Integrating Technology in the Classroom

Erin C. Barrett
Syracuse University
School of Education
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On March 26, 2003, educator and author Alan November visited Syracuse University's School of Information Studies. He met with various students from the MLS and IDDE graduate programs at Syracuse University. The panel discussion was webcasted from the School if Information Studies to various students nation wide providing the opportunity for all participants to pose questions to the renowned speaker. I attended this live panel discussion to further my study of some of the issues associated with integrating technology into teaching. An archived video of the panel discussions can be found at http://istwebcast.syr.edu/.

Among the many opinions of interest to me, as expressed by Mr. November were those of critical thinking skills, "academic honesty" issues, and technology planning versus results planning. At one point, Mr. November made the statement that "technology will be a basic skill." I agree with this statement, but only up to a point. Though I agree that children who are exposed to computers at home and in schools and libraries have a high level of computer literacy, there is a great number of children who have very limited exposure and are therefore extremely lacking in any computer literacy skills. This high level of discrepancy between children within the same school, or same district, or even same grade level nation wide, is of great concern to me. Similar to the variations in reading levels of children in similar grade levels there is a large variation in these "basic" computer skills that will become more and more noticeable as we continue to increase the use of computers in various professional industries. Information technology is an increasingly broad field encompassing almost all

industries and not necessarily independent unto itself. Thus this computer literacy inconsistency will continue to pose a problem for today's youth in future endeavors.

November offered many suggestions for incorporating technology into the classroom. He expressed concern for the computers in the classroom acting as glorified typewriters or calculators. Rather than creating a technology curriculum, November suggested revamping the academic curriculum to use technology better as a tool for learning and communicating information. He often asks of teachers, the question "What do you love to teach?" The answer to this question is then used to create various tools to supplement what is to be taught. Technology should be used simply as a tool to achieve this information communication, but not "the" tool. Technology can also be a crutch to both the teacher and student. There is a high level of fear and intimidation for the teacher in using a tool they may be unfamiliar with as well as for a student without much computer exposure. This creates some barriers. It is imperative to have cooperation between teachers, librarians, educational technologists, administrators, parents, students, and anyone else involved in the learning process, to make the best use of all learning tools available.

One of the issues raised in this discussion was that of academic honesty in using computers for information communication and research. Teaching students the proper standards for documenting sources is a challenge in that teachers are often not aware of the electronic standards. November suggests

using a higher level of standards in creating the assignments themselves, to encourage the use of the tool without encouraging the misuse of the information. For instance, in asking specific questions to student, they are forced to look for the information in order to answer the questions without the infamous “cut and paste” job that a simple report may entail.

Following November’s discussion I did some research on his website, http://www.anovember.com/ and various other sites referred to by him. On one of the links for his recent publications, he writes:

> “It's time to admit we share the responsibility for teaching all of our students the "Skills of Freedom." They have the right to access information, live anywhere they want, and manage their own work. But they -- and we -- need specific skills to accomplish that. At the least, students should be able to:
>
> - Organize poorly-structured problems while recognizing problems that no one else can see
> - Access information and people around the world
> - Use all necessary tools, including information, for their work
> - Understand how to be independent and interdependent, working with others (no matter where they are located) to solve problems
> - Be responsible for the quality of their own work
> - Communicate their findings to audiences that will give them feedback that they can use to constantly improve their work
> - Know what they don't know and how to find resources that can inform decisions

- Be self-organized and self-motivated so they can figure out what they need to know, and
- Structure their own work organization and environment. "

(http://www.anovember.com/book/lie.html)

November's opinions about technology consistently outline how it is used to supplement the curriculum versus designing a curriculum for technology. In another link from his website, he states, "I love the word "technology" – that's what I do, but if you let it go and focus instead on asking teachers about information skills and communication skills and content, you will actually end up buying more technology. So here's my recommendation: even though the feds/state requires a technology plan, call it *information communication* planning and ask a very different set of questions and *then* slap the word technology on it at the end to satisfy the requirement. Most technology plans that I see are not plans at all – they're shopping lists of stuff." (http://www.anovember.com/articles/asilomar.html) He addresses a common misconception in many schools that you need to spend high amounts of money purchasing a large number of equipment without devising a plan to use the equipment that may already exist.

One of the organizations November spoke of was the Benton Foundation. This corporation formed a *21st Century Skills Initiative* "to help our nation's 10 to 15 million underserved young adults develop and apply the '21st century skills' necessary to improve their lives." (http://www.benton.org) The Benton Foundation did a series of reports on the computer literacy of schools nation

wide. One particular report on *The Sustainability Challenge* declared 10 critical next steps to take educational technology to the next level. They found that over $40 billion has already been spent on technology initiatives yet, many school have had no significant results. They outline the following steps:

The 10 Critical Steps to meet the Sustainability Challenge

1. Accelerate teacher professional development
    a. The No Child Left Behind Act mandates that schools spend funds on development
    b. We also must ensure that education programs at universities must be producing technology "savvy" teachers to replace retiring "computer illiterates"
2. "Professionalize" technical support
    a. Technical support should be given the professional status it deserves
    b. Educational technologist need to be included in the curriculum planning to ensure proper usage of technology
3. Implement authentic educational technology assessments
    a. Assessments must be tied to the specific goals for which technology is used
    b. Needs to be results based in the planning stages
4. Create a national digital trust for content development
    a. Federal government must serve as a significant catalyst for digital content creation

b. Similar to "book" libraries, we should have technology libraries for the exchange of information communication ideals

5. Ensure all Americans have 21st Century Skills
    a. Based on the goals of the No Child Left Behind Act
    b. "to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade…."
    c. We first need to ensure that parents are fully engaged in the education of their child
    d. No parent left behind – teach them computer literacy as well
6. Make it a national priority to bridge the home and community digital divides
    a. Setting a national goal of providing every child on reduced or free lunch home access to a computer device and the Internet
    b. Teachers need to find creative ways to provide access to all students not limiting instruction based on a lack of access
7. Focus on the emerging broadband divide
    a. Must ensure that all Americans, nationwide, have access to widely available and affordable internet connections
    b. Federal policy makers need to ensure that broadband connections continue to evolve and develop
8. Increase funding for the federal educational technology block grant
    a. Currently Bush's budget calls for a significant decrease in the grant that funds the NCLB initiatives

b. Need to find more grant opportunities and decrease the variations in educational technology programs within school districts and across the nation

9. Share what works
    a. All educators must take a vested interest in sharing their experiences with "the world" and creating a database of "best practices", curriculums, learning plans, etc.
    b. Who better to learn from than colleagues who have already made it work
10. Continue educational technology funding research
    a. It is crucial to continue tracking how existing funding is spent and to establish new funding resources

(http://www.benton.org/Library/sustainability/sus_challenge.pdf)

Another corporation reporting on the current educational technology situation is the National School Board Foundation. "Schools still face challenges in using technology to improve student achievement." (http://www.nsbf.org/thereyet/index.htm) They ask the following question in a report entitled "Are We There Yet?" It suggests that despite the NCLB Act, "schools are still unable to take full advantage of technology…." President Bush signed the NCLB into law on January 8, 2002 yet it has yet to make much of an impact on educational technology in the individual schools.

Authors Steve Higgins, David Moseley, and Harrison Tse, completed a study involving 32 classrooms to determine the effect of computer use on teaching in the classroom. One of the things they found to be true was that teachers who have or who develop a certain comfort level with computers, are more apt to actually use and therefore have a clearer understanding of computer literacy. These teachers have a willingness to try new things and step away from the "tried and true" teaching procedures. They also found that the presence and use of a computer in the students' homes was an indicator for the comfort and usage of the students. A higher computer literacy in the student may create a preference for computer assisted learning over teacher presence in a classroom environment. "There is, therefore, a need for teachers to 'keep up , if they are to capitalize on the high levels of intrinsic and extrinsic motivation that children have for using computers not only for entertainment, but for communication, enquiry, skill development and as 'mindtools ." (Education Canada v. 41 no3 (Fall 2001) p. 44-7) Teachers need to use computers to theirs' and the students' advantage in creating a challenge to the student using the computer environment within the classroom or at home. As has been previously indicated by an Alan November opinion, the computer cannot merely be used as a glorified typewriter or calculator. Educators need to meet the challenge of setting the bar higher for information communication standards versus technical usage.

Many reports and studies have been done on the effectiveness of incorporating technology in the classroom. Alfinio Flores writes, "Technology can be used in the elementary grades to enhance a concrete, experimental

approach to mathematical topics, enabling students to have greater success with a more symbolic, abstract approach later in school." (Teaching Children Mathematics v. 8 no6 (Feb. 2002) p.308-83) He continues, "Teachers face many barriers in their quest to incorporate technology. Tough decisions need to be made as to how to invest limited resources, not the least of which is time. Recent and ongoing research on learning with technology may shed additional light on the answers to some relevant questions."

Flores also states, "Teachers need to use their wisdom in deciding when to use technology and when other approaches are more convenient. Teachers also need the additional support of trained personnel to help them plan, maintain, and coordinate the use of technology." These opinions are certainly not unique. Many of the studies I have found complain of similar problems. "The savage inequalities that students face and that exist among schools in this country will be exacerbated unless we find more equitable ways to fund our schools." (Kozol, Jonathan. Savage Inequalities: Children in America's Schools. New York: Crown Publishers, 1991.) Flores comments, "... don't even get me started on those programs that teach "math facts" by having students zap alien spaceships or climb ladders by doing quick calculations. Making a worksheet multimedia doesn't keep it from being a worksheet, with all of the inherent weaknesses and limitations that worksheets always have. Too often, these programs are the main fare of a child's trip to the computer lab. They're easy to learn and can keep the students quiet for the whole forty-five minutes. But do they significantly contribute to the child's understanding and love of mathematics?" This presents

a crucial issue of using computers as babysitters. How is that different than parking them in front of a TV for hours a day? Are we putting too much faith in the technology somehow teaching itself?

In **Learning and Teaching Information Technology** *Computer Skills in Context*, authors Michael B. Eisenberg and Doug Johnson suggest that most people have "…only a vague notion of what computer literacy means." Instead the typical classroom technology is "…the equivalent of expensive flash cards, electronic worksheets, or as little more than a typewriter." Again, these are not unique issues. They further state, "There is increasing recognition that the end result of computer literacy is not knowing how to operate computers, but to use technology as a tool for organization, communication, research, and problem solving. This is an important shift in approach and emphasis."

Eisenberg and Johnson continue, "A meaningful, unified information technology literacy curriculum must be more than a '"laundry list" of isolated skills, such as knowing the parts of a computer, writing drafts and final products with a word processor, and searching for information using the World Wide Web." We as educators must incorporate the use of technology more effectively. We are the determining factor for how students are learning and using technology.

Researching this educational technology issue has left me with the following questions: Is technology being used to it's fullest potential? Can

technology being used to it's fullest potential? What ways can we accomplish this? How do I want to participate in this endeavor? I hope to continue to find answers to these questions and more as I further my IDDE degree. This issue is in its infancy as technology as it is applied in educational settings is still in its infancy stages. I predict that there will be vast changes over the next 5-10 years as the nation's educational technologists answer the above questions. I hope to be one of those making a difference.

Resources

"A Conversation with Alan November", IST Webcast archive:

http://istwebcast.syr.edu

The Alan November website, http://www.anovember.com/

The Benton Foundation: several reports on the status of edtech in schools,

http://www.benton.org

National School Board Foundation: "Are We There Yet?",

http://www.nsbf.org/thereyet/index.htm

U.S. Department of Education: No Child Left Behind Act,

http://www.nochildleftbehind.gov

ERIC Resources:

Education Canada v. 41 no3 (Fall 2001) p. 44-7. Authors Steve Higgins, David Moseley, and Harrison Tse

Teaching Children Mathematics v. 8 no6 (Feb. 2002) p.308-83. Author: Alfinio Flores

Learning and Teaching Information Technology *Computer Skills in Context*. Authors: Michael B. Eisenberg and Doug Johnson