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EQUIPE PROJECT

Case Study of University of Porto

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Pedagogical Support for Instruction Using Technology: *support of faculty offices*

Motivation

Colleges and universities around the world are working to change academic practices that have remained unchanged for centuries. In a world where technology is ubiquitous, academicians try to sort out exactly which technologies can provide meaningful assistance with their educational goals. Unfortunately, people who understand and can communicate the relationship between pedagogy and technology are somewhat rare. Faculty support centers are manned by enthusiastic technophiles who work long and hard to accommodate the needs of professors, or to fulfill the wishes of their administrators. They stage workshops, invite individual consultation, develop online support services, and often host help lines to answer pressing problems. In many cases, however, preconceived notions about roles, disciplines, areas of expertise, and content limit the effectiveness of faculty support centers.

The current paper addresses a general situation but it is based on the case study of the University of Porto. This institution has over 23000 undergraduate students, 3500 graduate students and about 2200 faculty staff. It has fourteen colleges covering most areas of higher education. The administration is involved in the improvement of the quality of education provided and has adopted the use of technology as one process of achieving that goal. It has created a staff supporting unit, has conducted an external evaluation of ICT strategy led by the EUA (European University Association) and has contracted the services of external experts to provide support.

Before discussing our evolving perceptions about technology-based learning and how it can be improved, let us quickly examine some common professor-held beliefs that severely limit the success of faculty support centers. In many cases, faculty support personnel waste a great deal of energy worrying about these issues, and sometimes their worry has an impact on the functioning of the office. Ultimately, strategies for effective faculty support have to overcome:

Belief 1: *These technologists know nothing about pedagogy*. On four continents, I've heard instructors complain that the people in charge of faculty support are not pedagogues, but technologists, or that they have degrees in engineering or some other

technical discipline. In some cases, the technologists in question have been working with educational materials for years longer than their formal other-discipline education. If we accept the principles of lifelong learning, we have to assume that these technologists have learned valuable insights about how technology augmented instruction works...and make no mistake about it technology augmented instruction involves novel pedagogical transformations. On the other hand, technical support people do not help themselves by making comments like There's too much text! Moreover, the vocabulary used by multimedia proponents is far different than vocabulary used by most normal human beings. Technologists must overcome this emphasis on media types and begin to investigate learning honestly and directly rather than assuming that if it moves it is better. Educational research is robust enough to use as a foundation for conversations about incorporating new media into the learning experience. We all need to engage in those conversations.

Belief 2: *Content is the most important ingredient in my course*. When professors begin working with faculty support people, they often bring an issue with them. This issue is often content Since most professors have been teaching courses they wish to put online, they have already developed the content. The question at this point is simply put: Now that we have the course content, what should we do? Professors often believe that the content is the course, while technologists believe that since we have the content we are ready to begin developing the course. In other words, we must consider not only *what to teach*, but *how to teach it*. This is where the fun begins, or the headache, depending on how one perceives it. The technologist usually starts talking about floating pie charts, or animations, or morphing techniques and loses the professor completely.

Belief 3: *I am a good teacher, I do not need to change my approach. Besides, I have done enough work preparing my course, now I can just put it on the web.* It is likely that the teaching strategies that professors use in their classrooms do not match the strategies that will be effective in an online environment. Augmenting instruction with technology requires a pedagogical shift towards constructivism which many professors are unprepared to make. This is perhaps the most significant glitch in the implementation of a technology plan, or for that matter in the success of a faculty support effort.

Belief 4: *I know how to present the material, I just need some basic skills training so that I can get over the technology hump.* Moreover, there is no technology hump. It is all hump from here. Using technology means continuous learning and ramping up. Teachers actively employing technology in their instruction are continuously learning new software, or new versions of software, and are usually curious about tools which are better than the ones they are using. People using technology spend a great deal of time learning. They indicate that they spend considerable time (tens to hundreds of hours) outside working hours learning and developing. Interestingly, this fact seems to escape non-technologists. In one recent survey for example, we polled professors who were interested in learning more about integrating technology into their courses. Results indicated that the professors wanted to learn the technology and create their materials during regular working hours, and did not want to work on Fridays, weekends, or nights. Of course, one hopes that if properly motivated the professors will invest more time in the development of their electronic materials.

Faculty Support Infrastructure

In order to promote technology in an institution effectively, a multi-pronged approach is required. Varying schedules, needs, levels of expertise, and goals make a one size fits all approach impossible. This section reviews various components of a faculty support infrastructure. Faculty support office often have a bias towards a specific type of support, or grew organically from a single type of support operation. This will affect the way the office works, and the way it is perceived by faculty.

Reactionary Model. Many faculty support offices are built around a reactionary model. When someone needs help, they call the faculty support office. Hopefully, there is a mechanism which screens hardware problems and diverts those requests to a different office, but that is not always the case. The reactionary model is problematic for a number of reasons. First, it is difficult to recount the training that has been done. Even a log is insufficient, because a typical session between faculty support people and professors involves information exchange on a variety of topics. Moreover, the faculty support people spend a great deal of time reteaching the same system glitches over and over again with several professors. Administrators have a difficult time understanding what the faculty support people do with all of their time, which eventually causes friction.

On the other hand, professors must feel supported, and in the absence of a number to call, can become very frustrated. Many faculty support offices have tried to have office hours, but unfortunately, problems rarely occur on cue. It seems that responding to problems is a necessary function of a faculty support office, but it should not drive the functioning of the office.

Workshops - Although researchers have questioned the long-term value of workshops, they can provide a forum for hands-on work with faculty, helping them overcome some of their initial technology fears. Although most workshops focus on skills such as the use of an e-mail program, or a word processor, it is wise to spend some workshop time discussing pedagogical issues associated with the type of software being addressed. Also, trying to have participants predict what a specific program *must be able to do* before training begins helps the participants learn more efficiently. Separating *what* a program does from *how* it does it is a good idea. In other words, if I have never used an e-mail program, I nonetheless know a great deal about what I want to say, who I want to send it to, etc. By focussing on the *what* rather than immediately jumping to the *how*, we increase the learners comfort zone. Of course, timeliness is important as workshops relate to the evolving needs of staff. This means that the same workshops should be scheduled at various times throughout the year. Some support centers record sessions on video tape for on-demand viewing.

Appointments: The client model - Working one on one with knowledgeable person on a specific, pertinent educational problem can be a powerful motivator for a faculty member. In this model, one of the support center staff works with a faculty member and becomes very familiar with the faculty members needs and desires. Together, they apply their skills to the task and develop courseware. This approach is more successful when there is a feeling of mutual respect between the participants. The question of success in the client model is an important one. If the goal is to develop courseware, then getting a course online must indicate success. If the goal is to improve learning by using technology to augment instruction, then much more trust between the support staff member and the faculty member is required. The question of how to teach a concept using technology becomes central in course development, and more thought must be applied. Once a satisfactory approach is decided upon, it is wise to divide up the work (or pass it along to artists, designers, etc.) rather than working together in real time. Developing media takes a great deal of time, and training faculty in too many packages can present support problems in the future. In summary, while the client

model has many strengths, it can be costly and does not guarantee the creation of pedagogically strong software (See Policy section).

On-line Materials - Since Faculty Support offices promote online materials as part of their mission, it is natural to assume that the offices would have an elaborate online presence. This, however, is often not the case. While most offices maintain a web site, not all use the web site for instructional purposes. Establishing a useful educational site takes a great deal of maintenance work. Visitors must be rewarded with timely, useful information and support that matches their needs.   If a faculty support office documented every request for information in a database, that database could be used to construct a powerful FAQ (Frequently Asked Questions) web site. Although faculty support offices receive many requests for information, they do not post those requests, with the corresponding responses to the web.   Collecting and organizing support information is time-consuming, but may be time (and money) well spent. Promoting the site, and encouraging faculty to visit it, presents a challenging public relations problem.

Incentives- Several universities have developed incentive plans to encourage faculty to create online materials or to become more technologically literate. In some cases, for example, attending *x* number of hours of training entitles a professor to a free laptop. Incentive plans requiring attendance may help some professors, but are largely problematic. First, they are often unfairly evaluated. The people who decided to give away thousands of dollars worth of equipment are unlikely to claim that the plan was unsuccessful. So, even though many portable computers may remain in the box on the floor of the faculty members offices for two and three years, the incentive program is promoted as a success. On the other hand, if professors are spending vast amounts of time developing materials outside of class, it may be appropriate to reward them with hardware (and software) support. This may be done in a variety of ways. One idea with merit involves the faculty member submitting a proposal for a small grant in return for courseware, training, collaboration, etc. The proposal may be evaluated using the criteria specified in the proposal itself. Another possibility is to allocate teaching time to these course development activities allowing more availability from staff.   A third possibility is to disseminate the work done in a university publication allowing recognition and dissemination.

Local Course Models - In conversations with faculty, it is important for faculty support people to show examples of courseware that has been developed locally. This not only

acknowledges that colleagues are also working on electronic materials, it shows that the faculty support people have valid experience. It is important to showcase the coursework that has been developed, and whenever possible to allow the professors developing the course to speak about that development. Whenever possible, faculty support people should NOT lead discussions about courseware development. Faculty expect the support personnel to be able to use technology, they are more interested in the barriers that normal faculty have to overcome during the development process. Promoting motivated faculty who can discuss the changes in mindset necessary to augment instruction with technology makes a great deal of sense.

Training Faculty Support Staff - One of the functions of a faculty support office that is often overlooked, even though it is expensive and time-consuming, is the training of its own staff. Faculty support personnel must learn (and buy) new versions of software in a timely manner, and must frequently add to their repertoire of skills and understanding. It is important that faculty support people attend conferences, subscribe to journals, and attend training workshops (these are often offered by software companies). Whenever possible, faculty support personnel should be encouraged to interact with their peers. As change agents, they can offer each other both technical and psychological support. Sometimes, faculty support people can offer workshops for faculty shortly after attending workshops themselves. In many institutions, online courseware is increasing exponentially. If quality increases are to occur, faculty support people have to oversee those increases. The better prepared they are to make decisions about appropriate use of media and technology, the more smoothly course development can occur.

Faculty Support: How proactive can a faculty support office be?

Ultimately, any university decision to provide funds for faculty support is tied to improving instruction. Programs that are set up without the clear goal of improving student learning will encounter problems sooner or later. As mentioned above, there is a vast difference between getting a course online and developing materials to augment learning in a specified course. Therefore, faculty support offices need the clout to reject overly simplistic methods of posting courses. For example, although there may be cases when a linear presentation which has been previously given in class might help students if it were online, posting that presentation (or a series of such presentations) does not mean the course has been committed to the web. Faculty support people must be able to begin a dialog with faculty members about the quality of the faculty members ideas.

In order to facilitate this process, an accepted mission statement, or statement of policy regarding worthwhile projects should be developed and approved by the administration. At some point, it may be necessary to point out that a faculty member has a naive, or inappropriate view of the web as a learning tool. A document outlining a well rounded approach to course development can help.

Integrating Pedagogical Support

There are many aspects of an electronic learning environment that have not been thoroughly explored by most professors. Having research on-hand (or better, on the web) about these issues can strengthen a faculty support persons ability to convince faculty members to expand their thinking about the web. Of course there are many ways to employ technology in instruction and there is no formula for that employment. There are, however, reasons to think differently about how we teach, particularly when we employ electronic tools. A few examples of topics of interest:

> Alternate Learning Styles, Multiple Intelligences
> Hypertext as a teaching/learning tool
> Cognitive Overload in the interface
> Fidelity in the interface (Reeves & Naas)
> Self-Evaluation models
> Student designed lessons as evaluation (formative)
> Usability issues - Nielsen, Norman
> Examining alternate perspectives on core concepts

Somehow, a dialogue about pedagogical issues between technologists and professors must be part of any faculty support effort. When we use technology to teach, we expand our repertoire of teaching approaches. Without this discussion, faculty tend to focus on what they know: text based documents and posting presentations. Courseware employing the web must be much more robust, providing, for example, tools for the independent exploration of topics, self-assessment opportunities, and instructor feedback. It is possible to frame workshops in a pedagogical context, and support those workshops with online materials about pedagogy. Also, technology savvy professors can speak to other faculty about their experiences and how learning was affected. Concrete examples of successful implementations are powerful motivators.

Summary

Faculty support is a complex endeavor, and no single strategy will be completely effective. The efforts of many individuals is required to change the mindset of technologists and non-technologist before real instructional innovation can take place. Most institutions have been installing hardware for several years, trying to make sure that technology is available. While that process continues, we can begin to develop instructional strategies that assume technology, and that augment student learning with rich technological tools.