Balancing Technology with Personal Interaction in Pharmacy Education

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Communication technology now pervades the classroom as well as the lives of students and faculty. Most of us daily experience the application of communication technology, and we are being drawn to it for various reasons: personal interest and curiosity, the desire to enhance learning, a fear of being left behind, student expectations, or, we are being pushed to use technology because our colleges have already invested a lot of resources.

New communication technology brings both promise and problems. Some see technology as a potentially great positive force in our universities. Application of new technology to teaching has been supported because it is perceived to be more efficient, convenient, flexible, accessible, and attractive to the younger generation, while giving faculty a new creative outlet. However, we also recognize it to be impersonal, costly, and sometimes an intrusion into our non-university lives.

The interests of students and universities can be in conflict with technology in instruction. Courses or lectures that are cost efficient or accessible may still be viewed by students as lower quality experiences than live lectures from an energetic and engaging instructor. Perhaps most important, distance learning technology does not promote the kinds of interactions that develop personal and professional growth beyond the transfer of information, specifically, mentorship and the development of professionalism, ambition, and motivation. In this paper, thoughts are presented on balancing the use of communication technology (specifically, Internet courses, televised courses, and email) with person-to-person interactions, with the intention of achieving the best use of technology while retaining the benefits that come only from personal interaction.

Internet Courses

An attractive application for technology is course delivery by the Internet. The number of Internet courses available online continues to increase dramatically. A quick Internet search can reveal thousands of course offerings from many different institutions. Some institutions have made major commitments to technology in instruction, particularly the Internet or interactive television(1). One is the University of Phoenix, now with 37,000 students (mostly non-traditional). From their web site (http://www.phoenix.edu/general/...)

At University of Phoenix, we make it possible for busy adults to earn their college degree or professional certificate while maintaining their career and personal life. Your innovative format provides a valuable, real-world education in the most convenient and efficient way possible.

Classes are offered at the times and places that work for you, including more than 107 campuses and learning centers across the country, and via the Internet.

Many colleges of pharmacy have active Internet and distance education programs. Some have brought these methods to the entry-level degree programs. One example is Creighton University School of Pharmacy that has a "Web-Based Distance Pathway" to obtain a Doctor of Pharmacy degree. From their web site (http://pharmacy.creighton.edu/spahp/non_traditional/rx/async_overview.asp):

The Web-Based Distance pathway provides a new, full-time educational method to obtain a Doctor of Pharmacy degree ... all didactic courses in the program are taught by distance mechanisms, which use the Internet and CD-ROM. Interactions with faculty and mentors occur via Internet chat rooms, email, fax, and telephone. Students need to be on campus for several laboratory courses [usually 2-3 weeks], annual assessments and some clinical rotations ... Students are assigned a mentor within courses in the program.

Virtual universities continue to be created and most of our universities are at least a part of some consortium to deliver Internet education. Some of this activity is being driven by state education administrators who recognize the potential cost savings in Internet education. By one estimate, creation of a mere 25 courses would serve an estimated 80 percent of the undergraduate enrollment in core undergraduate courses(2).

We do not yet know if one good web-based course can effectively replace many individual courses. What university administrators cannot ignore is that competitors to traditional colleges, including for-profit education companies, are emerging and these entities are emphasizing high-tech instruction (e.g., The University of Phoenix, Fathom.com, Sylvan Learning Systems, and Kaplan Education Centers).

The Internet and other technologies not only allow for broader access to the message or the content of instruction, but will also increase the reach of individual faculty members.

1Manuscript based on the AACP Robert K. Chalmers Distinguished Educator Award address to the House of Delegates, July 15, 2002, Kansas City, Missouri.
2Corresponding author address: UGA Clinical Pharmacy Program, CJ-1020, Medical College of Georgia, Augusta GA 30912.
With distance technology, faculty members can have students in many diverse locations. The use of the Internet and distance instruction allows even the possibility of creating a "National Faculty" or a "National College of Pharmacy." Within such a faculty, the best teachers, or those recognized for their expertise may join together from many geographic locations to offer a curriculum that will directly compete with state and regional schools.

At our College a few faculty members are actively involved in instruction over the Internet, mostly using WebCT (www.webct.com). We have just recently gained experience in offering an on-line course in pharmacokinetics, primarily directed to postgraduate pharmacists. While the course opened an opportunity for individuals who could not or preferred not to come to campus, there was a wide range of student response and acceptance. For some students, this course offering was convenient and right on target. However, it was not for everyone. An older, non-traditional student never managed to negotiate the proper mouse clicks on the initial computer screens, and others could not properly arrange their schedules to complete the course. With distance education there is often a time delay for identification of these problems, and it is difficult to rescue students once they get off track.

Through software such as WebCT, we can effectively deliver information over the Internet. What we need are better methods to keep individual contact with students over distance, to recognize as early as possible when students get off track, and to devise new methods to enhance student-to-faculty and student-to-student interaction over distance.

**Television Instruction**

Many schools use real-time television systems for instruction. At our college we have used two-way interactive television for many years in the PharmD program. In the second semester of the third year, all courses are taught over television to two sites, Athens and Augusta. This system allows faculty to be actively engaged at the State's medical school while participating in courses at the College of Pharmacy, 100 miles away.

Television is efficient, and can be effective for most topics, however, it inhibits personal interaction. The learning experience is not the same on both ends of the system. Faculty comments, questions, jokes, and some subtle points are often either not understood or misunderstood. Our faculty have formally studied the influence of interactive television and found that student performance did not seem to be affected(3,4). Student evaluations of faculty were similar on both ends. However, the distant students often feel left out, and classroom discipline declines on the distant end. Faculty have generally viewed television teaching as less desirable than live teaching because of the separation from students, but often make this tradeoff to avoid a two-hour drive.

With plans at many colleges for increased class sizes and satellite programs, television instruction will be used for the foreseeable future. What we need to learn is the best mix of television and live instruction that expands the range of experts available to students while maintaining a high quality learning environment? And to identify how students can be more effectively engaged over the television.

**Email**

Email is another medium that can enhance or detract from the learning experience. Almost all faculty members are accessible to students to some extent by email. When email replaces personal interaction, the typical informal and abbreviated email writing style can detract from a quality educational experience. However, email can be used to enhance instruction and actively promote exchange between the instructor and students before and after class. One simple example of the latter is to require students after a live lecture to turn in a question related to something that they did not understand or was unclear. Questions can be compiled, answered, and sent to all students by email. This can lead to an exchange of questions and explanations between students and the faculty member that the students perceive as being more responsive to their issues. So, this impersonal medium can be used to enhance the classroom experience.

All of these systems, web-based instruction, television, and email will be used more in the future as students and faculty become more geographically dispersed, as we try to serve students beyond out traditional boundaries, and as we create satellite campuses of our colleges. While distance technology directly addresses issues of convenience, cost, and access, can we assure that new technology will improve learning or enhance the overall quality of the student experience?

**Person-to-Person Interaction**

Effective mentorship over the Internet, over television, or by email has not yet been demonstrated. All of this technology falls short when it comes to the essential person-to-person interactions that have proven to be pivotal to many of us in our careers. Some of the most important career experiences occur in a few minutes of one-on-one, face-to-face discussions in someone's office, over a desk, a cup of coffee, or a lab bench. Recall the time that someone said a few words that changed your direction or made you look at things entirely different. Now or in the future, these events are unlikely to happen over the Internet or across television. Michele Tolela Myers the President of Sarah Lawrence College recently wrote:(5)

If education were as simple as reading, then libraries would have replaced schools long ago. We educators are in the business of forming minds not just filling them.

The principle role of the university is not, to transmit information. Distance learning and virtual education are clearly better vehicles for transmitting information. ... There is no better way to form minds than in one-on-one interactions. The two most significant factors that contribute positively to learning among college students are their interaction with each other and their interaction with teachers.

As my career progresses, I have come to highly value opportunities for one-on-one interaction with students, to have an influence on them or young professionals. Sometimes the smallest efforts, the few well chosen words at the right time directed to a person open to influence can have a great effect. For me, some of the major steps in my career began with a few words from people I respected. Individuals are open to influence at times determined by their own agendas, however, most pharmacy students are more open at a few key times in their education. Educators should do more to recognize these opportunities to influence people during their careers. There are at least three critical times when students or young professionals are most open to influence and
can benefit from our influence. First, when students are considering pharmacy school. At this point, no fancy Internet description of a pharmacy career can do as much as a short visit with a pharmacist who is directly involved in patient-oriented practice or with an active researcher. Just a few words, the invitation to visit, can assist young people with major career choices. A second is when students first enter pharmacy school. At this time most students who eventually go into residencies or graduate school first become interested. The few words of direction or suggestion about career opportunities can initiate a whole new way of thinking about their careers. Finally, at the end of school, students have just a few short months to sort through job opportunities. There is so much pressure to have "a job" or "some job" by the time they are finished. A few words from a senior person on what is important in a new job can lend important perspective and insight to the job seeker. Our responsibility is to recognize these points, at times when young people are more open to influence and need our mentorship. To offer, at least, the few words, the minutes can make a difference.

The book, Making the Most of College, by Richard Light provides insight as to what factors are associated with success in college(6). His work does not focus on Harvard, nor health professions, but provides a very broad view of what factors make a difference in college. What he has to say is applicable to our students and trainees. He demonstrates with his research that good quality advising can have a "positive and powerful impact" on lives. In this advising process, the kinds of factors that make a difference are: connecting with faculty, working with classmates in groups rather than independent study, courses requiring writing that engage students in a more substantive way, and involvement in extra-curricular activities. These are all components of education not easy provided by distance or technology.

Some of the issues in distance learning were recently aired in the New York Times(l).

Part of the problem has been an emphasis on technology—streaming video, for example—at the expense of more careful thinking about how remote learning might best be conducted. Some critics say that university administrators confused tools with education. A recent article in the Chronicle of Higher Education was titled, "Many Students' Favorite Professors Shun Distance Education." They use technology in the classroom, but refuse to give up face-to-face interaction(8). The article describes a backlash to distance technology at some universities. While resistance to technology is predictable and understandable to some degree, avoidance of the issues eliminates the chance to benefit from communication technologies.

CONCLUSION

Communication technology is attractive for the reasons of accessibility, convenience, and flexibility. But it is also clear that communication technology has its limits. Teachers should establish a personal connection with students, one that begins before class (cyber or traditional class) and extends beyond class. With the advantages of technology we should ask, "What is the proper balance of technology and personal-interaction in teaching?" The answer can depend on the audience, and even the topic - young, traditional students need more of the personal interaction than older or non-traditional students. Technology can be effective for transmitting information but cannot directly influence a career as well as personal interaction.

We should ideally use Internet-based material to compliment rather than replace classroom instruction. Distance instruction by Internet or television should be combined with face-to-face instruction for students and teachers to make a personal connection. The challenges are: to use technology when it enhances learning; to recognize the limitations of technology; to design instructional methodologies and curricula to actively incorporate person-to-person interactions; and to recognize that the critical moments of mentorship do not happen at a distance through the Internet, television, or email.

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References


(8) Amonc, M., "Many students' favorite professors shun distance education. They use technology in the classroom, but refuse to give up face-to-face interaction," The Chronicle of Higher Education (10 May 2002)