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Literacy and technology: Vital connections

Several years ago, Sue, a technologically astute colleague showed me a copy of a CD-ROM version of a book. This multimedia version of the text contained lively animations, music, sound effects, narration and talking characters who ostensibly help with early reading and storytelling. Sue was very impressed with the full color displays and the built in mechanisms through which young children could trigger sound effects and animation. This was an extremely sophisticated piece of software which was technologically superb. Since I have devoted much of my professional life to the study of literacy in general and literature in particular, Sue inquired as to what I thought of this high tech version of this well regarded book. The "techie" in me was extremely impressed with the multimedia aspects of this interactive, animated storybook but the literacy side of me worried that the animations would take students on tangents that do not contribute to the story, that the text was not a true replication of the story and that these "bangs and whistles" interfere with the general flow of the narrative.

CONSTRUCTING MEANING AND BECOMING CRITICAL READERS

Today's students are learning to read in many of the same ways and use many of the same things that their parents and teachers used but they are also using talking books, video TV's with captioning, CD-ROM reading stories and electronic games. In the past, teachers engaged students in using decoding skills, comprehension skills, reading thinking skills, map and graph reading skills, book navigation skills and many other tasks. Today's teachers do the same thing plus they use electronic text, electronic communication and hypermedia. Teachers can now use multimedia books embedded with multiple languages, visual imagery, hyper-media stacks, asynchronous reading and writing programs, synchronous

reading and writing programs and many other technological innovations.

Some people are worried that, because of technology, reading is going to become extinct. I would argue that being literate is more important today than at any other time in the past century. In the 21st century, students will have access to more information than any other students before them. Students can use technology to gather information, produce and disseminate their work. Students are going to have to learn to use and access this information wisely and judiciously. Teachers must use effective strategies to help students read independently but, additionally, we need to help them read independently with wisdom. Reading in and of itself is not an end product. The end product is what do readers do with the information that they gather. As Bruning, Schraw and Ronning note, "The aim of teaching ... is not so much to transmit information, but rather to encourage knowledge formation and development of metacognitive processes for judging, organizing and acquiring new information. (1995: 216)" Our ultimate goal as educators was, and still is, to help our students become independent and thoughtful readers and learners who use a wide variety of reading materials. Technology is changing teaching and learning.

WHAT ROLE WILL TECHNOLOGY PLAY IN MY CLASSROOM?

Any change or paradigm shift comes with attendant concerns and frustrations thus it is necessary for educators to look closely at the process as we engage in varying our classroom practice. The use of technological advances has been an easy accommodation for some educators. For others, this is not the case. Richardson (1990) notes the importance of reflection on the teaching/learning process and on affecting change. Educators must continually make decisions as to the role of technology in their classrooms and the form, function

and feasibility of using specific computer programs. To make informed decisions we must clarify our view of the role of technology in our literacy programs and define their relationship to existing curricula. The primary consideration should be the purpose of using technology (Jordan and Follman, 1993). Programs should support interactions between teachers and students and not be used as “teaching machines” to supplant teachers. Literature-based programs should foster connections with text and help the reader extend reading experiences. Decisions regarding the use of computer software should center on if, how and in what ways programs can be used to effectively enhance literacy instruction.

How do we realize the true potential of technology? I don't think we have even begun to see the full impact of technology in K-12 classrooms. I think we have just started to talk about the issues related to technology and learning without fully delving into them. Technology is not just using a computer instead of a blackboard. It's not just taking a workbook page that students would have done twenty years ago and putting it on a computer screen. It's not using glitzy text from a CD-ROM. It certainly isn't a panacea. I wonder whether in twenty years, if we give students a boring mundane workbook, will they love it simply because it is something different? We really need to look at how much of the use of technology is a novelty and how much can be useful in classrooms.

ISSUES AND CONCERNS

We need to talk about whether and how much technological innovations are really worthwhile additions to our teaching. Lest the reader think that by my posing such questions, I am against technology, let me point out that I have readily embraced the integration of technology in my university teaching and in my work with K-12 classes. I use technology often in my teaching at the university level. I use Powerpoint. I have web-based syllabi with hotlinks where students can access readings, case studies, relevant sites and where my students become engaged in problem solving activities. This is very glitzy and very “au courant.” The problem is that I am not fully convinced that with all the technology that I use, that it is necessarily in the best interests of all my students. In my work with K-12 students and their teachers in both urban and suburban schools, I am concerned that technology, if used at all, is used simply because it is an expectation of community members. I hope that we as educators really begin thinking about what is in the best interests of all of our students.

I embrace the integration of technology in my classes but that doesn't mean that it is the right way to teach everything nor does it mean it is right for every teacher. Teachers, by the very nature of the profession, are continual decision makers. We (hopefully) decide how best to teach a particular subject to a particular group of students in a

particular context. We decide on the pacing, and we decide what resources would be helpful to our students. These are informed decisions, based on years of study and experience. Decisions about the integration of technology must follow a similar thoughtful pattern. We must take care not to embark on the “new” without fully thinking about it. We need to explore what aspects of technology are helpful in given contexts and in what ways are they effective. What I hope to do in the following section of this article, is to raise some issues and pose some questions, not necessarily offer solutions. I hope that this will engender further discussions amongst us.

Children can learn from computers. They also can learn with computers. One of the first issues that may need to be addressed is: How should technology be integrated in the classroom? Technology integration should not merely involve students in going to Websites and looking for information. I would argue that that is not the most effective use of technology. Next, under what circumstances can students benefit from using technology? If we are having them do simple things like reading something on a screen rather than reading it on a piece of paper or on a handout that is not an effective use of technology. The only thing that does is save a tree. That is not an educational motivation. That is not something that should drive our educational decisions. Teachers need to know how to access, read and interpret all types of information and help their students in information gathering. We need to monitor our students much more closely and to see what information gathering the students are engaged in. We have to experience what our students are reading. We would, hopefully, never assign a novel to a group of students if we had not read it ourselves. So too, we shouldn't send our students to a site until we've checked it out first. We have to guide students in becoming critical readers of all types of information. We have to create classrooms that make effective use of technology.

What key factors contribute to the facilitation of literacy? What is it that helps most? I think this is the prime time for us as educators to help children read and write. Children today are more motivated than ever before to learn to read and write. The simple reason is that e-mail is all reading and writing. We have a very short window of opportunity. In ten years or less, voice activated, voice recognition software will be so well perfected that our students may not have as strong a motivation to read and write. I remember back to my undergraduate education courses and being taught about the teachable moment; well we have these teachable years. Children want to read and write and communicate electronically. Literacy today encompasses much more than years ago. Our schools must accommodate and adapt for literacy learning in the twenty-first century.

The issues and barriers are many. Not enough multimedia computers are available to children--especially

those from impoverished homes. We need to get computers in the classrooms for children who don't have them in their homes. There is a growing digital divide. Recent statistics indicate that thirty percent of our children come from homes with computers. That's fine, but what about the seventy percent who don't? Very often children from affluent homes which have computers go to schools in which there are many computers in classrooms. Far too often, children whose parents cannot afford computers go to schools where there are few, if any computers. This issue of equal access and availability must be addressed. We must ensure that all students become technologically adept.

There is not enough time for teachers to scrutinize materials or learn to use programs and there is not enough effective software. Effective is different from good. Computer programs related to children's literature come in many forms ranging from simple text to complex multimedia systems. The software selected for the classroom should support learning theory or the philosophy/theory of the teacher. It is necessary for us to think about and identify what theoretical rationale supports the software design and then decide whether it blends with what we and our students believe and practice. Too often, I've seen situations where a teacher who would not give her students "skill and drill" paper activities has them engaged in a computer program which emphasizes such activities. In selecting literature-based programs, for example, we should consider both technical issues and pedagogical issues. The technical issues involve the ease of use, the onscreen instructions for the user; the pacing, the appropriateness of the sound and graphics. We need to question whether a program is developmentally appropriate; whether it seeks thoughtful responses and encourages children to make choices; whether it provides multiple response modes; and whether it is true to the text (Rhodes, 1997).

Other issues abound. There are not enough classrooms connected to the Internet. There are not enough technical support personnel in schools. You shouldn't have to wait three weeks to get your computer fixed. There is not enough time devoted to teacher staff development. There is clearly a failure to understand the importance of technology in the future. I don't think that most of the schools understand how to integrate technology and how to have students use it correctly.

SCHOOLS FOR TODAY AND FOR TOMORROW

In too many cases, schools are not for the students we have today. There are not enough classrooms connected to the Internet. It is said that ninety percent of the schools are connected. But this could merely mean that one computer in the school has internet access. There is no reliable data on the number of classrooms that are connected. There seems to be too few faculty development opportunities that involve

the integration of technology. Technology workshops are offered but they sometimes focus on a particular new program rather than how technology can be effectively integrated into classrooms. Too, there is some resistance to abandoning old ways of teaching and a failure to understand the importance of technology in the future lives of students.

Technology won't solve all the problems of teaching. The future of technology will include digitized public information; anytime, anywhere teaching and learning; easy information access and faster and more powerful innovations. The lifestyle of the future will enable us to gather information without writing it down, to telecommute and teleproduce. We may read books on small light weight screens. We will use customizable texts with voice and written annotations. We will have digitized library collections and on line museum collections. We will have total and accurate speech recognition software. We will use smart cards with customized readers and electronic mail.

The future of education will involve more, better, real, international and current materials; more sharing and collaboration; more threats of censorship; more need to emphasize the human side of teaching and learning; more use of critical thinking skills, more of a need to evaluate and use good judgement and above all more good teachers.

The best practices in education, whether online, offline, in class or out of class, is to engage students in active involvement in learning. Students should be participants who are actively engaged in literacy events, not spectators, not onlookers. We want to provide them with multiple response modes and engage them in decision making. Our students interact with each other both in class and outside of class, online and offline. We should be thoughtful professionals who facilitate the generation of ideas and products, who ensure that there is great content on the internet and who help our students classify and connect information. We need to work toward eliminating the digital divide and we need to ensure the avoidance of damaging material. We need to be responsible decision makers and we need to ensure that our students are using the internet responsibly.

Technology will not "fix" poor teaching. It will not take the place of the human side of teaching. It will not solve all of the problems related to teaching and learning. The most important thing we must remember is that the students we teach are going to live in the future and so must we. Worried about becoming obsolete? If you are, you should be.

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