basis. Therefore the pace and scope of achievement using such approaches was not at all impressive. Moreover, other triggers calling for change emanated from other competing institutions, as well as a call for a higher rate of faculty involvement and a paperless environment. We have therefore reexamined our practices and facilities and embarked on a mission of setting up an orientation strategy and an implementation platform, the design of which was based partly on a study of the "Seven Principles for Good Practice in Undergraduate Education" [2], and partly on our evolving experience and other studies in this field. [1], [4]. In this paper, we will describe our strategy in more depth, and demonstrate its outcome and impact on teaching and learning initiatives.

A Technology enabled Teaching and Learning Strategy

A two-phase strategy has been developed for the introduction of a comprehensive technology-enabled teaching and learning environment. The main purpose of the strategy is to enable faculty members to visualize the link between pedagogy and the use of new technologies from a global perspective. Towards this goal a generic framework [fig. 1] has been developed during the first phase to illustrate the type of interaction that takes place between instructors, students and technology, in-class and beyond. Design of the framework was to a large extent influenced by a study that illustrates how new technologies are employed in ways consistent with the following Seven Principles of Good Practice [2].

"Good Practice

1. Encourages contact between students and faculty
2. Develops reciprocity and cooperation among students
3. Encourage active learning
4. Gives prompt feedback
5. Emphasizes time on task
6. Communicates high expectations
7. Respects talents and ways of learning"

Following the above principles ensures a pedagogically sound framework in terms of the benefits and return for value for students. In addition to the above we have incorporated into the framework more focus on the advancement of the instructor as well as the student. Instructors need to develop their own skills and possibly share their expertise with other peers in the institutions. During the second phase, an instructional tool and a customized framework are introduced. The purpose of this phase is to pave the way for the introduction and institutionalization of the selected instructional tool, in this situation, 'WebCT'. The two generic and customized frameworks were incorporated into our training program to instill a common pedagogical and technology vision. Finally, surveys and workshops were conducted to measure the impact of our strategy and the usability of the instructional tool.

A Generic Framework Approach

Inline with the seven principles of Good Practice [2], the generic framework [fig.1] depicts the collaborations between two primary entities: student and instructor, in addition to the interaction with instructional technologies. The instructor-student collaboration represents the core relationship of the framework, and is materialized in terms of course delivery, announcements, discussions, problem sessions and project supervision. In addition, learning technologies can be utilized to conveniently make available course material and supplementary information. Submission of online assignments and exams as well as grade posting ensure prompt feedback and emphasis on task time.

Instructors can minimize the administrative effort involved in managing classes with the use of learning technologies that enable course management, and student assessment. By logging onto such an online system, faculty members can monitor class or student progress. Using similar technology, students can also monitor their progress in each of their courses, encouraging active learning, and self-evaluation.

Perhaps one of the frequent criticisms of online learning technologies is the lack of interactivity between student groups. Hence, we were especially careful in ensuring reciprocity and cooperation between students is fulfilled in our framework. Student-student collaborations are encouraged through online discussion, and research tracks. But more importantly, students engage in web-based especially tailored projects.

Interaction with various instructional technologies, such as access to digital information (online digital libraries), CD-based Instruction, and simulation in non-threatening environment are all means to encourage students that have different talents.

Finally, beyond the seven principles that focus on the student, we have contributed an emphasis on faculty-to-faculty and faculty to technology interactions, in our framework.

Introducing an Instructional Technology Tool

WebCT has been evaluated vis-à-vis other instructional tools such as *Blackboard, eCollege* and Webmentor [3]. We settled on WebCT as our courseware tool for its comprehensiveness and customization capabilities. Among its powerful features is that it gathers all the following tools in one integrated environment: course contents, communication tools, evaluation tools, and study tools.

To effect a smooth transition and pave the way for the institutionalization of WebCT, a customized framework [fig. 2] was derived from the generic one through a mapping process based on the type of interaction between the main entities as follows:

1. Faculty-to-Student interaction: Instructors can communicate with students through *Mail*, *Discussion*, *Whiteboard*, *Survey* and *Student Tips* tools. Evaluating student performance online is also feasible by adding *Assignment, Quizzes, and* online *Grade Book* tools.
2. Student -to-Student interaction: Students can communicate and share ideas with other students via use of *Discussion*, *Mail*, *Whiteboard* and *Chat* tools. They could also engage into group projects using the *Student Presentations*, and *Student Homepages* tools.
3. Student-to-Technology interaction: Students can monitor their performance and self evaluate their work using the *My Progress*, *My Grades* and *Self test* tools. Students can have access to external resources through the use of *Image Database*, links to *URLs*, and *CR-ROM* content.
4. Faculty-to-Faculty interaction: Instructors can also collaborate with other instructors sharing new ideas by posting announcements, and utilizing shared course templates and co-designing the same course.
5. Faculty-to-Technology interaction: WebCT provides several tools that help instructors manage and build their course content using the *Calendar*, *Content Module*, *Syllabus*, *Index* and *Glossary* tools. Instructors could also assess and monitor students' progress, via *Manage Students* and *Track Student Progress* options. WebCT acts as a gateway to other technologies through its *Content Assistant* tool, *e-learning Hub*, *Image Database*, links to *URLs*, *CR-ROM* content. Finally instructors have the ability to *compile* and *backup* WebCT courses.

In preparation for the institutionalization of WebCT, we followed an incremental approach. We decided to build up our expertise in two directions in parallel: the administrative and the training and support dimensions. Administratively, we worked on the smooth integration of WebCT with the currently support Student Information System (SIS). On the training and support side, we created step-by-step instructional handouts that were distributed during our extensive training courses. Besides we designed a regularly updated Website with online handouts, FAQ's and information about our WebCT training schedule offered each semester with online registration and/ or new account forms. Finally we established a full technical support system on a large scale, by mail, by phone, or through focus groups.

To propagate the use of WebCT across campus, we arranged a seminar where we invited all faculty members to a tour among booths of all the major tools of WebCT with live demos. In addition, we designed a tutorial on CD that guides professors on how to create their own courses. This CD was a great success; all the faculty members asked for a free copy of the CD to study it at their own pace and get familiar with

all the WebCT tools. Moreover we invited some of the active WebCT designers to show case their applications. This approach triggered other faculty members to get started.

In our training program, we included the generic and customized frameworks to orientate faculty who did not have previous exposure.

Usability Evaluation

Based on our interaction with faculty members and our evolving experience, we managed to categorize faculty members as:

1. Faculty with a fair technological background and a general pedagogical view of their teaching approach but cannot present it in a technological context.
2. Faculty with previous experience who tried to make use of technology in their teaching before WebCT by either using scattered tools or by designing and building their faculty pages.
3. Faculty members who still preferred the traditional way of teaching since their technology background was quite poor.

We used four methods to elicit user feedback and evaluate performance:

1. Survey by the end of the semester, distributed it among all the professors using WebCT.
2. Evaluation of our different WebCT training tracks.
3. One-to-one discussions and consultations on the best combination of tools that satisfy faculty needs.
4. A seminar and a showcase event.

Overall results indicated the following:

1. 80.6% of the instructors were very impressed with the results of using such a technology in class.
2. 19.4% of the professors still prefer the traditional type of teaching claiming that it takes them more time to prepare material in WebCT rather than just handing students normal paper work and printout.
3. Those instructors who became personally involved in the design of their course(s) expressed interest in WebCT, whereas instructors who were forced to use a fixed course template, conveyed a dislike to the technology in general and WebCT specifically.
4. The number of courses that were taught using WebCT last year was about 81 courses. As a result of the evaluation of our training program and its subsequent enhancement, this figure dramatically increased to 163 courses taught by 65 instructors. Requests for more courses are being presently handled.

Conclusion

Based on our experience to date, the implications of our strategy on teaching and learning have been quite positive and indeed promising. Both instructors and students have experienced an important shift from existing methods of teaching to new pedagogies and technology assisted paradigms.

Despite the success of our endeavour, we still need to add new tracks to our training program such as usage of audio, video and flash files. Furthermore, we need to reach out to instructors who are resistant to technology and to change in general. We finally, need to sustain the success already achieved.

References

[1] Baker, J. W. “Moving to the Next Level, Pedagogy, ID & the Role of the CMS,” Ameritech Faculty Development Technology Program, 2002

[2] Chickering, Arthur W. and Stephen C. Ehrmann, “Implementing the Seven Principles, Technology as Lever,” 1996.
http://www.tltgroup.org/programs/seven.html

[3] Compare All Products by All Features, Edutools project:
http://www.edutools.info/course/compare/all.jsp

[4] Donovan, M. and Scott Macklin "One size Doesn't Fit All: Designing Scalable, client-centered support for Technology in Teaching," CAUSE95, Conference, 1998.

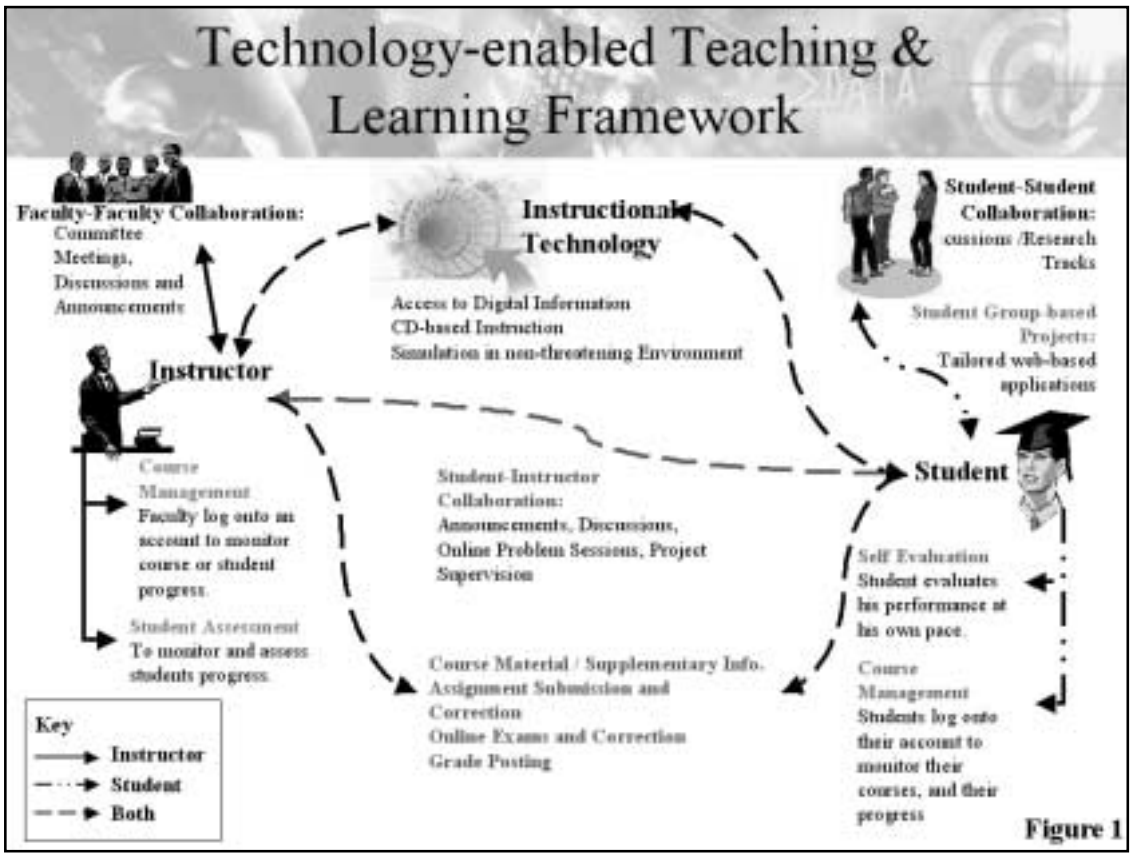

Figure 1

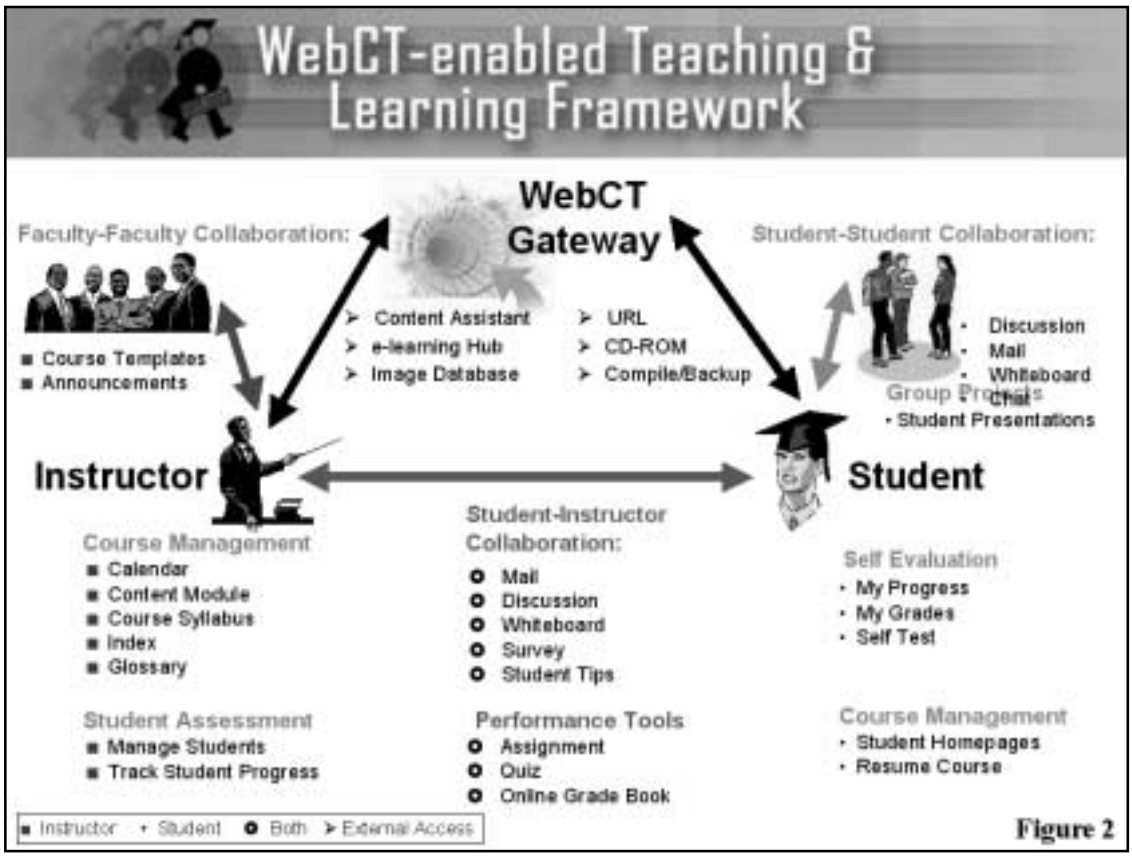

Figure 2