Evaluate how learning strategies have changed and may continue to change in relat...

ASSIGN BUSTER

http www. millennialchild. com/Computers01. htm Jan. 4, 2007 Computers in Education Eugene Schwartz   One of the most readily accepted truisms concerning computers is that they, along with other electronic media, are " a set of tools to enhance the imagination and provide new methods for expression and learning." It is often surprising to parents visiting Waldorf schools that Waldorf practitioners are not more open to " properly applying these tools to daily living." I should mention at the outset that I am the proud owner of a Pentium desktop PC with multimedia capabilities and a modem, as well as a notebook computer, and work quite happily with a variety of Windows-compatible software. I have worked as a film editor and written film criticism, and I listen to the radio and now and then watch TV (my older son has cable). Along with many other colleagues in the Waldorf movement, I have no objection to adults immersing themselves in the world of technological wonders.

I remember well that in the early 1950s when I entered grade school, the " visual aids" approach which utilized a film strip projector was going to revolutionize our educational experience. Sometime after that, " Sunrise Semester" debuted on television, as a first step in the " video revolution" that was going to transform education in America. Several years later, I was part of one of the first Advanced Placement Physics classes in the nation, and our education was going to be revolutionized through the utilization of videotaped lectures by great physicists broadcast over closed circuit television. I have already lived through several of these " electronic revolutions" and Ive yet to see anything happening in mainstream American

education except for a steady decline in quality and morale among students and teachers.

I have no idea where all of the old slide projectors went when they were replaced by closed circuit televisions, or where the televisions went when they were replaced by computers, or where the old 386 PCs will go when they are replaced by multimedia Pentium models, etc. - but a lot of corporate marketing departments are undoubtedly very happy about the brisk sales that every new " revolution" brings about. I dont think that Im alone in these concerns. In a recent article in the Atlantic Monthly, Todd Oppenheimer recounts

that :

In 1922 Thomas Edison predicted that " the motion picture is destined to revolutionize our educational system and ... in a few years it will supplant largely, if not entirely, the use of textbooks." Twenty-three years later, in 1945, William Levenson, the director of the Cleveland public schools radio station, claimed that " the time may come when a portable radio receiver will be as common in the classroom as is the blackboard." Forty years after that the noted psychologist B. F. Skinner, referring to the first days of his " teaching machines," in the late 1950s and early 1960s, wrote, " I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom." Ten years after Skinners recollections were published, President Bill Clinton campaigned for " a bridge to the twenty-first century ... where computers are as much a part of the classroom

as blackboards."

The substance of these prophetic statements might have been best summed up by H. L. Mencken in 1918:

... there is no sure-cure so idiotic that some superintendent of schools will not swallow it. The aim seems to be to reduce the whole teaching process to a sort of automatic reaction, to discover some master formula that will not only take the place of competence and resourcefulness in the teacher but that will also create an artificial receptivity in the child.

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I have taught students from kindergarten to college level, and I served as a consultant for Waldorf and inner city public schools, and I have yet to see any " learning tool" that can replace a human teacher. Please remember, from K through 8, the Waldorf school doesnt only reject computers as learning tools - Waldorf teachers also do without textbooks, basal readers, ditto sheets, bulletin boards, motivational posters and Junior Scholastic magazine. There are times of day when we even turn off the incandescent lights and illumine the room with a candle: one couldnt go much further than that in doing without all the modern accouterments of " educational enhancement"!

We have two basic reasons for this approach. Number one, as I noted before, is that we ascribe to a human-centered method of education. The teachers living and warm presence, and the unfolding of content in the immediacy of the moment are what convey knowledge - and wisdom - most powerfully to

the child. Anything that " mediates" between the child and teacher will, in some sense, dampen down this living quality. We need only recall the remarkable powers of memory retained by people who lived in an oral tradition and compare them to the weak memories of those of us who depend upon memos and Filofaxes - and computer PIMs - to recognize that something is lost when person-to-person pedagogy disappears. The fact that the teacher has worked to study sources, to distill them into a quintessence which is customized for her particular class and is ready to patiently present, and, if necessary, to repeat what she has presented - none of this is lost on the child, for whom the living teacher is a model of the " life-long learner." No matter how sophisticated the graphics and how " life-like" the synthesized voice presented on the CD-ROM, a very impersonal element creeps into the childs educational experience: a subtle sense arises that machines, rather than people, are the " good" teachers. If a living teacher is the childs role model for learning, the child will naturally strive to become more of a human being; if software and the ghostly images of people on TV screens are the role models, the child will (through her inherently imitative nature) slowly become ever more " machine-like," impersonal and " cool." The tragic loss of human values and conscience among the young in America may be symptomatic of the malaise of a generation raised by, entertained by, and increasingly educated by the non-human, conscience-neutral and bloodless media. We need not be surprised by the report in Wired magazine that of " the ten most accessed links from the Whole Internet Catalogs GNN Select," seven are sexual in nature.

A significant, and widely-contested study at Carnegie-Mellon University revealed that people spending even a few hours a week on line experience far more depression and loneliness than if they used the computer network less frequently. No less interesting than the results of the study - the first concentrated study of the social and psychological effects of Internet use - was the surprise evinced by the researchers, who expected that Web surfing would provide a rich social experience. " We were shocked by the findings," acknowledged a social scientist involved with the study, which led to conclusions such as the following:

Based on these data, the researchers hypothesize that relationships maintained over long distances without face-to-face contact ultimately do not provide the kind of support and reciprocity that typically contribute to a sense of psychological security and happiness, like being available to baby-sit in a pinch for a friend, or to grab a cup of coffee.

" Our hypothesis is there are more cases where youre building shallow relationships, leading to an overall decline in feeling of connection to other people," Professor Kraut said.

The CCNY psychologist William Crain cites a study by Gary Nabhan and Sara St. Antoine, who in 1992 interviewed 52 eight-to-fourteen year-olds living in the Sonaoran desert in the US/Mexico borderlands:

The children were from two Indian tribes (the Yaqui and Oodham) as well as Latino and Anglo children; they lived in mixtures of urban and rural settings, but all had access to the desert. The desert had once been very rich in

animal and plant life, with many lizards, turtles, hares, porcupines, and so on, but the variety had diminished in recent years due to development and overgrazing.

Nabhan was surprised to find that most of the children reported that they had seen more wild animals on television and in the movies than in the wild. This was even true of the children in one Indian tribe (the Yaqui). Only a minority in each group had ever spent a half hour alone in a wild place, and most of the children had never collected natural treasures such as feathers, bones, insects, or rocks from their surroundings. When one boy was asked whether he had learned more about animals from books or from his family, he said, " Neither. Discovery Channel." The children were missing out on first-hand experience with nature. Nabhan notes that it nature experience is impoverished in this relatively wild area of the country, we can imagine what it is like in most of todays urban and suburban centers.

Given the prevalence of such separation from direct experience of nature among todays elementary school children, their widespread passivity in the face of environmental problems should not be a surprise. Yet the most recent efforts made to rectify this distressing situation may only serve to exacerbate it. An article in the September, 1996, Internet World, relates the following:

Fourth- and fifth-grade students and teachers at Murphy Elementary in Haslett, Mich., are not in the classroom today. They are tiptoeing around in rubber boots in a bog near the school. Their aim is to investigate the fragile wetlands that abound in Meridian Township but that are increasingly at risk

because of the rapid commercial development in their area.

It sounds promising - here are students who are being given the chance to encounter the nature world in an unmediated way. But read on…

The students are laden with notebooks, pens, pencils, a tape recorder, video recorder, and a pocket camera. They are " multimedia detectives," part of an ongoing program in Okemos, Haslett and East Lansing schools.

The program, now almost two years old, enables teachers in the three school districts to explore ways in which multimedia and telecommunications technology can help their students learn how to engage in publishing.

Only two paragraphs before, the students aim was to " investigate the fragile wetlands," but now we learn that behind this charade is a more important goal - getting the children engaged in desktop publishing, for which they will certainly need to purchase more hardware and software than for their innocent jaunts in the bogs! One paragraph later, and the childrens separation from their immediate natural surroundings is made clearer still:

To help the students become more competent as Web explorers, we use two-way cable TV as a control and viewing mechanism…

TCI Cable and Michigan State University have installed a high-speed ChannelWorks cable modem at the Multi-Media Classrooms site. The modem, made by Digital Equipment Corp., is the size of a small VCR. The ChannelWorks box is attached to and IBM PC via an internal LANtastic Ethernet card and a standard Ethernet cable. A second connection on the back of the box is attached to a normal coaxial cable just like the kind on the back of a TV or VCR.

The pretense that all of this had anything to do with exploring nature is dropped; it is clear that the hidden agenda here is " exploring the Web," pulling children away from the immediacy of their experience of nature and into a forest of corporate logos and high tech wiring. Where, in all of this, is anything asked of the imaginative capacities of the young person as she apprehends nature? Where is the possibility for a meaningful encounter between the growing sensibility of the child and the wonders of life and growth? It is not surprising that such an insensitive replacement of active life experience with passive transmission of information leads even computer specialists to urge educators to exercise some caution. As Sherry Turkle, a professor of the sociology of science at the Massachusetts Institute of Technology and a longtime observer of childrens use of computers, told Todd Oppenheimer, " The possibilities of using this thing poorly so outweigh the chance of using it well, it makes people like us, who are fundamentally optimistic about computers, very reticent."

The second reason is based on our conviction that children are not " little adults," who in essence perceive the world and think about much the way adults do, but rather that the consciousness of the child is radically different from that of the adult. Rather than impose all of the technological wonders of todays world upon the child - much as the zealous missionaries of the 19th century set about imposing the " virtues" of modern life onto the " deprived" South Sea islanders (and thereby decimated the indigenous population in the course of a generation) - we should be learning more about the world of childhood and creating a space in which that world can manifest.

It is obvious, for example, that a five-year-old has no business sitting behind the wheel of an automobile. The power and weight of the vehicle and the complex judgments that must be made at any moment would overwhelm the physically weak and mentally dreamy child: the situation could be fatal. Yet children of that age, or younger, are let loose on the " Information Superhighway" with hardly a driving lesson! I would contend that a television set, a movie or a computer are no less overwhelming (and no less appropriate) to a child than is a car. Only because the child is sitting in one place do we fail to see the deleterious consequences of the technological assault of the media on our childs senses and psyches. As a recent (1996) observer notes:

Currently more than a million youngsters under the age of eighteen go on line regularly, and the number is expected to climb to 15 million by the end of the century. Advertisers are now using cyberspace to leverage [youngsters huge] buying power, because they know that the medium has a mesmerizing effect on children, who are usually not accompanied online by adults.

There are far too many children who are " mesmerized" by electronic media, who only experience of nature comes from television shows, whose only experience of the legacy of storytelling comes from software - will such youngsters have any basis by which to judge what is " real" and what is semblance, what is true and what is false? We believe that it takes a number of years for a child to become a truly " modern person," and that in the course of those years the child needs to be surrounded with an environment

that is not completely " modern" and certainly not " technological."

Indeed, a child who can live in an unmediated connection with nature, and then in an unmediated connection with the world of stories (told by parents, and then by teachers), who is allowed to actually hold a paintbrush or a crayon, or to model in beeswax and to sing and play a real instrument - rather than all of the animated and digitized substitutes for such experiences offered by software - such a child will have the healthiest foundation for valuing technology in later life.

The Harrison Central School District, which serves one of the wealthiest groups of students in one of the wealthiest counties (Westchester, NY) in the United States, was among the first districts in the nation to bring computers into the classroom. The districts publication, A Student Guide for Computer Use, offers some insights into the shape of things to come as computers are more widely utilized in schools. The " Acceptable Use Policy" with which the booklet begins is actually a contract which must be signed by the student and her parents. Elementary school students must agree to the following terms:

While using the computer I will:

1. Show respect for others.

1. Show respect for the things that people have on the computer.

2. Respect the software laws by not copying software.

3. Keep my password to myself and not try to find out someone elses password.

4. Understand that teachers will be able to see what I have put on the computer.

5. Use the Internet for my schoolwork only.

From what I know of school districts, it would be safe to assume that these rules were formulated after the prohibited incidents occurred, and that some of them occurred frequently! Three pages later, a section termed " Guidelines for Using the Internet" rolls out yet another list of trespasses:

The Harrison School District does not want you to:

· Damage computer equipment

· Damage hardware or software

· Use someone elses account or password

· Use the network to send/receive a message with some one elses name on it

· Tell personal information about yourself or anyone else

· Fool with the computer programs

· Use the network to access inappropriate material

· Use bad language on the computer

· Violate software agreements or copyright laws

After begging students on the next page, " Do not play computer games that have no school purpose," the District warns them:

You will be learning to get on the Internet highway at school. Sometimes the materials you may find are not always appropriate for school. Certain sites will be considered " off limits" and your teachers will monitor your

appropriate use of the Internet, just as your parents monitor the show [sic] and movies you see.

And finally, having warned students repeatedly about the consequences of their own bad behavior in the computer lab, the booklets authors caution them about the sort of behavior that they can expect from others:

Remember: When you are on the Internet you are with other users. Others can see what you put on the computer, just as you can see what others put on the computer. You cannot see these people and you dont know who they are, or if they are who they say are. You need to be very careful about the information you provide.

It is ironic that Waldorf schools are sometimes criticized for telling young children Grimms fairy tales because they are " scary"! Yet here are educators who knowingly send children into a realm much more frightening than Grimms darkest wood. They go on:

So, here are some rules to follow:

NEVER GIVE OUT YOUR HOME PHONE NUMBER, ADDRESS, OR ANY OTHER PERSONAL INFORMATION TO ANYONE ON THE COMPUTER.

IF YOU ARE UNCOMFORTABLE WITH THE INFORMATION SOMEONE IS GIVING YOU ON THE COMPUTER, TELL YOUR TEACHER!

And with those comforting words, the Student Guide on Computer Use comes to an end.

It is important for us all to realize that, in spite of the widely advertised advantages that computer-literate students are said to have over students learning the old ways, there is as yet no conclusive evidence that this is so. The hoopla with which politicians and corporations have surrounded the computer issue serves as a smokescreen for the lack of substantive research that has actually been done concerning technology in the classroom. As Todd Oppenheimer writes:

Unfortunately, many of these studies [concerning computers in the classroom] are more anecdotal than conclusive. Some, including a giant, oft-cited meta-analysis of 254 studies, lack the necessary scientific controls to make solid conclusions possible. The circumstances are artificial and not easily repeated frequently, the studies did not control for other influences, such as differences between teaching methods. This last factor is critical, because computerized learning inevitably forces teachers to adjust their style -- only sometimes for the better. Some studies were industry-funded, and thus tended to publicize mostly positive findings. " The research is set up in a way to find benefits that arent really there," Edward Miller, a former editor of the Harvard Education Letter, says. " Most knowledgeable people agree that most of the research isnt valid. Its so flawed it shouldnt even be called research. Essentially, its just worthless." Once the faulty studies are weeded out, Miller says, the ones that remain " are inconclusive" -- that is, they show no significant change in either direction. Even Esther Dyson admits the studies are undependable. " I dont think those studies amount to

much either way," she says. " In this area there is little proof."

Another computer expert, David J. Gelernter, professor of computer science at Yale University, concurs with these concerns:

Computers themselves are fine. But we are in the middle of an education catastrophe. Children are not being taught to read, write, know arithmetic and history. In those circumstances, to bring a glitzy toy into the classroom seems to me to be a disaster. It reinforces our worst tendencies. The idea that children are in educational trouble because they dont have access to enough glitz and what they really need is a bigger database is staggeringly ludicrous. They need practice in the basics.

What the child receives in a Waldorf classroom in the early grades is delicate, as matters of the imagination always are; exposure to the powerful and usually ugly images of the mass media can easily overpower what is living in a germinal state in the childs soul. Given time, these seeds will ripen and the child will be able to face the modern world well-armed and armored. I would hope that every Waldorf student will be an adult who can use a computer or a TV (or their future equivalents) and value them for what they are and not be enslaved to them, or idolize them as an expression of superhuman intelligence.

Indeed, I am convinced that the more that our culture is permeated with computers, the more we will recognize our need for human values and human capacities. As an example, we might examine the phenomenon of the " search engine," the robotic librarian which, with a bevy of programmed " spiders" assisting it, searches the one billion plus pages of the World Wide

Web to find sites with the information that internet users are seeking. The writer Jim Collins, in an article evincing admiration and awe for the work of these electronic minions, acknowledges their shortcomings as well: Functionally, the interesting part of the search engine question isnt how Web sites are harvested for the index, but how the index is organized and accessed. Very few computer users have the patience or time to go deep into a list of 1, 000, 000 pages that match a request, and anyone who has searched for something on the Web knows how many search engines are completely useless, even the ones that show up early in the results, the ones with the highest ranking of probable relevance. The problem is plain: Automated indexes, for the most part, are literal; they lack the human skills of inference, context, and understanding of meaning, of synonyms, of piecing together an incomplete thought. More and more companies, says Danny Sullivan of Search Engine Watch, are using humans to help improve the results of search queries. These " librarians" study patterns of questions, cluster similar sites around each other, create categories, and otherwise help organize the databases along lines that users intuitively understand.

It is not unusual for Waldorf high schools to use videotapes on occasion, and, in most Waldorf high schools, students work with computers in the ninth or tenth grade, after they have learned about the mathematical, scientific and historical bases upon which the computer is formulated. It is not a matter of rejecting the media, but recognizing when a given medium is appropriate, and under what circumstances. The foundation for understanding the approach of the Waldorf schools to this matter lies in an understanding of

the nature of the changes that occur in our consciousness throughout human life, and especially in childhood.

And let me conclude, not with my own words, but with excerpts from an interview with Apple founder Steve Jobs in the cutting edge computer magazine Wired (February, 1996):

I used to think that technology could help education. Ive probably spearheaded giving away more computer equipment than anybody else on the planet. But Ive had to come to the inevitable conclusion that the problem is not one that technology can hope to solve...Historical precedent shows that we can turn out amazing human beings without technology. Precedent also shows that we can turn out very uninteresting human beings with technology.