What Are We Going To Do With All Of This Technology Stuff?

Invited Presentation

1997 NACTA Conference

Iowa State University, Ames, Iowa

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Abstract

Technology changes have accelerated and we are already running frantically to keep up. This presentation reviews potential uses for technology for distance education, computer-assisted instruction, instruction in the classroom, analysis and problem solving, and material development. A very realistic approach is used to identify potential, problems, and unresolved issues associated with technology use in these areas. At the same time these issues are being discussed, teaching suggestions, and techniques (both good and bad) are demonstrated and discussed.

Introduction

During this presentation, I am going to skip back and forth between two topics because I understand I am supposed to discuss or illustrate teaching methods as well as discuss a topic. Skipping back and forth might not work very well since I have never tried this before. It is an experiment on my part. The two topics that I want to skip between are teaching tips and the topic that I selected, which is "what are we going to do with all of this technology stuff." Let me begin by stating a list of teaching tips.

Be Positive

The first teaching tip is that we should be positive in our approach to a class. Do not do what I just did when I explained that this might not work, that I had never tried this before, and that it is an experiment on my part. Many of you should have immediately taken on a rather negative attitude toward this whole presentation and probably wished that you had gone home this morning rather than staying for this last set of sessions. Such remarks make one feel like a guinea pig, and most people do not appreciate being treated that way. They also start one looking for the problems in a presentation and decrease the chance for it to actually be successful. Yet, many people make excuses before the fact

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that set a very negative tone rather than establishing the positive atmosphere that you would prefer. So, good advice is to set a positive tone and keep the excuses for later if failure does occur.

Share Yourself

The second teaching tip is to share personal information. That is what I attempted to do by introducing myself. Sharing yourself reduces the social distance between you and the students or the audience. Two individuals presented an excellent teaching seminar at Kansas State University where they argued that there was an optimal social distance between instructor and students. If an instructor is too close to the students, then they are buddies and the instructor is less able to motivate them. If the instructor is too remote from the students, then they feel isolated and again the instructor is unable to motivate them. So, the idea is to generate in some fashion an optimal distance that allows you to feel close, but not too close, to your students. Developing an optimal social distance is one issue that was raised during this conference on distance education. One of the difficult things about distance education is to reduce the social distance so students do not feel isolated in their remote areas. I have found that sharing myself is one method of reducing that social distance, even in a large class. Ideally, you share yourself, you allow students to share themselves, and you get to know them, but even sharing yourself without the other aspect helps to a certain extent in reducing the social distance between you and your audience.

Now, I'd like to shift to the technology side and discuss the issue of "what are we going to do with all of this technology stuff?" This topic was selected because it is very relevant to this conference devoted to distance education. The issue of what to do with all of the new technology developed recently has been a major concern for me and for most of us for some time now. In this paper, I take a down-to-earth approach to technology in large part because of my background and my biases toward being a

super-realist. Five different areas are identified where technology can be used. Discussion of each of these areas includes positive and negative aspects as well as unresolved issues.

Using Technology for Distance Education

The first area of application is distance education. Looking at this very realistically, we are looking for recent technological advances to help improve traditional correspondence courses. Correspondence courses have been in existence for many years, but the use of technology offers the potential for considerable improvements in some areas. Tapes, videos, e-mail, the Web, TV, and CD's are some of the tools for enhancing correspondence courses. There is great excitement in this area, as was indicated by the *Forbes* magazine article in June 1997, regarding distance education. This article indicated the extensive use of distance education by many of the universities in the United States and included an estimate that 55% of U.S. four-year colleges and universities now have courses available off-site. It also indicates that a million students are now plugged into the virtual college classroom, which compares with 13 million attending brick and mortar schools. Peter Drucker is quoted in this article as saying "universities won't survive. The future is outside the traditional campus, outside the traditional classroom. Distance learning is coming on fast." Frankly, I am somewhat skeptical of this conclusion, particularly in the next few years. Several major issues need to be addressed before distance education will rise to that level. One of the biggest issues is cost. Enormous costs are associated with distance education programs. These include not only costs for the infrastructure, that is, the equipment, communication technology, computers, and all of the associated costs with the equipment, but also a major cost for staff. During this conference, we heard references to the production people that are needed and saw evidence time after time of the enormous staff costs that go into developing much of this material. In addition, there is the cost of the faculty time. Enormous amounts of time are needed to develop these materials to correspond with students, and to change the format to the media that are being used. These costs are so enormous in some cases that they have the potential to damage careers of individuals who have other responsibilities in addition to teaching.

Issues that were not addressed in this area during this conference include accreditation and acceptance of courses as being equivalent to on campus courses. Several presenters indicated that their distance education courses were treated identically to on-campus courses, which would lead to treating them similarly with regard to accreditation and acceptance for transfer credit. However, other presentations highlighted issues such as the different needs

of the distance clientele and the need to treat students differently with regard to deadlines, expectations, and other matters. So, even within this conference, general agreement was not reached about these courses. Acceptance of these courses in the marketplace is an additional issue that was not addressed. Will distance education degrees and courses be considered equivalent when it comes time for students who complete these courses to get a job? Will the marketplace consider them equivalent, consider them better, or consider them worse? These issues will be resolved over time as we find evidence from the marketplace of how acceptable these alternative education programs are.

An additional issue regarding distance education that was not discussed at this conference was the issue of dropout rates among participants. The ability to motivate individuals at a distance is likely to be substantially less than the ability to motivate students in a campus program. The issue of dropouts or non-completion rates could potentially be serious for some programs. Previous speakers repeatedly stressed that distance education students frequently need to have courses that are very relevant to their particular need, at a particular point in their life. Students at a distance might take only the courses or the portions of courses that they could see to be immediately relevant. Furthermore, they might be less willing to complete other courses that could be extremely beneficial to them in the long run but seem less relevant in the short run.

Distance education needs to be targeted very specifically to a certain consumer group. In particular, I believe that distance education has great potential for success when targeted to highly motivated students. I do not feel that distance education techniques will work for all types of people, particularly for those with less motivation, a problem we sometimes experience in our classrooms. My conclusion with regard to distance education programs is that they will not replace the conventional four-year programs for 18- to 22-year-olds that we now have on our campuses. While there will be some highly motivated traditional students who need additional hours to graduate on time who will take distance education courses because they can be fit into their schedules, I believe this will eventually be a small part of the market for distance education courses. I believe that distance education will largely be an expansion into a new market area that addresses the needs of individuals who cannot come to campus. And I think that distance education has the potential to be highly successful, if specific niches of highly motivated students are identified and targeted.

Using Computer-Assisted Instruction/Evaluation

A second use for technology is computer-assisted instruction/evaluation. In its simplest form, this could be a

replacement for flash cards and a method of encouraging rote memorization. The advantage of some computer-assisted instruction is that it provides instant feedback on quizzes and tests, much like what an undergraduate lab assistant might do by grading quizzes and returning them immediately. Computer-aided instruction/evaluation has the potential for "tailored instruction" designed to identify problems and help students to correct them. Developing these kinds of tools requires tremendous faculty insight. I have been teaching agricultural economics now for 20 years and each year I learn different ways that concepts can be contorted so that they are misunderstood. Great listening effort and mental gymnastics are needed to comprehend the ways that economics concepts are misunderstood. In this particular discipline, I see great difficulty in developing the kind of tailored instruction that could identify the misconceptions that a student has and could lead the student down a path to understanding the concepts correctly. Possibly it may be easier to do this in other disciplines, but I am reluctant personally to attempt to use computers for this purpose in agricultural economics at the present time. Another concern for the use of computers in this area, again, is the cost of development of programs like this. At this conference, we had the opportunity to see exams that had been developed on the Web and found that 200 hours of student help were needed to develop these tests. In the future, improved software will make this kind of development easier and may reduce the cost somewhat. However, the cost of development and other problems such as academic honesty that is hard to monitor are substantial deterrents to the widespread use of technology for this purpose at present.

Use of Technology in the Classroom

The third area for application of technology is in the classroom. This includes the use of Presentations or Power Point or multimedia in the classroom to facilitate presentation of lectures. The disadvantages of using these techniques in the classroom are that if they are overused, they have the potential to be just as monotonous or worse than overheads or any other techniques that we overuse. One reason is that the room typically needs to be darkened for the presentations, which can greatly facilitate the recovery of students from too little sleep on previous nights. A second disadvantage of using these in the classroom is that some forms of presentation may not be as flexible for some uses as other media for instruction. We heard presentations on the fonts that are more legible, and a suggestion was made that we use 36-point type in order for it to be easily readable. We heard that we should limit our words to five per line and limit lines to five per page. These suggestions indicate less flexibility with these presentation

techniques than with blackboards or overhead projectors. Also, we need to be careful to not attempt to compete with Hollywood when it comes to special effects. Students have been exposed to millions of dollars worth of well done special effects in movies and on TV over their lives. We may look quite silly in trying to compete with these kinds of efforts given our low budgets and our lack of supporting artists and production people. My experience with the use of Power Point in the classroom first led me to feel that it was quite a successful technique, because I could get students to bob in unison. Every time I hit the mouse and the next line of code would come up, their heads would all go down in unison (like this little duck here). Their heads would start to come up at different speeds depending on how fast they could scribble. Quite quickly, I began to dislike this because I feel that the classroom is for learning, not for practice in unison head bobbing and speed-scribbling. A question that very quickly surfaces is that if this material is already prepared, why not print it and make it available for students so that they can avoid the frantic scribbling? This allows them to add notes to the outline that contribute more depth to understanding the issues that surround each point that is developed in the material.

Use of technology in the classroom does have some advantages. Some visual presentations may be possible that are not possible with other techniques. Furthermore, we are apparently teaching a video generation. These people may have more confidence in materials that are shown on a video or through a computer than if they were simply written on the board or placed on an overhead. Anecdotal evidence abounds of individuals at vacation spots sitting in small, stuffy areas watching videos rather than watching or seeing the real thing just outside the door. This attitude may make the use of videos in a classroom more appealing to some students than other presentation methods. A second advantage that is quite important in the classroom is that the use of multimedia types of things adds variety. Adding variety to the classroom has become more and more important over my teaching career. Interspersing audio/video, Presentations, or Power Point sections into a lecture can contribute very effectively to the variety that is needed to maintain attention of students.

Use Variety in the Classroom

This leads me to the third teaching tip, which is to use variety in the classroom. In this presentation so far, I've told you a little bit about myself, I have gotten you to vote, and I have shown you a duck. You need to use very vivid examples in the classroom. Dr. Newsome from The Ohio State University gave a teaching seminar at Kansas State University recently and asked how long instructors

can hold students' attentions. My response was that you can hold attention for 17 minutes, but he said the answer is 15 minutes, so I was wrong. I arrived at 17 minutes using math. A class period is 50 minutes long at Kansas State University, and 3 X 17 is 51. If you do three things really well, you can get the students to take 1 extra minute after the class period to put away their books and exit the room. If things are poorly done, you do not use enough variety, or you did not keep their attention, they begin packing up their materials 5 minutes before the end of class. Many activities can be used to provide variety in the classroom. The list of such activities includes passing out notes, using overheads, using the blackboard, working problems, going through examples, using illustrations, passing back papers, discussing readings, using videos, using computer-generated media stuff, having students vote, having students discuss, and having students write short essays on a particular topic at hand. Use your imagination to add to this list.

Using Technology for Analysis and Problem Solving

Switching back to the technology list now, I would like to discuss the fourth use of technology, use for analysis or problem solving. This area happens to be one of the most intriguing and interesting to me, and one that I am the most excited about. Most relatively recent spreadsheets now have within them extensive capabilities for solving problems that could not be solved easily only a few years ago. We need to be leaders in the use of technology to help students solve problems. I strongly believe that technology leverages abilities. That is, technology magnifies or expands the abilities that students have. Students who have been taught to use computers and spreadsheets for problem solving can solve very difficult problems very efficiently giving them the potential to have major advantages in the job market.

Be Enthusiastic

This introduces the fourth teaching tip, which is that you have to be enthusiastic about what you are teaching. I am particularly enthusiastic about the potential for using technology to solve problems. Computer spreadsheets have enormous potential for solving all kinds of very relevant problems in agricultural economics and agribusiness as well as other disciplines.

Use Discussion in the Classroom

The fifth teaching tip is to use discussion in the classroom. This works even for extremely large classes if it is done very carefully. Your instructions at this point are to introduce yourself to the least known person near you and then identify the best point made in this presentation and the

worse omission or worst mistake made in this presentation. You have 2 minutes to discuss these, and we'll come back together after that point. Summarizing these discussions is typically easy to do, although you cannot spend too much time with it without again starting to lose the attention of many individuals. But even in large classes, people are very anxious to discuss, particularly in one-on-one or very small group settings.

Use Short Writing Exercises

The sixth teaching tip is to have students write about a particular topic that is relevant at that point in the class. These short writing exercises can be collected and used during that class or the next class period as a method of gaining the attention of the class. When you select from the pile of written comments, everyone in the audience is wondering when or if you will happen to read their particular comment. You can hear a pin drop when you do this. It is a great attention-getter, it adds variety to the class, and it also provides a wonderful opportunity for feedback from students.

Using Technology for Teaching Material Development

One final use of technology in teaching is for material or textbook development. Textbooks can be quite expensive and can be out of date shortly after they are published. Furthermore, we often do not use all the sections of a book. We are just beginning to see the ability to order specific sections of textbooks, which allows us to tailor the book to our needs. Currently, this option seems to be limited to relatively large markets, but the potential for ordering tailored textbooks to meet our needs is certainly in the near future. The potential to go one step further and develop your own material is more feasible now than in previous years with the ability to do desktop publishing. This allows you to save students a substantial amount of money and develop materials that are designed specially for your specific needs.

Concluding Remarks

The issue of "what do we do with all of this technology stuff?" in our educational programs will likely remain with us in the foreseeable future. Technology changes have been extremely rapid and there appear to be few signs that the rate of change will slow in the near future. So, we will need to continually address this issue and continually be vigilant to identify areas where technology can promote learning. The best advice I ever got as a teacher occurred early in my career. The advice was "do what works for you." I believe the wisdom in this can be applied to many areas, including the area of selecting technology for use in

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education. We need to be very vigilant in identifying what it is that will work specifically in our particular programs. Finally, I encourage everyone to shift toward being an educator. Evaluate technology for its potential impact on

learning, not simply as a gimmick to be tried or to gain attention. I wish you all well in your teaching endeavors.

Attitudes Of Pennsylvania Governor's School Scholars Toward Diversity

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Abstract

The workforce of this country is becoming increasingly diverse. The ability to relate to and work effectively with people who are different from ourselves will become critically important for success on the job. What attitudes toward diversity and cultural pluralism will today's youth bring to the workplace? Pennsylvania Governor's School for the Agriculture Sciences scholars were surveyed on their attitudes toward various dimensions of diversity. Although in general, attitudes toward diversity were positive, the findings raised a number of concerns.

Introduction/Background

The population of the United States is becoming increasingly diverse. By the year 2000, one in every three Americans will be a person of color (non-White). Moreover, eighty-five percent of new entrants into the labor force will be women and people of color (Johnson and Packer, 1987). Not only is the population changing in sheer numbers and percentages, but the very identity of America as a nation is going through a transformation (Gardenswatz and Rowe, 1993).

Today, as workers from different racial, ethnic, cultural, and religious backgrounds enter the workplace, they are doing so with feelings of worth and not with shame because of their differences (Gardenswartz and Rowe, 1993). The same is true for those with physical and mental challenges, those whose first language is not English, and those with alternate sexual orientations.

Today's youth will be tomorrow's work force. Clearly, they will need, in addition to technical knowledge and skills, the ability to relate effectively to people who are different from themselves. Bruening and Scanlon (1995)

conducted a study to identify the specific business and communications skills needed by agribusiness employees. They found that "the ability to work well with others and the ability to feel part of the team..." are key skills needed by potential employees. Considering the changing demographics of the workforce, the ability to understand, appreciate, and indeed embrace cultural diversity will become increasingly important in order to succeed on the job.

But what attitudes toward diversity and cultural pluralism will today's youth bring to the workplace? Moreover, what attitudes do youth with interest in the agricultural sciences hold? How well do these youth accept people who are different from themselves?

A number of studies have focused on the attitudes of youth toward intolerance (Polakow-Suranky and Ulaby, 1990; Erickson et al., 1995). Findings from these studies suggest that: most high school students hold negative stereotypes about racial and ethnic minorities, and many have sexist attitudes. Crawley-Long (1995) reports that even students who consider themselves free of prejudice frequently recognize their hidden biases and hatred when issues of sexual preferences are raised. Youths, aged 21 or younger, are the most common perpetrators of anti-gay and lesbian violence, responsible for 50% of all reported incidents (Berk, 1990; Berrill, 1990). The state of Pennsylvania has a high number of hate groups (Rosellini, 1995; Southern Poverty Law Center, 1996).

Today's high school students will be members of the workforce soon. The attitudes toward diversity held by today's youth are critical to the economic well-being of our nation. Youth attitudes toward diversity demand the attention of the educational community. Educational institutions have the opportunity to impact the attitudes of youth toward diversity.

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