

Digital Democracy in Higher Education: Bridging the Digital Divide

by Susana Juniu

Educators seeking to integrate technology into the classroom frequently lack technological expertise and pedagogical preparation (Budin 1999). They often feel overwhelmed by the twofold challenge of keeping abreast of a rapidly changing technological environment on the one hand and of finding pedagogical strategies that allow for technology to be effectively integrated with their course content on the other. Meanwhile, in relative isolation from the educators who face this challenge in their teaching, university administrators and information technology (IT) departments struggle to provide the most appropriate resources to support classroom integration.

University constituents must cooperate in a community of learning to find new ways to teach and learn with technology and to examine the role of emerging technologies in higher education. They must clearly define their respective roles and responsibilities in this process in order for technology to be integrated with content in a meaningful and appropriate way. All too often, however, differing attitudes about the role that technology should play in the classroom, power structures in higher education, and insufficient communication among the various groups present obstacles to true technological and educational development.

In this article, I will discuss what Mitcham (1990) refers to as different "ways of being with technology" based on my experiences as a faculty user of technology and my conversations with colleagues and other professionals at different educational forums. These encounters have led me to question the roles and responsibilities of educators and support staff in order to understand the implications of technology integration in the teaching and learning process. I will then offer recommendations for how institutions may achieve a more productive community of learning based on a democratic approach to faculty development programs.

Ways of Being with Technology

While experts widely recognize the importance of integrating technology into the classroom, segments of a given academic community frequently disagree with the extent to which this can and should be accomplished. Some educators may be strong advocates of technological innovation while others may more reluctant in accepting technology as an integral part of the learning process, often questioning whether alternative methods of teaching can increase students' academic achievement. These divergent reactions and concerns have thus created a continuum that represents various attitudes towards technology.

Mitcham (1990) indicates different "ways of being with technology" by designating three groups: those who are suspicious of technology, those who are more ambiguous about technology, and those who strongly promote technology. Similarly, Milliron and Miles (2000) illustrate a continuum of perspectives towards technology—with cynics or skeptics on one end, a middle range of educators they refer to as "the reasoned center," and true believers on the other end. Such different vantage points, they argue, have resulted in a discordant discourse among educators about the role of technology in education.

One group feels that technology alone will not enhance or change education. For this group, "technical information is not true wisdom" (Mitcham 1990). This group includes educators who have reluctantly moved from being "techno-enthusiasts" to being more skeptical about technology (Healy 1998) and faculty members with extensive knowledge of pedagogical models and teaching methods who question the role of technology as the solution to problems such as low achievement in education. They believe that hardware alone will not

enhance learning. For them, incorporating instructional changes, fostering students' critical thinking skills, and possessing strong constructivist pedagogies must always be prerequisites for the use of computer technology in instruction. For this group, in short, questions of pedagogy must always precede questions of technological integration.

Another group of educators believes that computers can engage and motivate students to learn more, and thus it advocates the use of technology within the classroom. For this group, pedagogical principles are not necessarily irrelevant, but they are less sharply defined at the outset such that the educators in this group are more willing to modify their teaching strategies with different tools in different circumstances. By the same token, their willingness to adopt computer technology does not necessarily lead them to perceive such technology as suitable to all teaching or learning scenarios; rather, they are more inclined to judge a given tool in terms of its relative merits in a given educational context and to reconsider their initial assumptions in light of other options. This group of faculty users corresponds to Milliron and Miles's notion of the "reasoned center" (2000).

A third group views technology as the key answer to the problems in education and an indispensable means of school transformation and reform. These "techno-promoters" usually believe that students learn faster, better, and more extensively with computers (Cuban 2001). This non-academic group is more likely to include members of the information technology division, professionals with expertise in instructional design, project management, and the newest technological tools, and administrators who must work effectively in support of their academic colleagues for the improvement of teaching and learning in higher education (Fletcher 2002). In general, members of this group are also more likely to be disconnected from the classroom, from the faculty members' experience as teachers, and from course content.

Three groups thus emerge with diverse views in the academic realm: (a) the pedagogues (skeptics or critics of the impact of technology in teaching and learning), (b) the faculty users (technology advocates and content experts), and (c) the IT reformers (true believers in and promoters of technology). While it should be acknowledged that these views do not always correspond to professional roles—for example, not all IT staff have the same views regarding technology in education, and many may have previous classroom experience or background in pedagogical theory—they do designate significant disparities in experience and commitment that become more pronounced between professional units. These disparities have created a new digital divide in higher education: a division of knowledge, expectations, and needs that, in turn, influences the access to information about what technology works, what technology is needed, and how such technology should be integrated in the classroom.

The New Digital Divide

Although the digital era has bridged some of the gap between those who have access and skills to use technology and those who are just spectators of a digital world (Milliron and Miles 2000), it has also accentuated these differences and created unequal distribution and access to technological knowledge. For example, one of the key problems that higher education faces today is that the use of sophisticated technologies brings the need to rely on IT department technological expertise, creating an uneven relationship. Working with this unit can sometimes be difficult for faculty members who depend so much on their support and technical knowledge. According to the Teaching Scholar 2006 Faculty Needs and Development Summary from the University of South Carolina, "while faculty believe that IT applications are appropriate to meet their missions and goals, they do not feel that they have access to adequate training for IT use, and IT is the most stressful concern that they face" (2001, para. 2). Moreover, the training that educators do receive does not always coincide with their educational needs, in part because administrators and technologists rarely involve faculty in the decisions about what technology to acquire or in the design of new strategies for computer integration (Cuban 2001). Meanwhile, faculty users do not only depend on IT staff for technological support but also face pressures from the pedagogues to demonstrate the role of technology in supporting constructive, authentic, and cooperative learning.

This scenario creates a fragmented environment and disenfranchised groups. [Figure 1](#) represents the distribution of knowledge and power as it relates to access to and decisions regarding technology integration. The relationship among the groups is linear and sometimes hierarchical. These structures too often work in apparent isolation, failing to support each others' efforts; there is little association among pedagogues, faculty users, and the IT department. At the same time, these constituents are pressured by the university administrators who expect new e-learning initiatives to attain high quality teaching and learning. These expectations in higher education and the pedagogical shifts largely driven by the new information technology have created tensions between the support and the academic communities (Fletcher 2004).

The Dialogue Process: Community of Learning

Today, IT departments of colleges and universities already have initiatives in place to provide support to faculty members who wish to integrate technology into their courses. These initiatives are often forums of discussion, such as teaching and learning roundtables and advisory board groups or more specialized workshops that establish proficiencies with regard to a given technology tool. Yet these initiatives are not always enough to effect changes in teaching practice. They often fail to provide the hands-on experience necessary to integrate new technologies with course content or otherwise focus only on short term solutions to individual problems regarding the use of the technology itself. For faculty users it is not sufficient either to discuss technology integration in generalized terms or to attend a show-and-tell presentation by IT staff in order to acquire the knowledge necessary to infuse technology in their courses. Rather, what is most needed is a more holistic approach that combines practical knowledge of technology tools with a pedagogical understanding of how such technology can support problem solving and enhance collaborative learning.

Such an approach in turn requires that educators adopt the same collaborative ethos that they seek to instill in their students. Sustained dialogue among all the university constituents could foster exchange of ideas in a community of learning and allow all to express their needs and be actively involved in their professional development. To facilitate better understanding of the needs of each unit, all involved need to feel that their voices are heard and understood. The groups must find common ground to understand situational differences and to be more receptive to these differences (Fletcher [2004](#)).

A circular model of discussion based on the notion of community of learning, as seen in [Figure 2](#), would have each group interacting directly with the others. In this model, each group would have its own key contributions to make with regard to effective technology integration in the classroom. For example, the pedagogues would play a more active role by providing the faculty users and the technologists with theory on new pedagogical strategies such as designing curriculum units that blend project-based learning, group collaboration, and student-centered learning practices; they would also share their ideas regarding the integration of technology with constructivist approaches to teaching and learning. In turn, the IT division would contribute technical support and knowledge of new applications, offering consideration of how these applications could be utilized with the theories and strategies established by the pedagogues. Finally, the faculty users would bring their in-depth knowledge and understanding of course content, exploring the extent to which this content lends itself to such pedagogical approaches and technological applications. Such a process of communication would be continuous and reciprocal among all the groups involved.

This continuous dialogue and exchange of experience and knowledge can result in a more equal distribution of power, knowledge, and support. The model of communication would no longer be hierarchical but democratic, one in which participants are connected to one another through trust and mutual obligation (Lesser and Storck [2001](#)). In support of this approach, Lockwood comments, "Democratic professional development relies heavily on teachers' knowledge and experience to construct meaningful experiences that will address whatever weaknesses they have—just as learning for understanding pulls directly from students' experiences and prior knowledge to build a line of inquiry. This type of educational development requires a school climate in which adults can work collaboratively and trust one another enough to reveal areas in which they need additional knowledge or work" ([2002](#), "Democratic Professional Development"). The circular model proposed here creates just such a democratic environment, promoting dialogue and peer interaction similar

to Freire's "culture circles" (Heaney [2001](#)) or Mallory and Thomas's (2003) study circle model ([Exhibit 1](#)). Most importantly, this social practice will facilitate an understanding of each other's responsibility in the process of education.

This mode of dialogue is used by Teaching and Learning for Educational Needs with Technology (TALENT), a series of workshops funded by a Preparing Tomorrow's Teachers to Use Technology (PT3) grant, to prepare teacher candidates at California State University to address the digital needs of diverse populations. This program utilizes a "learning community" model to create links between university supervisors, K-12 master teachers, and teacher candidates as they plan and implement examples of effective technology use in K-12 classrooms. The program thus seeks to reduce the barriers between the traditional roles of teacher, student, and supervisor by promoting simultaneous professional development in which all constituents can share their experiences and strategies about teaching with technology. At the start of the program, the master teachers, university supervisors, site administrators, and student teachers all participate in an orientation session that introduces them to new tools and technologies. Each learning community then discusses their plans, goals, and activities for technology implementation while closely collaborating with one another as well as with the TALENT support staff. One group, for example, developed a series of hands-on-lessons incorporating PowerPoint, Alpha Smart, and the Internet that were subsequently used by the teacher candidates in their own teaching. To further expand opportunities for collaborative learning among program participants, these learning communities also kept logs of their work and documented their projects including videotaped lessons, lesson plans, and other resources (Chiero, Sherry, Bohlin, and Harris 2003; Chiero and Sherry [2004](#)). When professional development becomes transformed from a top-down process to a genuine opportunity for mutual learning and dialogue across professional boundaries, the barriers to effective technology implementation can be significantly overcome.

Putting Thought into Action: Roles and Responsibilities

Higher education institutions show their commitment to the transforming uses of technology by providing technical and design support as well as the technological infrastructure to support teaching, learning, research, and administrative activities. These institutions usually provide in-service training to their faculty, but many still utilize traditional modes of delivery in their workshops or faculty development programs. Instead of providing faculty members with one-time workshops or discussion groups that focus on individual problems, ongoing educational development should encourage active learning experiences that resemble students' learning experiences. Universities should implement educational development by creating an environment where faculty members are active, collaborative participants in learning communities that encourage innovative uses of technology through hands-on experience.

One alternative to training workshops that could be easily integrated in a community of learning is the project-based learning (PBL) experience. PBL, a problem-oriented, collaborative learning process focused on the learner (Moursound 1999), has been widely used in teaching to facilitate problem-solving activities among learners. It creates a learning environment that promotes learning by doing, constructing, reflecting, and visualizing; facilitates problem-solving activities; and provides educators with an opportunity to learn from a student's perspective.

The PBL approach to learning thus offers the potential for faculty members and IT staff *themselves* assume the role of collaborative learners within a given training program. Just as students in this model work together to find solutions to "real world" problems, so too can pedagogues, faculty users, and technologists work together on the "real world" problem of how to find the most effective combinations of pedagogy, course content, and technological tools in specific learning situations. In these programs, faculty participants would not only learn how to use software tools such as Access, Excel, or PowerPoint but would consult with one another and with IT staff more intensively to discover how such tools can promote problem-solving and critical thinking skills. Moreover, as all participants engage in activities that simulate the real-life experience of students in the classroom, they would each be able to offer more focused contributions from their own respective areas of expertise; the final product of such a program would be a learning project, or series of

learning projects, designed through such collaboration. In this way, all participants would "learn from technology" rather than receiving information from the computer (Jonassen 2000).

Universities such as Montclair State University (MSU) have used a PBL-based community of learning model to provide faculty members and staff with an opportunity to learn from the students' perspective in a collaborative environment. The focus of the MSU model was to engage the participants in authentic hands-on experience that turned them into students and to stimulate discussion and thought that would ultimately lead to experiencing technology through an instructional model that blended PBL with digital tools. In this case the initial problem-based scenario required that faculty and staff participants create a multimedia proposal for improving public relations between MSU and the surrounding community; after participants worked together with IT staff to achieve this goal, they then worked together to develop ideas for how PBL could be combined with various technology tools in their own respective courses ([Exhibit 2](#)). In this case PBL not only allowed participants to gain technology skills through collaborative activity with one another and with support staff, but it also helped them to apply this experience to the "problem" of how to find the best balance of technology and pedagogy in their teaching.

Conclusion

There is a need to assist faculty users as they integrate the use of computers into the curriculum while confronting the pressure of adopting new pedagogical methods that make extensive use of these technologies (Budin 1999). Faculty users can begin to make themselves more comfortable with new technology and, in turn, better able to do the same for their students by developing a partnership of learning to determine pedagogical uses of emerging technologies in the classroom; such a partnership should be based on dialogue that "focuses on the educational task at hand, identifying barriers and obstacles to its success, and solves problems in productive ways" (Lockwood [2002](#)). Through dialogue and collaboration, the university community can face the difficulties of adopting new pedagogical models for integrating technology into the curriculum.

The circular model of discussion and interaction allows for more integrative work across university departments in which each constituent is a co-learner and a co-contributor to the construction of knowledge as well as a participant in activities that trigger the dialogue process. This model fosters collaboration among educators and staff who normally never interact as co-workers, and the opportunity to work together enables them to share knowledge across their various fields of expertise (Chiero, Sherry, Bohlin, and Harris 2003). In turn, by experiencing collaboration through problem-based scenarios, constituents can learn more fully from the perspective of the student while becoming more focused towards the effective implementation of technology in specific pedagogical contexts. It is necessary that the various units in the academic community bear the responsibility and the commitment to creating these opportunities for collaboration.

According to Paolo Freire, to teach is to move from being a spectator to being an active participant in the democratic process of making decisions, arguing, and discussing ideas (Heaney 2001). Knowledge is a key element in having a powerful voice and control over decisions regarding the implementation of new technologies in education. Educators are models to students, and to be models of innovation, they themselves need to actively experience educational innovation in their own training.

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