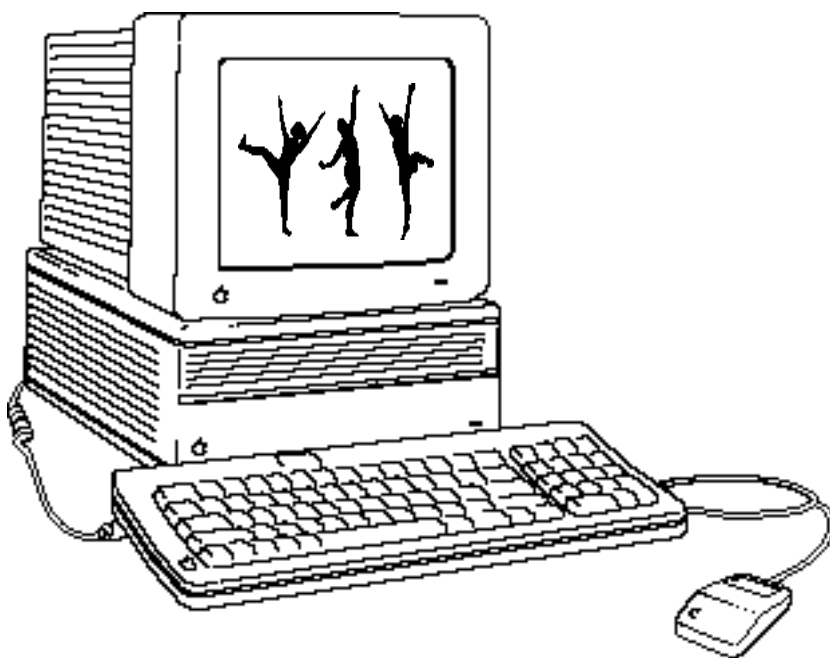


TECHNOLOGY INTEGRATION

**from a teacher's
point of view**

**Janice Friesen
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True integration of technology occurs at the classroom level. Only in the classroom can there be real change in how teaching and learning is accomplished. The planning, budgeting and grant writing that must be done in order to get the equipment is most often done at the school, district or even state level. It is important for people who are doing this planning to take into account several things which will make the difference between a huge loss of money and successful integration. The why, what, where, when, who and how questions can be answered better after considering the issues listed below. Unfortunately most schools that are now spending megabucks on technology have not given much thought to these questions.

WHY?

It doesn't matter where the planning is being done, the first thing to consider must be educational objectives. Technology in our world has significantly challenged traditional school curriculum and its forms of delivery. Schools are still operating in an industrial model. Students enter at one end of the factory, learning is delivered to them at each stage of their process through school, and they are supposed to exit as educated individuals.

It is becoming clear, however, that we are in a new age and that our educational goals need to shift to take into account the different requirements for living a successful adult life. One important change is that the amount of information available doubles every

10 months. According to the SCANS Report (from the US Department of Labor) the skills needed for the future will be (and even are now) different than when Public School was designed. Some of the skills that have been identified are the ability to: organize resources; work well with others; acquire, evaluate and use information; understand complex work systems; and work with a variety of technologies.

Central to what kind of technology is to be integrated into an elementary school is the course that a particular school wants to take in use of the technology. A school cannot excel all areas. Some schools may be geared toward multi-media production, others may have an emphasis on writing, web page design, or telecommunications. The equipment needed to make the projects successful will be different at each place. These goals can change and grow, but in order for technology integration to be successful they should be central and stated.

WHAT?

Before beginning any sort of training in integration of technology it is important to have the equipment and connections in place. This is easier said than done. Unforeseen problems with installations and networking are common. There can also be temporary problems caused by weather. It is wise to write into a plan plenty of time for installation, including setbacks. When working on technology integra-

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tion the word to emphasize is integration, not technology. Anyone planning technology integration which has a focus on educational goals should seek activities for training and for actual use in the classroom that will have a non-technology component that can be worked on during times when the equipment is not cooperating!

WHERE AND WHEN?

TECHNOLOGY INTEGRATION REQUIRES LEADERSHIP AND A NEW FORM OF COOPERATION AMONG TEACHERS

There is a big difference between having four or more computers available in a classroom whenever they are needed and having to sign up weeks in advance to use a few computers in a media center or lab. Plans for technology integration will vary depending on these factors. Be sure to consider this when doing the initial planning. What are the sizes of the classes that will be using the technology? How will everyone get a chance to learn? There are always going to be some limitations, but limitations are not always bad. When the Apple company did their ACOT study of computer use in schools they provided every student and every teacher with one computer in school and one at home. This proved to be overkill. Students tend to work collaboratively when using computers. There was no need to have 25-30 computers in a class. Donald Ely in his article "Technology is the Answer, But What Was the Question?" states that the schools experiencing the most success with integration of technology have at least four computers available in each classroom. This may be impossible

for your school now, but might be a goal to work toward. The use of technology in a school will vary greatly depending on what equipment is available and when.

WHO?

This is in many ways the most important question to answer when making plans. Integration of technology requires some leadership and a new form of cooperation among teachers. Elementary teachers are a diverse group. In any one school you will find an incredible range of awareness and ability in the area of technology. In one school you are likely to find at least one teacher who is afraid of using the computer and rather negative, many who have some experience and one who has her own class web page set up and running. This is a very difficult situation, because the degree of success with technology has nothing to do with degree of success as a teacher. Integration of technology requires both willingness to learn new technology and excellent teaching skills (ability to work with students and promote learning, understanding of the content that needs to be taught)

Before starting a project like this it is helpful to talk to the people who will be involved with it. Have each person identify their own comfort level with technology and some reasonable goals for progress in the area of technology integration. A report by Joyce and Showers on acceptance of technology by teachers

This list may give ideas for how to help teachers to move to new levels with technology

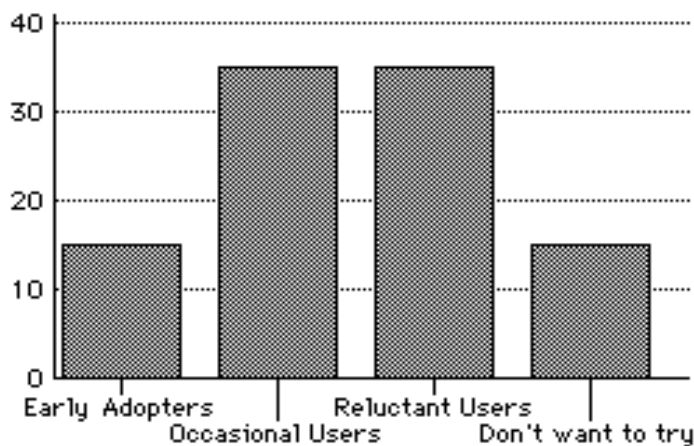
DOESN'T WANT TO TRY

time to discuss openly the whys of technology use in the classroom
 personal goal of attitude change
 positive experiences using technology on their own
 comfort with use of mouse, saving, retrieving their own work
 exposure to other teachers successful classroom uses of technology in a non-judgemental way (reading articles, sharing sessions, attending conferences)
 a vision for use of technology more in the future and a sense that they can do it!

RELUCTANT USER

exposure to successful classroom uses of technology that tie in to their own curriculum
 training on some software that will help their own personal productivity
 time to play

Teachers and Technology
 Percentage of responses



a measurable goal set for use of the technology that is available for themselves (professionally), or with a whole group, or as a station in a classroom.

OCCASIONAL USER

exposure to successful classroom uses of technology that tie in to their own curriculum and challenge to try one of them with their class.
 sharing with other successful teachers about management issues
 time to play and explore what is available
 rewards for using the technology (recognition, chance to attend conferences, some sort of bonus pay?, a chance to share what they are learning with new teachers, a pass for a free hour of school time where the principal or vice principal takes the class or finds someone else to do it, career ladder credit that is earned towards pay increases)

Find a project that has been done successfully before and join it. Learn from what others have done.

EARLY ADOPTERS

ready for innovation, coming up with new ideas
 time to play and explore
 challenge to find ways to share what they are doing in non-threatening ways with their colleagues
 training in finding funding sources for ideas
 support when planning innovative uses of technology with their classes
 create a new project, invite others to join it.

showed that approximately 15% are early adopters, 35% are occasional users, another 35% are reluctant users, and the final 15% do not even want to try. From the author's experience this is very accurate. It is reasonable then to set expectations that can be reached. It will not all happen within one school year, but if reasonable goals are set by the people involved in trying to attain them each year there should be progress.

HOW?

For years schools have tried to incorporate technology in the same way that they did any other sort of training. The teachers are sent to a one day workshop where they learn about something that they do not have available to them yet in their classrooms. Later they are given the particular piece of equipment, but they are not prepared to use it and there is no one around to answer questions about it. Even in situations where the technology from the workshop is available, teachers often do not have the support or the time to begin using it immediately. The learning that teachers do not have a chance to repeat and try on their own is lost.

The staff development issue is the one most often left out of technology planning. In many cases the PTA is raising money for computers, or administrators are writing grants and money does not get designated for appropriate staff development.

Support for the use of technology needs to be ongoing. A one time workshop will not work. Teachers

who are innovators in technology need to have someone to turn to when there are problems. According to Donald Ely in the article cited above schools that are successful in the use of technology have a strong computer coordinator, which he describes as "one full-time teacher to provide leadership and support". Technology is constantly changing and an effective classroom teacher does not have the time to keep up with all of the changes. In a paper entitled "Thoughts About Staff Development and Integrating Technology into Learning Environments" Brian Page states that no truly effective staff development is cheap. He says that about 20% of a technology budget should be allocated to staff development. The goal of the program is to turn an ever increasing number of teachers into leaders who spread what they know.

Everyone knows that when there are limited funds available equipment is a visible result of their efforts. Staff development is difficult to observe and to measure. People who are planning integration of technology into their schools and classes need to realize that the equipment is no better than an expensive door stop if it is not used effectively with students. Allocation of limited funds needs to be well thought through.

**Success with the
Integration of
technology
requires both
willingness to
learn new
technology and
excellent teach-
ing skills.**

GETTING

Learning the computer must be a hands on experience. We have all had the opportunity to learn a computer skill from someone who knew how to do it well and “showed” us how. Their hand usually goes faster than our eyes. It does not work. The learners need to be using the computer themselves. The most successful training occurs on site where the teachers are working. Anything learned on the computer and not repeated will be forgotten, so the skills taught should be meaningful and immediately applicable to the teachers involved. There should be some form of on-going support as well as a plan for continuous training. This could happen as the teacher brings his/her class to work in the computer lab, or in a series of half day or afternoon workshops which build on each other.

The first session should be an exploring session. It allows the leader of the session to observe the technology experience of the users. It also allows the learners to explore the computer. This allows for ranges of experience. Those already comfortable using the computer can go deeper in their explorations. Beginners can get the help understanding the basics.

SUGGESTIONS FOR A FIRST SESSION

STARTED

True understanding of how a computer works comes only through experience. The first time your disk is full you begin to understand what 1.44 mb really is. When your computer freezes you know that 4 mb RAM is not enough memory to do much with the WWW. It does help to have these concepts explained and to have time to play with them. The exercise included with this chapter is a way to play with these facts. Some learners will need a lot of help with it. Others may choose not to do it because it does not meet their learning needs. The final product is useful because it becomes a resource where these facts can be found after the class.

During this session it would be good to allow the learners to have time to play and explore. Some will just need to get used to the way the mouse works. Paintbrush and Solitaire are good ways to work at this. Give some direction to all of the learners by asking the participants to think about an actual project that they would like to do with their students using the technology available to them and to write the idea out in word processing. They should also write out questions that they have about doing it. This document should be saved on a disk and also printed as a resource for the leader.

One other helpful topic to introduce this session if it is available is E-Mail. If the group is set up to use e-mail it would be handy to have a list serve set up

where the leader can communicate with everyone. Possibly the leader could have sent e-mail to the participants ahead of time and then instruct them as to how to find the mail and how to respond. During the time inbetween sessions a regular correspondence could be kept up between the participants and the leader.

What is done in this session will depend in a great way on the prior experience of the participants. The things listed here are way too much for most people in one session. If the time available is long enough it may be possible to do some of them with breaks inbetween.

True understanding of these things comes only through experience



Listed below are some things that could be included in this session:

- ☺ Parts of the computer and how they all connect.
- ☺ Differences between stand alone computers and networks.
- ☺ The difference between a floppy drive and a hard drive.
- ☺ How to turn a computer on and off, or log in and log off.
- ☺ The concept of a desktop.
- ☺ How to find what software or files are on a particular computer or disk.
- ☺ Using word processing and saving and retrieving work.
- ☺ Managing your files (organizing, creating folders, deleting)
- ☺ Explain different types of storage media (disk, CD Rom, Zip Drives, Jazz Drives)
- ☺ RAM and long term memory
- ☺ bytes, megabytes, gigabytes (people don't want to really know this, but a small explanation and a reference to look at later is helpful!)

KNOWING YOUR COMPUTER

This exercise is a type of scavenger hunt which will result in a final printout that will be a future resource for you. Follow the directions below:

1. Log in to your computer. If you are using a Mac (⌘) open your HD icon. If you are using Windows (WIN) look at your desktop, Windows 95 (WIN95) look at the programs listed in your start menu.
2. Find a Word Processing program and open it.
3. Start a New Document. At the top center the title "My Computer".

SAVE

Now save your document. To save in almost all programs choose the File Menu and find the words 'Save As'. Fill in the blank at the top to give your document a name that you will remember. Next look to see where your document is going. At the bottom of the window is a box called Drives. If you want it on a disk you usually choose the A drive (that means the little slit where the disk goes in). The C drive is the one built into the computer. If you are saving to the C drive try to find out what folder it is being saved to. It will help you find it next time if you know where it is being put. After you have given your document a name and told it which drive to go to press return or enter. You will notice that the name you gave the document will replace the word untitled at the top of the page.

We are now going to search for information about your computer. You are going to find it by following these directions and then listing the information on the document you just started. When we are done you will print the document.

The first thing you need to understand is that your computer can do more than one thing at a time. During this whole adventure you will have the document open and be adding to it, while looking for information in other parts of your computer. You will learn to switch back and forth on your desktop.

⌘ this is called Multi-tasking. You can open more than one program at a time and switch between them by opening the menu in the upper right side of the screen and choosing another program.

WIN the keys Alt-Tab will bring across your screen all of the programs that are open. When you let go it will put you into the program that was on the small screen window.

WIN95 the tool bar will show you the programs that are open and you can switch easily by clicking on the one you want to use on the tool bar.

RAM

Make a category on your document called RAM. RAM is Random Access Memory. It is the memory used by the computer when it is on. The screen you are looking at it created using RAM. RAM is temporary. When you turn off the computer what was on the screen that did not get saved on a disk or in the long term memory is forgotten.

How much RAM does your computer have? To check do this:

t open the menu on the top right side of the desktop (it should be a picture of the program you are using.) Switch to 'Finder' by sliding the mouse to it and letting go. Now open the Apple Menu (the rainbow apple on the left top of the desktop) and choose "About this Macintosh". There will be a number there listed as Total Memory. This is your RAM. Get back into your document and type that number under RAM.

WIN While in the main program manager open the menu called HELP, choose About Program Manager at the bottom of this menu list. A box will appear with a number. This is your RAM.

WIN95 Go to the My Computer Icon. Find the HELP menu. Open this up and choose the "about Windows 95" choice. The number shown there is your RAM.

After typing the number you found type a few sentences explaining for yourself what RAM is so that you will remember.

This number was created using the Binary counting system, so it will be something like 16,384 K (or Kilobytes). For ease in talking about these numbers we round them off to the thousands and talk about mb or megabytes. 16,384 K is called 16 megabytes.

But what does that number mean exactly? In practice if you do not have enough RAM your computer will run very slowly because it cannot do several things at once. It will also just freeze when asked to do too many things at once or when asked to open a picture file that is too big. RAM usually comes in 4 mb, 8 mb, 16 mb, 32 mb and higher. The larger the better (and the more expensive the machine!).

After you are done save your document. You have already saved it once, so this time it is easy. You can either click on the picture of a disk, or choose the file menu and click on the word 'save'.

WHAT'S ON YOUR COMPUTER?

Create a section on your document with the title above.

Take some time to look at your computer-front, back and following all cords you can. What do you see? Is it connected to a printer? a scanner? Try to figure out all of the equipment you have. Notice how they are connected. You can even turn it off and try unplugging it and plugging it back in. In your document list all of the parts of the computer that you found. Here are some suggestions:

Monitor

CD-Rom drive

Disk Drive

Modem

Printer

Scanner

Microphone

Network Cable

Switch Box

Speakers

After you are done save your document.

SOFTWARE

Software is what all of the programs that are in your computer are called. Look on your desktop.

t Open all of the file folders on a Mac

WIN Open all of the little Windows

WIN95 Look at the Programs listed in the Start menu. Explore My Computer.

Make a list in your document of all of the programs that are on your computer. Start with the ones that you recognize and know about. Continue with the ones that are a mystery to you. If you can find out in general what type of program the “mystery” software is try to describe it. You might find out by clicking twice on a program icon to see what it does.

After you are done save your document.

LONG TERM MEMORY

The built in memory or storage memory in your computer is important. That is where the programs that you are using are located and that is where your documents go if you save them to Drive C. Do this to find out how much long term memory your computer has:

t Go to the finder from the Icon in the top right corner. Open up the HD (hard drive). In the top it says, “___ mb in disk” This is how much long term storage you have. Type this number into the section of your document entitled Long Term Memory.

WIN Go to the File Manager (a picture of a file cabinet). You can get there by pressing Alt-Tab to switch from your document to the Program Manager. After you have opened the File Cabinet click on the picture at the top of the C drive. When it opens make sure that the C is highlighted. At the bottom of this box it will tell you how much long term memory there is.

WIN95 Open My Computer. Open the FILE Menu. Choose properties. You will be shown a pie chart which will illustrate your total memory and the amount that is still free.

Long term storage is much bigger than RAM so the number you find should be much larger than the RAM number. It could be 220 mb, 500 mb, 1 gb (gigabyte=1000 mb), or more. If your computer does not have enough long term storage you will notice because you will get messages saying it cannot save things because there is not enough memory. It never hurts to have too much!

PRINTING

This is where the majority of problems with technology happen. The printer must be communicating with the computer. If the cable is not connected or if the printer is not on or if the computer does not have software installed to tell it the printer exists it will not work.

While in your document choose the File Menu. From the File Menu choose Print Preview. You will see what your whole document looks like and have a chance to change it before it goes on paper.

Close up print preview. When you are happy with your document save it again and then choose Print from the File Menu. The name of the printer you are connected to should be at the top of the window that appears. If it is correct just press enter or return (or click with the mouse on OK). You should have created a resource that will remind you about some of the basics of your computer.

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A helpful addage goes "A person cannot absorb more than his/her seat can endure." Time is an important factor when helping teachers to integrate technology . After practicing the basics there must be time for the participants to use the things that they have learned and solidify that learning into useful skills. The concerns addressed in this second meeting should be actual concerns that come from the participants. Having tried to use the technology in the time between meetings will help them to identify and verbalize what they are concerned about when using the technology available to them with their students.

**CLASSROOM MANAGEMENT ONE
INITIAL CONCERN**

During this session time should be taken to actually do all of the things that were introduced last time. If possible start with the machines completely turned off. Participants should have a chance to turn them on, log in, retrieve, edit, save and print a document.

A meaningful way to do this is to have the participants write out a plan for using technology with their students that they can practically accomplish in the next month. The time at the workshop can be spent developing the plan and researching the software or internet sites needed for the plan the teachers are writing. The final product should be two copies of the plan printed out. One for the instructor to see and save for future reference and one for the participant to use.

Listed below are some concerns that have been addressed in workshops in the past. Although most of these concerns are common it will be much more meaningful to start with the actual concerns of the teachers who are participating.

=What can go wrong when using computers with kids that I should be prepared for?

Computers are not as fragile as people often assume they are. Even kindergardeners can use them quite freely without harming the actual workings. Depending on the age and maturity of the students you are working with you may want to be the only one who logs in and out of the computer. After you have observed your students you can choose some responsible ones to take more responsibility in logging in and off and other tasks.

Your computer is actually a dumb piece of metal that cannot do anything without programs to tell it what to do.

The pictures that you see when you turn the computer on are created by a program. Turning it on and off properly means turning off the program that is running it (Mac desktop or Windows) before turning the power off. Doing this wrong once will not crash your computer, but habitually doing it wrong can cause some problems.

Almost everything else that a student can get into on the computer can be exited easily. A sure bet is that

students will get the computer to a place that you do not know how to get out of. DON'T PANIC! Here are some things to try in order that may help you solve the problem:

1. Is the screen black? Check all of your connections. Is the power getting to both parts of the computer? Has a student adjusted the brightness way down to black?
2. Are you in a program you do not know how to exit? First look for a menu bar and choose the far left menu at the top usually called "file". When this is open there is often a choice at the bottom called "exit" or "quit".
3. If there is no menu bar try pressing the key labeled "esc".
4. If that doesn't do anything you can also try pressing Alt-q or Ctrl-q. (q stands for quit)
5. The last resort when you are stuck and nothing seems to be getting you out is to press the RESET button on the computer. This is just like turning your computer off and then back on, but less stressful for the machine than using the power switch.

When a student has been impatient and clicked the mouse 100 times or when a program uses too much memory your computer may freeze. If this happens you will not be able to move the mouse arrow or open any menus. Your keyboard will not communicate with the computer even when plugged in. The only choice when this happens is to press the reset button on the computer and start over. I prefer not to have students do this so that I can keep track of how often it is

happening and what is causing it.

How do you begin to use one computer with a whole class?

It is a good practice to introduce the students to the computer and all of its parts. Give them a whole class lesson on how to properly turn on and off the computer, how to save and retrieve, and how to get to the things you want them to use. Have some standard expectations clearly stated and even posted if necessary. Most of all make it accessible to the students.

What can you do with 30 kids and one computer?

ROTATION A class list and a set of instructions describing a particular activity can be kept near the computer. Students can take turns alone or in pairs completing the activity and then checking off their names. Experts can be chosen who will answer questions and help out during the times when the teacher is doing other things.

RESEARCH The computer can be a resource, like a book that is sitting in the room and can be accessed when needed for various information that is curriculum related.

TEACHER PRODUCTIVITY The teacher can use the computer for letters, newsletters, making worksheets, thank-you notes, and as a gradebook. There are many inexpensive gradebook programs around.

DEMONSTRATION The computer can be used as a way of centering attention and keeping interest when a demonstration needs to be done. Instead of drawing on the board to

"Hardware without software is just junk but software without teaching is just noise."

Quote from
Minot South
Dakota Technology Coordinator
Home Page

show symmetry or to demonstrate geometry terms why not do it with students gathered around the computer? As a class communicate with an expert on some subject using e-mail, look up a web site that has particular interest to the class and explore it together (later it can be a bookmark to be looked at alone or in pairs).

ONE STATION IN A ROTATION

Set the computer up to do one part of a several station activity that the class is completing. Small groups can do their part on the computer then rotate to do other parts. Tom Snyder has some excellent simulation activities designed to be used this way in a curriculum.

How can we keep track of what is on the computer?

If you are using Windows the File Manager will give you a picture of everything that is on your computer. Become familiar with it because it will help you. When you first look many of the files there will be mysteries to you, but as you get more experience you will be able to recognise almost everything. In Windows this is the place that you can delete files that you do not want anymore. Refrain from deleting until you are sure what things are. In Windows95 this is called Windows Explorer. It works the same way. In Windows95 there is also My Computer which is another way to look at what is in there. If you are using Mac the desktop shows you pictures of everything that is in your computer. It is OK to click on files and look inside to see what is there. Explore and get an idea of everything available.

Can a student lose something on the computer?

Yes and No...

Depending upon your computer set up students may be able to move icons and even delete them. Deleting an icon does not mean the program is not on the computer. It is a bit more difficult, but also possible to delete whole programs. If students move icons you may think things are gone, but they have just been moved. There are programs that will lock things in place and not allow deleting without a password or some extra steps. You may want to have one on your classroom computer.

The first line of defense in this area is to warn the students to be careful. You can also clearly state heavy consequences in case it is done on purpose. No matter what else you do you should ALWAYS have back up copies of everything on your computer just in case. It is a relief to know that something deleted can just be reinstalled.

How much supervision should there be?

The World Wide Web is a terrific resource, but it is also filled with things we do not want students looking at or reading. It is wise to position your computer where the screen is in the open and not to leave students alone using it at recess or other times. There are filtering systems for the WWW, but most have limitations. Some teachers use them and find them helpful. A web site that will tell you more about this is Larry's World http://www.larrysworld.com/child_safety.html Students should always be given

Always have back up copies of everything that is on your computer. You don't know what might happen

meaningful things to do on the computer and monitored. Clear expectations should be communicated. Actual monitoring of computer activity will vary with age and with the particular group of students.

MN What about teaching keyboarding, how? when?

Right now we can only communicate with the computer through a keyboard. The keyboard was actually designed to slow typists down in the beginning because the machinery could not keep up. We seem stuck with the "qwerty" keyboard because everyone knows it and change is difficult. In the future there is a distinct possibility that we will just talk to our computers and they will talk back. We can't count on it being in time for our students, so keyboarding is still important.

In my experience students at around 3rd grade are physically and mentally ready to have fun learning keyboarding. Their fingers are long enough to reach all of the keys and they have the hand-eye coordination needed to get fast. Keyboarding of itself is not worth spending much time on. It is a skill and should be combined with meaningful activities in which students learn other things also. One program where the students learn word processing while learning keyboarding is the Herzog method. The students fairly quickly begin to type real things as opposed to "fjf jfj" exercises. Students love learning this and research and experience has shown that students write more and better when using the computer!

MN Can't we just get a computer teacher?

Computer use in schools needs to become common and related to real things already happening in classrooms. One computer teacher cannot adequately integrate technology into the different curriculums taught in all of the different grades in a school. Often when there is a computer teacher that person becomes the specialist and all activities relating to the computer are expected to be planned by them. To make technology more than an add on to a school's curriculum it needs to be used comfortably by all teachers.

However, constant changes in the area of technology are a real challenge to keep up with. Troubleshooting problems can be extremely time-consuming. For these reasons it would be ideal to have a Technology Coordinator in every school who assisted and trained the teachers in their use of the technology in a building.

If all has gone as planned this third meeting comes after the teachers have begun to use their classroom computers or lab with their students in some way connected to the curriculum. They have also been introduced to e-mail and have communicated with the group during the intervening time. At this point the e-mail may have been mostly the leader sending some distributed messages and receiving replies.

**A CHANCE
TO EXPLORE THE WORLD**

This session is perfect for practicing searching in Netscape. Have all participants create a document collection of URLs on a particular topic which would be useful in their classrooms.

The teachers in this session can open Netscape and then open a word processing program. They can search and then copy URLs from the web pages that they find and paste them into the word processing document. They can also add a few words of explanation. These collections can be saved, then printed out, copied and shared among the group.

At this session teachers can also be introduced to bookmarks in Netscape. The participant can set up bookmarks for the web pages that they have found and save the bookmark file on a disk to be taken with them.

End with an E-mail assignment. Each participant should choose one other participant to write e-mail to in the time between sessions. They could send the other person one thing that they have done that has worked and also ask a question. The other person should reply. Hopefully this will be the beginning of collaboration.

Spend some time sharing experiences with using the technology with their classes. Use this time to build some collegiality and a sense of sharing between the participants. More concerns may have come up by this session due to using the computer with students. The following are possible concerns:

What is the Internet?

The Internet is a system of connections between computers world wide designed by the defense department of the government to help allow quick and efficient communication between different parties. Universities began to use the network to exchange research findings and communicate with different experts. In the last few years the internet has expanded as computers and telecommunication has gotten easier to use. Anyone with a modem (a device to connect your phone line to your computer) and a telecommunications service (COIN, America Online, Prodigy, Socket, etc...) can use this network to connect to computers all over the world.

What is the difference between e-mail and the world wide web (Netscape)?

E-mail (or electronic mail) is the postal system of the Internet. Messages can be sent and received quickly

and inexpensively using a phone line or another type of telecommunication connection. The World Wide Web is more of an ever-expanding resource of multi-media information (it involves text, pictures, sound, animation, and movies). People think of the WWW as a resource, like a living, growing encyclopedia. A person can use it to find information, print it, download it or even to post information that will be available to everyone who has the equipment to see it.

How should a teacher deal with disks going bad?

Disks do go bad. In our school they fail regularly in the spring. I think that kid's disks get heavy wear and tear. It is a problem. Techies recommend performing scandisk (a program that finds problems and corrects them before they ruin your files) on a regular basis, but this is impractical in a school setting with hundreds of disks.

Another possibility is to have students save the really important things also on the hard drive of the computer. This will take some space and also management of the hard drive. You could set up a folder for each student and have them save their work always into their own folder. At the end of the year the folder could be copied to a disk and given to the student and the hard drive cleared of the student work. This could be time consuming for a teacher.

A third suggestion is to just realize that this is going to happen and be level headed when it does. If current work is lost help the student to make up time and retype it for them. Imme-

diately copy the good files from the disk to a brand new disk for the student to begin using. Sometimes the old disk can be reformatted and used again. Other times it is too damaged and cannot be reformatted.

How does one teacher in a lab handle all of the impatient needs of so many kids?

This is an important question, especially in elementary school. A school may want to work at setting up a group of technology volunteers so that there is always one extra adult in the computer lab. As the older students get experience using the computers they can become experts and help each other and older students. Maybe the oldest group of students in a school can be given the responsibility to rotate as aids or helpers in some of the younger classes. The ideal solution is to have a person who is hired to run the lab, but that is rare.

Kids need to learn to try to solve their own problems by thinking them out and trying different things. They also need to learn patience. If a student is not polite and patient they may need to lose some computer time and be patient off of a computer somewhere until there is someone to help.

Any advice on printer problems?

There are regular problems with printers. Make sure especially if you are on a network that you know how to print queue. Students will regularly press the print button more than once because the paper is not coming out of the printer. A few minutes later the printer is warmed up and prints multiple copies of their work. Sometimes

Older students can be experts who can help younger students and even teachers

for unknown human or mechanical problems the printer will just keep spewing out copy after copy. The first thing to do is to turn off the printer. Then take a deep breath. Then clear the print queue (delete the print job that is causing the problem). If you have not been given instructions on how to do this do not panic. Just leave the printer off and tell the person in charge that someone needs to clear the print queue.

Printers get paper jammed in them, run out of ink, run out of paper, print funny characters, etc... The only way to learn about these things is to keep the printer manual nearby and experience them. There are too many printers around to give explanations here. The main thing is not to panic and to turn it off if it is spewing out paper you do not want.

What about Spell Check....is it a crutch?

Spell check when used properly can be a tool to teach correct spelling. A teacher will have to give some instruction on this and monitor individuals as they learn to use it. When students first use spell check they sometimes press the "skip" button everytime it comes up with a misspelled word. When you look at their paper and ask if they have done spell check they say "Of course, you told me to". You then need to do it again with them to demonstrate how to find the right word and use the "replace" button.

The good thing about spell check is that it will not recognize student spelling unless it is phonetically close to the word they are looking for. This forces students to look for letter sound

combinations that are close (if not correct) for the word they are working on. If the spell check does not find any replacements the first time I teach students to erase the word they had written in the spell check box and replace it by trying to sound out the word as best they can. Often just doing this helps the spell check to find several possible replacements and surprisingly most students know how to pick out the correctly spelled word when given a list. Since spelling is a repetitive error (we usually misspell the same words over and over), spell check provides the repetition of seeing the correctly spelled word. There will still be some times when kids will have to use a dictionary, but spell check is much faster.

=Netscape is too slow!!

Netscape depends on having enough RAM on your computer to run best. Check the results you found in the earlier lesson to see how much RAM your computer has. If it is less than 8 you may want to look into getting more RAM. It can be added into your machine and is not too expensive. Netscape will also run slowly if there are other programs open on your computer. If it is running slowly check to see if students have left open Paintbrush with unfinished pictures or other programs that have gotten hidden behind the Program Manager in Windows, or forgotten on your Mac.

The other thing that can slow down Netscape is the Band Width in your area. This is the cable that carries the messages all over the Internet. At certain times of the day (afternoons) there are so many people using the Internet at one time that the band

"You can never be too thin, too young or have too much bandwidth"

Quote from Professor at University of Kansas

width in a particular area may fill up. When it is like that you are waiting in line with many others and it is just slow.

What if I get a DNS or URL message?

Always be sure that you have typed the www. address in absolutely correct. Even if it seems perfect there are times that erasing it and typing it in again fixes something and it works. Always try pressing the “reload” button a few times before giving up. Sometimes the page you are looking for will finally come. URL stand for Universal Resource Locator and is the address of a particular web site.

When I use Netscape with my class the site I want to go to is unavailable- The World Wide Web is an amazing resource, but it is not always predictable. You must realize that it may not work just when you are planning to use it. Always have a plan B that relates to your goals, or a way to switch things around and try again later. You can find several sites that would meet your needs, put a bookmark on all of them and then use the one you can get to the easiest. Mornings are generally better for speed of use.

You may want to look into a program called Web Whacker that will copy a whole web site onto your computer for use later. It was put out by Classroom Connect. You can order it by calling 1(800)638-1639. You can read about it on their web site:

<http://www.classroom.net>

S H A R I N G

and E V A L U A T I N G

By now the participants in this workshop have done many different things with computers for themselves and with their students. They are ready to take a critical look at different software and begin learning how to evaluate software and also student's work done on the computer.

SHARING

Begin this session with a time of sharing successes and questions. By now all of the participants should have had many experiences of using technology on their own and with their students. Resources for Web sites, software and classroom projects can be shared.

SOFTWARE EVALUATION

This time the computers should be set up with many different educational CD-ROMS. Pass out the evaluation of software sheet and go over it. Then spend the majority of the time rotating between the different workstations trying out the software and evaluating it. Gather at the end for a time of reflection on what everyone thought about the different programs.

ASSESSMENT

Spend some time also talking about assessment of technology projects that kids do. If the teachers are getting into doing some multimedia projects talk about the difference between assessing this and assessing a research report. Pass out article on this.

This session can be a chance to talk about where to go from here. Some participants may want to take some time to search for Funding sources on the WWW. Others may want to begin the process of writing a grant. Time can be taken for goal setting for next year. Finally an evaluation of what was learned is really helpful.

FUNDING FOR TECHNOLOGY

Technology is a huge expense for a school. Much traditional funding for technology comes from fundraising by parents in the school. This fundraising can provide new equipment, but it is much more difficult to find money to keep that equipment upgraded and useful as technology grows and changes or to staff for teacher support. Good sources of ongoing funding are hard to find. This type of funding needs to be supported at a community level. A community that always votes against any sort of taxes will not provide the funding needed for a progressive technology program in the schools. Investing in positive connections to the community is worthwhile. Make sure that when people think of the schools in your area they have positive thoughts and remember times when the school went out of it's way to reach out to the community.

Short term (1-3 year) funding is a challenge to get, but easier than ongoing budget changes. The investment of time in writing a grant can also be an investment in good planning and goal setting for a project you want to do. Don't think of it as a waste of time. Even if you do not

receive the grant, the research and writing that has gone into it should be helpful to you. It can be used to make better plans for the future.

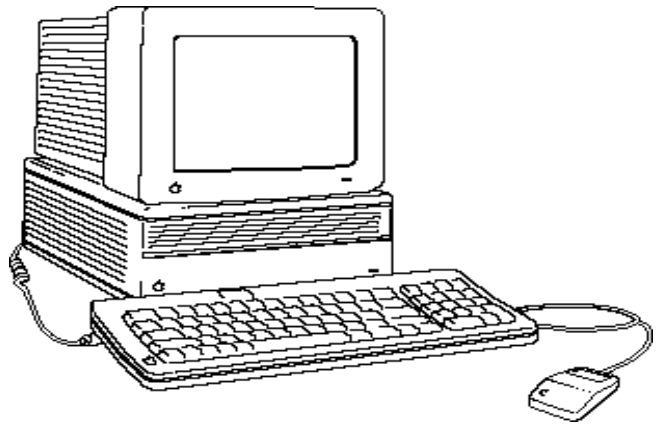
CREATING COLLABORATION

Traditionally schools have been very individualized places. Teachers tend to set up their own classrooms and have a distinct way of doing things. Teachers and students are measured with individual standards. Technology will require us to share our expertise and be sure that the non-technical teacher gets the support needed so that his/her students can be successful in the years following. School culture needs to change so that teachers begin their careers expecting to collaborate with others on projects and take some joint responsibility for professional growth.

The students of today are going to be trying to get jobs where collaboration and communication are essential skills. It is extremely important that we work toward changing our school culture, so that kids can see collaboration happening as they are going through school.

GOAL SETTING

Technology also requires some realistic Goal Setting. Not all teachers are ready at the same time to jump into the latest beta test software. However, those who never try anything difficult or new will certainly be left behind. It is reasonable to set some technology goals for yourself as a professional teacher every year. Look at the list in chapter one and decide where you fit. Set a goal of moving to the next level. If you are already an early adopter make a point of sharing what you know with others on your staff and creating a community of collaboration. Write grants that include others in supporting roles so that they have a chance to learn at their level. Share software.



Leadership in Technology

Here are some organizations to join and some publications that may help continue the progress

Classroom Connect-a terrific monthly magazine and a helpful web site
<http://www.classroom.net>

SCRTEC-a regional organization with an extremely helpful website
<http://scrtec.rtec.org>

21st Century Teachers-Sign up to participate as a technology leader for our nation
<http://www.21ct.org>

ISTE -a great journal, terrific resource for conferences publications and funding possibilities.
<http://isteonline.uoregon.edu>

Here are some suggestions for a final evaluation discussion:

How did use of technology with kids work?

What were the positive and negative outcomes?

Over the last 5 months how has your teaching changed or been effected by technology?