

Engaging Learners with Technology

How recently have you experienced the heady sensation of knowing your students got the point? You have evidence that they used critical thinking skills to create new learning, and you could almost see the light bulbs glow? Well, I experienced the satisfaction of successfully engaging preservice teachers in a recent course in elementary social studies. One of my goals was to integrate technology. I developed a course web site with the usual array of "pages" (e.g., syllabus, assignments, review list, and chats).

To engage the learners in asynchronous discussion, I posed a hypothetical question for the web-based chat:

IN YOUR NEW ELEMENTARY CLASSROOM, YOU ARE ALLOTTED TWO HOURS PER WEEK (ONLY) FOR SOCIAL STUDIES. DESCRIBE WHICH OF THE SOCIAL STUDIES AREAS YOU WOULD EMPHASIZE IN THAT LIMITED TIME, REASONS WHY YOU GIVE PRIORITY TO THOSE SUBJECTS, AND THE LEARNING ACTIVITIES YOU WOULD INITIATE.



Students began slowly to post their answers, selecting critical areas, describing how they might integrate social studies in other subject matter. I noted that they were referencing prior postings as they dealt with the challenge of focusing within social studies content. The learner response I choose to share did that, but she also built a critical thinking activity for her students that captured the real intent of this engagement technique via technology. Here is her reflective response:

IN MIDDLE SCHOOL, I THINK IT IS IMPORTANT TO EMPHASIZE THE REALITY OF HISTORY. IF WE CAN HELP STUDENTS UNDERSTAND THE SIGNIFICANCE OF THE DECI-

FACULTY
INSTRUCTIONAL
SUPPORT

SIONS PEOPLE MADE THROUGH-
OUT HISTORY, STUDENTS MAY
FEEL MORE EMPOWERED. FOR
EXAMPLE, I WOULD SET UP SCE-
NARIOS EITHER FROM HISTORI-
CAL FICTION WE ARE READING IN
ENGLISH/ READING (INTEGRA-
TION) OR SEPARATELY, THAT
THE STUDENTS NEED TO DIS-
CUSS, DETERMINE WHAT THEY
WOULD DO, AND DEBATE. . .

A SCENARIO COULD BE: YOU ARE
AN AFRICAN AMERICAN MOTHER
OF TWO. YOU HAVE A JOB THAT
HELPS SUPPORT YOUR FAMILY.
TOMORROW THERE IS A CIVIL
RIGHTS MARCH. HOWEVER, YOU
ARE SUPPOSED TO WORK WHEN
THE MARCH IS TAKING PLACE.
WHAT DO YOU DO AND WHY?...
CRITICAL THINKING ACTIVITIES
LIKE THIS NOT ONLY INCORPO-
RATE THE HISTORY OF OUR
NATION, BUT ALSO BRING THE
CONSEQUENCES AND DECISIONS
TO LIFE. (B.K. KOWYNIA, PERSONAL
COMMUNICATION, FEBRUARY 1, 1999)

Technology and Teaching

Integrating technology is a catalyst for dis-
cussing teaching practice. Why? One big
reason is that the context changes drasti-
cally when using technology. Those of you
having done so will no doubt agree that
there's a major time shift to the preparation
phase when using technology. It takes a
major investment of your time to redesign
instructional materials. There is usually a

knowledge gap, too. None of us have been
trained adequately in the technology appli-
cations we want to use. This means there is
usually a steep learning curve for both
teachers and students! Third, the form,
frequency, and immediacy of instructional
'conversation' changes with technology.

On the positive side, here's what integration
of technology will allow students to do and
have available whether they're learning face-
to-face or at a distance:

- Active learning
- Expanded learning resources
- Mix of media and methods to achieve
learning objectives
- Motivation

The remainder of the IDEA fact sheet will
provide instructional development guide-
lines using these four enabling characteris-
tics: active learning, expanded learning
resources, mix of media and method tied to
learning objectives, and learner motivation.

Active learning

What is active learning—"hands-on and
minds-on involvement in the learning

**TECHNOLOGY ALLOWS: • ACTIVE LEARNING • EXPANDED LEARNING RESOURCES
• MIX OF MEDIA AND METHODS • LEARNER MOTIVATION**

check out our website at <http://www.umsl.edu/technology/fis/index.html>

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multiple choice (or essay response), depending upon the unique context of content, student learning needs, cultural factors operating in the particular institution, and the technological infrastructure in place.

Learner Motivation

Planning motivational strategies as well as content learning strategies for your students is actually enhanced by integrating technology. A tenured faculty member said it best during a recent interview. "[Since I've added requirements of computing and Internet access in my classes], I'm more in tune with students' needs. I spend additional time thinking through how my students will be motivated to use the technology, and I've created a rich, multi-faceted learning environment for them. My teaching evaluations have gone up noticeably since integrating technology, too" (R. Schroeder, personal communication, January 20, 2000).

Wlodkowski (1984) delineated specific strategies to motivate learners in a time continuum model. The model identifies two important factors at the beginning, another two in the midst of instruction, and two at the end, that will enhance learning. Through the model, Wlodkowski stresses the importance of (1) ascertaining student needs, (2) and stu-

dent attitudes toward learning; (3) creating stimulating instructional events; (4) paying attention to the classroom's affect; (5) providing assessment and recognition of personal competence and, (6) reinforcement for future learning, whether self-directed or institutionally guided. Instruction, to be motivating to learners, should emphasize the personal benefit of knowledge, clearly spell out the requirements for success, engage student enthusiasm, and use frequent feedback, according to a study by Wolcott and Burnham (1991). The goal throughout instruction is endeavoring to make the student aware of himself in relation to the subject matter.

What Leading Educators Say

As for the essential nature of guiding learning and using technology to effectively engage learners, two leading educators have stated:

LEARNING IS NOT A SPECTATOR SPORT. STUDENTS DO NOT LEARN MUCH JUST BY SITTING IN CLASS LISTENING TO TEACHERS, MEMORIZING PREPACKAGED ASSIGNMENTS, AND SPITTING OUT ANSWERS. THEY MUST TALK ABOUT WHAT THEY ARE LEARNING, WRITE ABOUT IT, RELATE IT TO PAST EXPERIENCES, APPLY IT TO THEIR DAILY LIVES. THEY MUST MAKE WHAT THEY LEARN PART OF THEMSELVES.
(CHICKERING & GAMSON, 1987, P. 3).

process," according to Connor (1996, p. 42). Bonwell and Eison (1991, p. 2) go into more depth with these descriptions of active learning:

- Students are involved in more than listening
- Less emphasis on transmitting information; more on developing skills
- Students are involved in higher order thinking (e.g., reflection, synthesis, evaluation, problem solving, and application)
- Students are engaged in activities
- Greater emphasis on students' exploration of their own attitudes and values

What are some of those engagement techniques? I suggest that any of the student activities and instructional techniques done face-to-face can be re-created with technology. You may have to spend additional time in thinking through how and with what appli-

cations, in seeking help from others (those with the needed skills or gatekeepers of the technology), for preparing supportive materials, or in facilitating the active learning. Those instructors who integrate technology testify to the changes they eventually make in their face-to-face teaching, as well.

Expanded learning resources

Technology has the capability to open your classroom to the world. The new gateway for learning is the Internet and its hypermedia element, The World Wide Web. Instructors can use the Internet to contact other teachers and to find a wealth of resources. Research, current events, unique teaching applications, subject matter experts, and sources of diverse opinion and dogmas— all can be found on-line.

Lehman and Dewey (1998) have created an instructional grid that details the interactive possibilities for instructors. These can be translated into instructional processes, text materials, and/or activities for learners.

| PRESENT | PERSONALIZE | SHOW | PARTICIPATE | QUESTION |
|-----------------|-------------|---------------|-------------|-----------|
| Lecture | Name Use | Objects | Readings | Q&A |
| Expert Guest(s) | Postcards | Pictures | Fax/Email | Planted Q |
| Interviews | Bio-Form | Trigger Video | Group Work | Debates |
| Case Study | Bio Booklet | Learner Video | Field Trips | Quizzes |
| Storytelling | Dialogue | Simulation | Lab Session | Fish Bowl |

Note: R. Lehman & B. Dewey, UW-Extension, 1998. Presented at International Teleconferencing Association, Philadelphia, PA, 3/26/98.

To give just a glimpse of the diversity, here are links to some academic web sites. Other pointers to content-specific online resources will be professional associations, journals, industry magazines, and practice-based conferences.

<http://www.active-learning-site.com>

This site supports the scholarship of teaching by providing research-based resources designed to help faculty use active learning successfully in college and university classrooms. These resources include: active learning workshops; VARK: A Starter Kit for Learning Styles; active learning bibliographies; active learning research summaries; and, active learning internet links.

<http://horizon.unc.edu/horizon/>

"On the Horizon" web journal (covers critical developments in education). The site and listserv keep administrators, researchers and educators apprised of the issues, policies and procedures that could benefit from future research and evaluation to improve the teaching academy.

Mix of media and methods to achieve learning objectives

Designing instruction begins with what you want the students to learn. Gagne and Briggs

(1979) suggest working backward from those learning objectives. As an example I would like to briefly review the characteristics of four media. You may decide that one or more of these media fit your learners' needs. A planning matrix may also help you make decisions about the best mix of media and methods for achieving course objectives.

Email systems. Email is approaching the telephone as an accepted communication tool for students, instructors and resource persons. Its successful integration requires prerequisite equipment and skills, but the nature of dialogue it permits, (i.e., anytime, anywhere, by anyone), will enhance the instructional process.

Audio conferencing. Plain old telephone service (POTS) is often forgotten as an interactive tool. Its features including universal availability, anonymity, and two-way communication, make it a low-tech choice for a variety of educational and collaborative uses.

Web-based instructional platforms. Computer-mediated communication has been likened to a gateway—"a gateway to resources, collaborative learning and individual achievement" (Seaton, 1993, p. 52). Web-based instruction can be a gateway to

self-directed and lifelong learning, as well. Cautions are to carefully select and integrate resource materials and web links into the instructional plan. Instructors are also advised to design the space with interactivity and learning tasks in mind. Web developers, graphic and instructional designers can be key members of the instructional team.

Two-way videoconferencing. The video-conference typically has greater quality assurance concerns than some of the other

media. Technical support and training are essential when videoconferencing is used for instruction. The medium continues to improve in audio and video synchronization and as the network pipelines converge and expand in bandwidth. This medium is perhaps the closest to face-to-face interactions, although the pressure of being on camera can be intimidating to users. There is no single right answer when it comes to selecting technology. It's really a

Interaction Characteristics of Media

Email Systems **1.** Requirement for all learners and instructor(s) to be connected to the Internet (prerequisite computer equipment, access and keyboard skills). **2.** Management of email volume can be a problem **3.** "Equalizer" of persons, as an informal medium of communication. **4.** Reduces distance among remote learners, on-campus learners, and the instructor

Audio **1.** Anonymity - no personal visual cues **2.** Anyone can speak to anyone at any time without waiting **3.** Familiar medium - ubiquitous and non-threatening **4.** Lack of video impedes visual sharing, which must be added some other way.

Web-Based Instructional Platforms **1.** Temptation to put up lots of text, (e.g., supplemental reading), without thinking how to use **2.** Design of the pages should incorporate instructional and graphic design principles to be most effective **3.** Varying computer capabilities and Internet connections impact the speed and "look" of graphics and text when downloaded **4.** Some instructional platforms permit synchronous "chat" sessions, while others are more like bulletin boards

Two-Way Video **1.** Pressure of being "on camera" can be intimidating **2.** Some systems have problems with audio/video synchronization **3.** Anyone can speak to anyone at any time **4.** Any site can share visual material **5.** Only one remote site at a time can be seen by instructor (with Missouri system)