

Planning a Technology Staff Development Program (Part 1)

by Dr. Leigh E. Zeitz

"The best way to predict the future is to create it" says Alan Kay, Apple Computer fellow. While creating the future in education is not an easy task, it is possible on a school-by-school basis. Technology coordinators realize that the future in schools is not the work of a single individual but rather the product of all the stakeholders including teachers, administrators, students, parents, and community members. It involves visioning, planning, and, most importantly, educating these stakeholders in the possibilities afforded education through the technology.

This is the beginning of a 4-part series on providing a successful technology staff development program for your faculty, staff and students. This series will include 1) Planning a Technology Staff Development Program, 2) Building a Technology Staff Development Program, 3) Presenting an Effective Technology Staff Development Program, and 4) Evaluating Your Technology Staff Development Program and Planning for the Future. While this series is meant to provide guidance, it will be successful only if it prompts discussion between faculty, administrators, parents, and students. Use these ideas as a framework and build a program that fits your school's unique situation. Most importantly, send your comments, reactions and information about your school's technology program to me so we can share with the other 30,000 readers of this publication.

What is a Technology Staff Development Plan?

Beyond teaching teachers about computers after school, an effective technology staff development program is part of a long-ranged plan for integrating technology into curriculum. Bailey and Lumley provide a definition for technology staff development which includes these important elements:

- *integration of the emerging technologies* - emerging technologies goes beyond computing to encompass the full spectrum of technology that can enhance the learning environment. This emphasizes that these technologies are more than add-ons to the existing curriculum, they are the foundation for a new paradigm of education.
- *planned, ongoing, and comprehensive approach* - single, one-shot workshops will not be sufficient to bring change within the learning environment. New ideas need to be introduced once and then followed up with subsequent workshops and individual consultation.
- *involving leaders who facilitate other stakeholders* - change in education will fail without the support of instructional and administrative leaders who involve the whole community of stakeholders in education including teachers, students, parents, staff, and community members.
- *actively engaged in acquiring, upgrading, or abandoning knowledge, attitudes, and skills* - the learning process must be an active if it is effect changes in behavior. The most potent part about this phrase is that knowledge is considered selective rather than additive. Some past knowledge, attitudes, and skills will have to be abandoned to allow progressive change in learning environments.
- *technology-based learning environments* - the integration of technology can redefine learning environments. The concept of learning can be extended through distance, time and medium.

It is part of the plan

A technology staff development program needs to be part of an overall technology plan. Most schools and school districts have a technology plan (somewhere in an administrator's office on the shelf in a blue notebook). In some cases, these plans were created because most funding agencies demand to see a technology plan before they will provide any funding for technology. The question is whether or not the plan is something that schools can actually follow and, if it is, is it being followed? Track down your school's/district's technology plan

and read it. Does it have the term "Strategic" in the title? If it does, then it is designed to provide direction for the institution and is probably filled with phrases like "preparing our students for the 21st century." This phrase is strategic, but it isn't specific about HOW we will prepare our students for the 21st century. Strategic plans MUST be accompanied by implementation plans that provide objectives and timelines for the goals listed in the strategic plans.

Don't have a plan?

Although the technology staff development plan should be part of a larger plan, this article is not about creating technology plans. That will be covered in a later series. If you don't have your technology staff development as part of your technology plan, that's OK. Developing a comprehensive technology plan can be a year-long process. Waiting until your technology plan has been developed can mean another year of staff and students ill-equipped in using technology. If you are one of the fortunate folks who work in a district/school that has technology plan and is systematically following that plan for the integrating technology into the curriculum, then Congratulations! You can skip ahead a couple of paragraphs and continue reading. If, however, your school/district doesn't have a technology plan, or the plan doesn't seem to be directing the administrative actions, follow these steps for identifying your needs so that you can create your staff development technology plan.

What's in a Staff Development Technology Plan?

A technology plan (or any plan) must have four parts: 1) Identify your present situation (needs assessment), 2) Identify where you want to go (vision), 3) Identify the territory between your needs assessment and vision (gap analysis), and 4) Create a plan for getting to where you want to go (technology plan).

Identify your present situation

Before you can decide where you are going, you must first understand where you are. What is the current status of your 1) physical technology and available resources, and 2) teachers' knowledgebase, wants and needs.

Physical Technology

Physical technology encompasses all of the hardware, networking, software, peopleware and additional resources in your system. It would be best to place this information into a database for easy access and reporting. Figures 1 & 2 suggest record formats you might use to place all of this information in a couple of databases: one for Technology Hardware/Software and another for Technology Resources. While at first, this may seem a bit cumbersome, it will be useful when you want to do technology and expertise comparisons between schools or departments.

Hardware

The hardware includes the type, quantity and location of machines in your system. This isn't the same as a serial number-based inventory. It is meant to provide a picture of critical masses of machinery which can help a technology coordinator realize hardware strengths in the school. This isn't limited to computers, it should include a wide-range of machines including VCRs, camcorders, televisions, cameras, audio recorders, laser disk players, and photocopiers.

Networking

This identifies how your computers and peripherals are connected. It ranges from a lab full of computers networked to a local server (LAN) to a full school or district networked together to share data, video and audio (WAN).

Software

What is available for students and teachers to use? Identify single licenses, lab packs, and network/site licenses. What software can be given to students and staff to use at home as well as at school because it is free/shareware or allowed in the site license?

Peopleware

Identify the personnel you have to support technology in your school/district. Who can repair the technology when it malfunctions? Who can consult with teachers about curricular uses of technology? Who can monitor the labs when teachers are not present?

Additional Resources

These are the assets available to your technology program. They include technology budget lines, available rooms, district staff development and school improvement funds and any other resources that can help your technology program.

Staffs' Knowledgebase

Designing a Technology Staff Development Plan also requires an understanding of what your staff members know about using technology. Figure 3 shows a questionnaire that you can distribute to your staff and faculty to identify development strengths and needs. It begins with an assessment of your staff's present level of technology competence and later assesses their areas of interest. You will notice the initial assessment tool asks for their level of competence at three levels: No Experience, Some Experience, and Comfortable. These three levels have been identified to provide more meaning to the rating than a start 1 - 10 range. The results of this needs assessment should be entered into a spreadsheet to allow you to identify areas of need. Calculating overall averages for the competencies will identify areas where you could provide general workshops. Calculating averages by schools/departments/grade levels will provide information for strengths and weaknesses of specific groups of people and will enable you to better target your plan.

The other side of identifying what your staff needs to know is identifying what they want to know and how they want to learn it. The second part of this questionnaire provides a list of suggested topics and assesses their level of interest in learning about these areas of technology. This part of the needs assessment also asks about HOW your staff would like to learn about technology. It's disappointing when coordinators arrange workshops and nobody comes. Identify when your staff is most likely to attend workshops. Investigate a variety of workshop formats to address different situations. Identify independent instruction techniques that can address individuals' learning styles and busy schedules.

Students' needs

Now that you know about your staff's needs, what about the students? Remember that this whole "education thing" is about students? Now it's time to look at your curriculum to see where technology can fit into existing curriculum or provide opportunities that can enhance the curriculum. Decisions about where resources should be expended to enhance your staff's knowledgebase MUST be based upon where it will do the most good for students.

Identifying these curricular areas is no small task and should ultimately be a part of the plan for restructuring education through technology. Some forms of integration will be easier than others. If your teachers are already using process writing to teach writing, introducing word processing to enhance the revision process is a natural. Using a camcorder to capture students' projects and create a video portfolio that follows students through their educational experience just takes a little planning and lots of video cassettes. Using distance education to change the instructional venue or creating cross-curricular thematic experiences involving technology require changes in philosophy and structure that cannot be effected by a single teacher or, in some cases, a single school.

Orienting yourself to the knowledge terrain of your staff is the first step in creating the future. Next month, I will discuss how you can take this information and begin building your Technology Staff Development Program. Contact me at Zeitz@uni.edu.

Dr. Leigh E. Zeitz is the Instructional Technology Coordinator for the Malcolm Price Laboratory School and Assistant Professor for the University of Northern Iowa.

Resources:

Bailey, Gerald D. & Lumley, Dan (1994). Technology Staff Development Programs: A Leadership Sourcebook for School Administrators. New York :Scholastic, Inc.

Sheingold, K. & Tucker, M.S. (1990). Restructuring for learning with technology. New York:

Center for technology in Education, Bank Street College of Education, with National Center on Education and the Economy.

Zeitz, Leigh. (1995). Developing a technology workshop series for your faculty and staff. *The Computing Teacher*, 22(7), 62-64.

Technology Needs Assessment Questionnaire

Name: _____ Room: ___ Grade(s) taught: ___ Department: _____

My computer of choice is: ___ Apple II ___ Macintosh ___ DOS ___ Windows Model: _____

Please rate the following skills at your level of proficiency: (3=Comfortable, 2= Some Experience, 1=No Experience)

- | | |
|--|--|
| <input type="checkbox"/> Create a document on a word processor | <input type="checkbox"/> Access/send my email |
| <input type="checkbox"/> Print a document from a word processor | <input type="checkbox"/> Use Gopher on the Internet |
| <input type="checkbox"/> Create a database | <input type="checkbox"/> Upload/download files to/from the Internet |
| <input type="checkbox"/> Search a database for specific information | <input type="checkbox"/> Browse the World Wide Web |
| <input type="checkbox"/> Print selected information from a database | <input type="checkbox"/> Find information on the World Wide Web |
| <input type="checkbox"/> Merge form letters with a database | <input type="checkbox"/> Create a homepage for the World Wide Web |
| <input type="checkbox"/> Create a spreadsheet | <input type="checkbox"/> Access information on a CD-ROM |
| <input type="checkbox"/> Write a formula in a spreadsheet | <input type="checkbox"/> Run software from a CD-ROM |
| <input type="checkbox"/> Create a newsletter using desktop publishing | <input type="checkbox"/> Identify quality instructional software |
| <input type="checkbox"/> Use graphics software to create pictures | <input type="checkbox"/> Create a HyperCard/HyperStudio stack |
| <input type="checkbox"/> Import clip art into a document and modify it | <input type="checkbox"/> Create a presentation using PowerPoint |
| <input type="checkbox"/> Format a diskette | <input type="checkbox"/> Use an electronic gradebook |
| <input type="checkbox"/> Troubleshoot a malfunctioning computer | <input type="checkbox"/> Use a computer-based portfolio assessment system |
| <input type="checkbox"/> Install a program on my harddrive | <input type="checkbox"/> Use a laser video disc to show video information |
| <input type="checkbox"/> Run a videotape on a VCR | <input type="checkbox"/> Use a bar code reader to control a laser video disc |
| <input type="checkbox"/> Edit multiple videotapes into a final product | <input type="checkbox"/> Use a camcorder in the classroom |

My level of interest in learning more about technology is: High 10 9 8 7 6 5 4 3 2 1 Low

I feel my strength in using technology is _____

I would like to learn more about: _____

My favorite instructional units that I will be teaching this year are: _____

The best times for me to attend workshops are (check all that apply)

<input type="checkbox"/> Before School (6:30 - 7:45 AM)	<input type="checkbox"/> After School (3:15 - 5:00 PM)
<input type="checkbox"/> Evening (7:00 - 9:00 PM)	<input type="checkbox"/> Saturdays (9:00 - 12:00 &/or 1:00 - 4:00)

Please rank these formats for instruction by your preference: (3=High interest, 2= Medium interest, 1=Low interest)

- | | | |
|----------------------------------|---|--|
| Group Instruction through: | <input type="checkbox"/> Workshop (open to all) | <input type="checkbox"/> Workshop (departmental) |
| | <input type="checkbox"/> Workshop (presented to you and your students simultaneously) | |
| Independent Instruction through: | <input type="checkbox"/> Videotape | <input type="checkbox"/> Audiotape |
| | <input type="checkbox"/> Computer-based tutorial | <input type="checkbox"/> Printed workbooks |

Please rank ALL of the following workshop topics by your level of interest:
(3=High interest, 2= Medium interest, 1=Low interest)

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> Intro to Using a Computer | <input type="checkbox"/> HyperCard/HyperStudio | <input type="checkbox"/> MECC Software | <input type="checkbox"/> Intro to Email |
| <input type="checkbox"/> MS Office/Word | <input type="checkbox"/> MS Office/PowerPoint | <input type="checkbox"/> MS Office/Excel | <input type="checkbox"/> Beyond Email (Gopher, etc.) |
| <input type="checkbox"/> MS Works/word process | <input type="checkbox"/> MS Works/database | <input type="checkbox"/> MS Works/spreadsheet | <input type="checkbox"/> Intro to World Wide Web |
| <input type="checkbox"/> Desktop Publishing | <input type="checkbox"/> Intro to Laser Video Discs | <input type="checkbox"/> Software Exhibition | <input type="checkbox"/> Researching thru the Web |
| <input type="checkbox"/> 1 Computer-30 Students | <input type="checkbox"/> Using Interactive Video | <input type="checkbox"/> CD-ROM software | <input type="checkbox"/> Publishing on the Web |
| <input type="checkbox"/> Building Thinking Skills through Technology | <input type="checkbox"/> Computer-Based Portfolio Assessment | <input type="checkbox"/> Computer-Based Concept Mapping | <input type="checkbox"/> Camcorders in the Classroom |

(Write additional topics for workshop that interest you on the back of this form)

What would you like to/intend to accomplish this year involving technology?

Building a Technology Staff Development Program (Part 2)

by Dr. Leigh E. Zeitz

This is the second of a four-part series on planning, building, presenting and evaluating a staff development program for technology.

There are many questions that need answering as you build your staff development program for technology. These basic questions are:

- What topics do we cover?
- Who will be involved in the staff development?
- What factors affect our staff development program?
- Why will people take these courses?
- When will we offer these courses?

There are no easy answers to these questions. The strategy that one district or school selects will not necessarily fit the needs of another district or school. Knowing what other districts/schools are doing, however, may provide ideas for a program in your district/school so I will be citing strategies used by a variety of schools and districts throughout the country. It is important to decide upon staff development policies that will provide direction as you design your program.

What topics do we cover?

Having completed the needs analysis for your school or district (see last month's issue of *Windows K-12 Technology Newsletter Vol. 1, Issue 2* for information on conducting a needs assessment), it's time for you to use your newly-acquired information to build a staff development program for technology. Compiling the results of your needs analysis into a spreadsheet for quantitative evaluation, you can identify your staff's technological strengths and weaknesses.

Building a comprehensive program for helping teachers learn how to integrate technology into their curriculum is not as easy as identifying a day when you will teach your teachers about word processing. It requires looking at the "big picture." Before you look at your technology plan, examine your district's/school's curricular plan for the next few years. What do they identify as student outcomes? What subjects/skills/ideas will be taught and what will be the learning environment in which they will be learned? Identify the skills and knowledge your students, teachers and administrators need to achieve these goals. Perform a "gap analysis" in which you compare where you are with where you want to be, and you can identify the areas of skill/knowledge development that need to be addressed.

This "bigger picture" attitude reflects a couple of powerful ideas that are altering the school environment and staff development. The first idea is "results-driven" staff development. This philosophy decreases the importance of counting the number of workshops attended and emphasizes how the staff development is altering instructional behavior and learning environment in a way that benefits students. Although measuring results might seem an obvious measure of success in staff development, it has not been used much as an indicator of success. Measures of success for your technology staff development program will be further discussed in the final part of this series.

The second important change in staff development is the recognition of school as

a system and the complex, interdependent relationships that exist between and among the sub-systems. Systemic change cannot be achieved through a couple of afterschool workshops. It requires a multi-year introspection of the existing system and then identifying how achieving these goals can be facilitated through technology

Who will be involved in the staff development?

The term "staff development" is a limiting term in the context of systemic change. It seems to limit the population to only people employed by the district or school. Due to the interrelationship among the various stakeholders involved in the educational system, this must include students, teachers, administrators, support personnel, parents, and community members. Change will only occur in your schools if everyone is involved from the beginning.

What factors affect our staff development program?

The traditional model for staff development involves gathering a school's faculty into a room afterschool or during a student-free inservice day. Once together, the teachers listen to an expert (someone from out of town with a briefcase) tell them about some aspect of teaching, learning or the latest federal laws governing teacher-student interaction. It doesn't take much imagination to suggest improvements to this scenario and, thankfully, not all staff development programs are this one-sided.

The limiting factors in staff development are generally resources, time and planning:

Resources include the location of the workshop, the materials and equipment used during the workshop, the materials and equipment available to the attendees when they return to their teaching situation after the workshop and the personnel administering the workshop.

Time involves more than the length of a workshop. It concerns whether or not the staff development is done during school hours. It also includes the amount of time the attendees are given to incorporate their newly-acquired skills into their curriculum.

Planning is the key to success in staff development. Even with an unlimited amount of resources and time, poor planning will result in poor staff development. As you will see, good planning can provide good staff development even with limited resources and time.

Notice that I didn't identify money as a limiting factor. Money is merely the medium through which resources and time are accessed. Money can purchase access to the necessary location and resources for a quality staff development program. Money can also purchase release time for faculty so that they can spend time learning new skills and planning how to implement it into their curriculum. If a school already has a resource-rich technology center then there is no need to purchase access. If people voluntarily attend a workshop on a Saturday, then there is no need to purchase release time. Certainly a district/school MUST SUPPORT staff development for technology but sometimes support through creative scheduling or reallocation of existing resources and personnel can be as effective as monetary support.

Deciding Policy

There are a number of policy decisions related to staff development that need to be made before the program can be planned and each of these decisions carries with it certain implications for the success of your program. These decisions include 1) Mandatory vs.

Voluntary, 2) Compensation vs. No compensation, 3) During school hours vs. outside school hours.

Mandatory vs. Voluntary

Educators are an independent lot and don't like being told what to do. Therefore, there is often an attitudinal difference between attending mandatory meetings and voluntary meetings. When an administrator or school site team want to share something with the whole staff, however, a mandatory meeting is sometimes necessary. This method is best used as an introductory overview to the year's technology staff development program and it doesn't have to be an all-day workshop. It could be a half-hour demonstration/workshop in a faculty meeting. This is the chance to expose faculty to technology that some of them wouldn't have seen otherwise. Some districts like Waterloo Community Schools in Iowa have contracts that require faculty members to attend 4 hours of "non-school time" functions per month. These functions typically include faculty and staff meetings, but they could also include technology inservice workshops.

While offering technology staff development through a voluntary program will not ensure that all of your faculty will be involved, those who attend this program will receive the most benefit. They are highly motivated to learn about technology as indicated by their willingness to spend their own precious time learning new information. The mandatory vs. voluntary decision is not one that needs to be the same throughout your whole program. It might start with a mandatory introductory session to pique your faculty's interest. This may then be followed by a mandatory event that will allow faculty member to make choices about what they wish to attend. Having found specific areas of interest, a voluntary program will probably have a greater attendance because those who are not typically interested in technology have been exposed to new ideas through the earlier mandatory programs.

Compensation vs. No Compensation

Compensation is a critical issue when it comes to staff development. It is a two-sided issue. *(Editor: Don't like this last sentence- HELP!)* On one side, **Dolan says, "To keep people truly motivated over the long-term, you must look for the intrinsic motivators."** As with staff members who voluntarily attend staff development, those who do it without compensation tend have an extremely high motivation level because they are satisfying receiving internal rewards. On the other side, however, providing employees compensation for involving themselves in staff development programs identifies the level of importance that the administration places upon the effort. Although compensation often means an increase in pay, it is not necessarily tied to monetary reward. Here are a few options for compensating your employees for learning about technology.

Money - Even if your annual district/school budget doesn't provide any extra money for compensating faculty for educating themselves, there are often state or federal funds available for school improvement. Expanding your staff's knowledge in using technology in the educational process can definitely be a form of school improvement and be funded through these sources. Lee County school district in Ft. Myers, Florida, decided to dedicate 50% of the state provided technology grant money for staff development (Florida requires schools to dedicate 30% of their grant money to staff development). The district instructed over 2,000 personnel in using technology. As well as paying the

instructors for the courses \$20/hour, after the attendees had completed a 30-hour class, they received a \$200 stipend as well as a \$100 stipend for software to use in their classrooms.

Credit - A popular method for providing indirect financial support for faculty wishing to improve their technology skills **is to grant credit towards advancement on the district's salary schedule for taking these** professional development courses. Obtaining these professional course credits can move teachers across on the salary schedule and this translates into a higher income.

Computers - Receiving a computer for completing a staff development program is an incredible incentive. Lake Park High School district 108 in suburban Chicago decided to provide teachers with the object of their study. By committing to a voluntary 70-hour program, faculty received a basic computer valued at \$1550 (they could receive a more advanced system by paying through payroll deductions). This approach led 95% of certified and 85% of classified staff to be enthusiastic participants in their staff development process.

During School Hours vs. Outside School Hours

When staff development is provided during school hours, monetary compensation is a moot point. The greatest problem is releasing the teachers from their teaching duties. The easiest way to do this is to dedicate faculty in-service days or early release days to technology inservicing. Providing development opportunities during the regular school day often requires more scheduling creativity. At Crestview School in suburban Winnipeg, Canada, teachers pair up to cover one another's classes and even the principal supervises an occasional class to allow teachers to attend technology workshops. In Monterey, California, the district employs "Technology Super Subs" who are provided with special technology units designed to accommodate multiple classes simultaneously to allow a complete grade level of teachers to be released for technology staff development.

Making these policy decisions will lay the groundwork for deciding how to present your staff development program for technology. Next month, I will discuss how you can use these policies to design the presentation of your Technology Staff Development Program. Contact me at Zeitz@uni.edu.

Dolan, Patrick (1994) *Restructuring Our Schools: A Primer on Systemic Change*. Kansas City:Systems & Organization.

Orwig, Ann (1994) *Begin with Teachers and Watch Students Benefit*. *Technology & Learning*, 15(1), 74-76.

Sparks, Dennis (1995) *A Paradigm Shift in Staff Development*. *The ERIC Review*, 3(3), 2 - 4.

Dr. Leigh E. Zeitz is the Instructional Technology Coordinator for the Malcolm Price Laboratory School and Assistant Professor for the University of Northern Iowa.

Presenting a Technology Staff Development Program (Part 3)

by Dr. Leigh E. Zeitz

[This is the third of a four-part series on planning, building, presenting and evaluating a staff development program for technology.]

Last month, I discussed identifying content and creating policies for your staff development program. Using content and policy to point the direction, it is time to explore a variety of options available for presenting your Technology Staff Development program. Hopefully these ideas will either reinforce your plans or maybe provide a different perspective that will entice you to rethink your program.

“What’s there to know about presenting a staff development program?” you may ask. Set up a time; buy some donuts; print some handouts; what’s so hard about that? Staff development that will make a difference in the classroom requires careful planning, presentation and follow-up. The content must be relevant to those attending the workshop. The context must be similar to what they have in their everyday lives. The structure of the workshop must provide opportunity for modeling, practice and feedback.

Using a needs assessment questionnaire (see August, 1995 issue of WK12) you have defined your needs. You have identified content through identifying your needs by schools/departments/grade levels and you can begin to schedule workshops for your faculty. Last month I discussed making policies about whether staff development would be mandatory or voluntary, compensated or not compensated, during school or non-school hours. Whatever your decisions were on these issues, there are a variety of models available:

1) At Malcolm Price Lab School in Cedar Falls, Iowa, the faculty was split between wanting workshops after or before school. We decided to provide workshops on Monday afternoon (3:30 - 5:00) and Tuesday morning (6:30 - 7:45). The advantage to this structure was that after the Monday evening class we just locked the door and were already setup for the early morning class on Tuesday. (Zeitz, 1995)

2) The Ames Community School District in Ames, Iowa, allows students to go home every Wednesday at 2:00. The teachers then attend workshops from 2:15 - 4:30. The time from 2:15 to 3:45 is part of the educators' regular day and the remaining 45 minutes is part of the contractual agreement common in many districts which allow districts to keep teachers after school hours for a specified amount of time per month. They also have funds available from a state-supported staff development fund for attending conferences or providing release time during the school day for planning. The advantages of this format are 1) change will more likely occur because staff development is a weekly event rather than once or twice a year, and 2) the importance of staff development is underscored by the change in scheduling and available additional funding. This change didn't just happen on the whim of an administrator, however. It required years of negotiating with teachers, parents and even the union.

3) Alhambra School District in Alhambra, California, pays their teachers stipends to attend staff development during the summer so it won't interfere with their already overloaded school year. This provides teachers additional income during the summer and time to plan these changes into their curriculum.

Workshops are Often Not Enough

A synthesis of research on staff development (Showers, Joyce & Bennet, 1987) provides insights into the effect of various components of workshops on teacher knowledge and application. They synthesized the results from a number of research studies that

investigated the effect of various workshop components on teachers' knowledge, skill and the transfer of training into the classroom. The workshop components studied included theory (exploration of theory through discussion, readings and lectures), demonstration or modeling (showing skills in a workplace environment), practice (practice of skill under simulated conditions), feedback (objective assessment of strengths/weaknesses of performance) and coaching (collaborative work of teachers to solve problems arising during implementation). Figure 1 shows that teaching theory alone increased A teacher's skill by .50 standard deviations beyond those of the control group that didn't receive the instruction. Combining theory, demonstration, practice and feedback, on the other hand, showed an effect size of 1.18 standard deviations beyond those who didn't receive instruction. The most interesting part of their study was that there was absolutely NO EFFECT upon activities in the classroom unless the theory and practice were accompanied with feedback or feedback and coaching.

What does this mean to how you need to design your workshops? If you want to increase your faculty's personal skills in a particular area like using email, lecture and hands-on practice may be sufficient. If you want to see change in the classroom, however, you will have to expand your staff development format to include feedback and coaching over a period of time. This underscores the inadequacy of "one-shot" workshops for creating change in classroom curriculum. The more effective strategy would be to provide a series of workshops on a single subject with assignments between meetings. These meetings would be enhanced if each began with a group discussion on experiences and thoughts about using the technology since the last class. The application of the learning would be even further enhanced if you, the technology coordinator, or someone knowledgeable in teaching through the technology could visit the classrooms and work with the teachers in the actual application of their newly-learned skills.

Changing your workshop format means a great deal of time on the part of the technology coordinator, but consider the hundreds of hours that you have spent in the past providing workshops about technology that may have increased the teachers' knowledge levels but never made a difference in their classrooms. It's a matter of allocating your time to where it will do the most good.

Who's the Learner?

Another strategy for providing in-service to faculty involves redefining the "learner" in the classroom. The typical model for teaching faculty new software or technology skills is to take them from the classroom to a computer laboratory situation. They spend the whole day working with the software and may even feel competent by the end of the day. What often happens, however, is that when they get back into the classroom they either don't have time to plan it into their curriculum or they never have a chance to try their new skills "one more time" before they use it with their students. If you redefine the learners in the classroom to include the students, the teacher and any other adults are involved in the learning environment, it is possible to consider a different approach in introducing new technology.

This new approach towards in-servicing involves teaching EVERYONE in the classroom at the same time. Imagine spending 20 minutes in the classroom teaching students to use a piece of software. While introducing the students, it is also possible to carry-on a second dialogue with the "older learners" about the curricular implications of the technology. Here's the dialog from one such lesson I gave in a second grade classroom about using some MECC software entitled [*Picture a Story*]:

[*To the students:*] "Now we create a story by arranging these pictures in whatever order we want. Once we have decided on the order, we can either have the program write a story for us or we can write our own story to go along with the pictures."

[*To the teachers:*] "Notice how this could be used in the language experience approach for non-writers. They can create their story through pictures and then dictate the story to a writer to type into the computer."

[To the students:]”OK, so how should we start our story . . . “

The advantage to bringing in-servicing into the classroom is that the students are immediately introduced to the technology and they can help each other and the “older learners” if they have problems with making it work. An important part of success in this approach is having the technology available to the classroom immediately after presenting the lesson. There is a greater chance of integration if the learners can quickly apply what they have learned. This also provides a convenient opportunity for feedback and coaching. (NISDC, 1994)

Teachers of Teachers

Introducing technology into the curriculum is most effective if it is introduced in the context of a particular subject. If you want to see spreadsheets used in investigative mathematics, then use investigative mathematics activities to teach spreadsheets to your mathematics-teaching faculty. This should involve the technology coordinator working with a member of that subject area to develop and provide the workshop. This approach accomplishes two objectives: 1) it makes integration into the curriculum easier because it is taught using real-world applications, and 2) it establishes another “expert”, aside from the technology coordinator, for teachers to consult for assistance.

Building a cadre of *technology experts* is important to the sanity of any technology coordinator. Whether it is at the school or district level, there are too many questions and problems for a single person to answer. Using the [*teacher of teachers*] approach can be a successful way to “spread the word” and preserve mental health.

The *teacher of teachers* approach involves the technology coordinator teaching a group of technology-interested (notice I didn’t say technology-expert) individuals about various facets of technology. It is then the responsibility of these *teachers of teachers* to teach the people in their departments or schools about technology. I have seen this distributed structure work successfully from Monterey, California, to Waterloo, Iowa. An important part of the success of this program is to provide support in giving workshops as well as support in using the technology. While these people may be good teachers of children, working with adults often requires a completely different perspective. Provide lesson plan suggestions and hints on working with adult learners.

Learning other ways

Presenting workshops at times that will fit everyone's busy schedules is a difficult task and some people just don't like to learn in groups. The answer to this problem is to provide independent instruction through technology. You can use technology to overcome the time problem by using videotape, audiotape, computer-based instruction and even paper-based modules.

Videotape

Videotapes are handy because they provide a live instructor whenever you are ready to use one. One of the great advantages is that you can make the taped instructor repeat herself as many times as necessary and you can even tell the instructor to be quiet whenever you want. There are many sources for tapes that will teach how to use software or convey techniques for integrating technology into the classroom. If you don't have the funds to purchase these tapes, consider checking them out of your local educational support offices. You might even consider taping workshops given at your school and sharing those. The advantage is that you own the copyright and you can make as many copies as you want. One problem that you may encounter is having a VCR in your office where your computer sits. This can be easily remedied by purchasing a couple of TV-VCR combination units for \$300-\$400 and making them available for instructors to move to their offices as needed.

Audiotape

Audiotapes are another useful medium for learning. In many ways they are more convenient than videotapes because audiotape players are more plentiful and easier to transport than VCRs. Learners can even listen to them as they drive in their cars.

Obviously the disadvantage is the lack of visual instruction. While this limitation can be overcome through well-designed instruction, sometimes just listening to someone describe a process even without the technology in hand, is an effective way to provide the foundation for hands-on learning. You might also consider creating your own audiotapes. Audiotaping a workshop might work, depending upon the format and teacher of the workshop.

Computer-Based Instruction

A networked school can provide the unique resource of on-line computer-based instruction. The greatest enemy of professional development is time. If, however, instruction is available in short, 15-minute instruction units, a motivated professional can find small increments of time to improve their skills and knowledge. Site licenses for computer-based instruction are often quite reasonable and will provide an effective way avenue of education.

Paper-based Modules

Perhaps the most common medium for independent study is the book. Providing a library of printed resources is often the easiest and sometimes the least expensive way to provide instruction. While your local bookstores are filled with books on using technology, your school's professional library should also include high school textbooks teaching programs like *Microsoft Works* because they are designed to be used as instructional tools.

There are many avenues for presenting technology staff development. I have mentioned just a few. The most important part of this formula is to provide instruction and assistance for your faculty using the method(s) that will effect a positive difference in the classroom. Remember, some things will work and some won't. Give yourself permission to experiment and even make mistakes so you can explore all possibilities.

Next month we will discuss the most often neglected and misunderstood part of this puzzle - evaluating the success of your staff development program. Is this series addressing your needs? What sort of results did you receive from your needs assessment? What other topics would you like to see covered? Contact me at Zeitz@uni.edu.

Dr. Leigh E. Zeitz is the Instructional Technology Coordinator for the Malcolm Price Laboratory School and Assistant Professor for the University of Northern Iowa.

Transfer of Training Components & Combinations	Training Outcomes		
	Knowledge	Skill	Training
Information	.63	.35	.00
Theory	.15	.50	.00
Demonstration	1.65	.26	.00
Theory & Demonstration	.66	.86	.00
Theory & Practice	1.15		.00
Theory, Demonstration, Practice		.72	.00
Theory, Demonstration, Practice, Feedback	1.31	1.18	.39
Theory, Demonstration, Practice, Feedback & Coaching	2.71	1.25	1.68

FIGURE 1
EFFECT SIZES OF IMPROVEMENT OVER TEACHERS
WHO DIDN'T RECEIVE THE INSTRUCTION

Zeitz, L. (1995). Developing a technology workshop series for your faculty and staff. *The Computing Teacher*, 22(7), 62-64.
 NISDC (December, 1994) New Iowa Schools Development Corporation Orientation Workshop. New Iowa Schools Development Corporation. Des Moines, Iowa.
 Showers, B., Joyce, B., & Bennet, B. (1987) Synthesis of research on staff development: A framework for future study and state of the art analysis. *Educational Leadership*.

45(3), 77-87.

Evaluating a Technology Staff Development Program (Part 4)

by Dr. Leigh E. Zeitz

This is the last of a four-part series on planning, building, presenting and evaluating a staff development program for technology.

Now that you have planned, built and presented your staff development program for technology, it is time to think about evaluating it to identify its effectiveness. This process is more than distributing an evaluation form at the end of each workshop. It is a multi-faceted process involving:

- * the effectiveness of each workshop,
- * the effectiveness of the staff development program as a whole,
- * changes in the staff's skills
- * changes in the classroom teaching practice and
- * improvements in the students' skills.

Staff development evaluation really doesn't come at the end. It is something that should be planned from the beginning and carried on throughout the program. Some of the results are collected and analyzed as the program progresses through the year. This type of evaluation is called "formative" evaluation because it allows the coordinators to receive feedback in the midst of the program and enables them to make changes during the process to improve the instruction. Another type of evaluation is called "summative" because it is done at the end of a staff development component and indicates the final effect of the process. Evaluating your staff development program for technology involves both of these forms of evaluation.

The Effectiveness of Each Workshop

This is often the only level where staff development is evaluated. Upon completion of a single workshop or sequence of workshops, an evaluation form is distributed to the attendees. This information is used to evaluate the effectiveness of the instructor, the workshop format, the activities/materials used, the applicability of the information covered, the adequacy of the time spent on the subject, and as an instrument for receiving additional input. (See figure 1)

This evaluation of a single learning experience (or set of learning experiences) should not be limited to workshops. My last article suggested various alternative forms of instruction including videotape, audiotape, computer-based instruction and even paper-based modules. While the evaluation form in Figure 1 may contain questions that do not pertain to completing a paper-based module, each lesson should be accompanied by some sort of evaluation instrument. Computer-assisted instruction could even be written to contain a summative evaluation instrument as part of the program.

The Effectiveness of the Staff Development Program as a Whole

The information for this evaluation comes from a variety of sources. It begins with looking at the attendance sheets. How many attendees are at each workshop? Which workshops have the greatest appeal? Who is attending from which schools/departments? Are there groups of people who are highly motivated to learn specific topics? Is there a large group of faculty members who are taking an email class because their school is installing a

network? Would these people be better served by going to their site and presenting a school specific email workshop? Mere attendance information can provide important formative evaluation information that can help you improve your program as it progresses.

Having crunched the numbers, it is time to begin examining the workshop evaluations. Are the staff members satisfied with the instruction? Is it being presented in a manner that is most beneficial for learning? What improvements could be made for the next workshop? How can instructors improve their methods of presenting these workshops? Do the course materials need to be modified to better address the faculty's needs? While these evaluations may have been administered as summative evaluations for each workshop, they can be valuable forms of formative information for the overall program.

An informal source of evaluation is word of mouth. What is the "word on the street" about this staff development program for technology? Is it valued or is it generally thought of as a waste of time? This is a much less exacting science than what I have discussed so far, but it is just as important. Listen in the teachers' lounge. Ask questions at the department heads or principals meetings. Develop an informal information link to assess your success. If you're new to your position or you're not the type of person who can easily build such an informal network, find one that is already in place. Look around and find a secretary who has been around for awhile and seems to know what's happening around the building/district. Approach her/him with "I have a problem and I wonder if you could help me . . ." and I'll bet that she/he will find out what you want to know in no time.

Changes in Staff's Skills

The most immediate change that you will see is changes in your staff's skills. Before they can implement technology into their classroom or their office, they need to understand it and be able to use it in daily life. Learning how to send that first email message is exciting, but it is not nearly as exciting as corresponding with a son or daughter in a faraway college. Actual application to your staff's daily lives can be the best evaluation of your staff development program's success. One way of measuring success is to survey your staff about their frequency of using the taught skill two months after attending a workshop. You might ask the graduates of an introductory email class "Do you use email 1) often, 2) sometimes, 3) rarely." Those who use it often have taken their new skill and successfully applied it. Another way of assessing your program's success is to annually administer the *Technology Needs Assessment Questionnaire* provided in the first article of this series. Look for changes in levels of self-reported competency. If people who were involved in your staff development program last year now report higher levels of competency, then you were successful.

Changes in the Classroom Teaching Practice

Identifying changes in classroom teaching practice due to staff development is better measured using relative rather than absolute measurements. It is reasonable to assume that all of the attendees of a workshop (or set of workshops) do not begin at the same level of technology competence. Imagine a workshop on *Building Higher Order Thinking Skills Using Databases*. While one teacher may have never used a database, another may have had a great deal of experience with them. Using a database in the classroom to build higher order thinking skills can be the result of a continuum of steps.

These steps might include:

- 1) Make a computer available in the classroom
- 2) Talk about using a computerized database
- 3) Demonstrate finding a single fact on a computerized database (i.e., capital of Kentucky)
- 4) Demonstrate sorting a computerized database.
- 5) Demonstrate searching a computerized database by one and two fields.

- 6) Involve students in finding a single fact on a computerized database.
- 7) Involve students in sorting a computerized database.
- 8) Involve students in searching a computerized database by one and two fields.
- 9) Ask students to find a single fact in a database on a computerized database.
- 10) Ask students to answer a question which requires sorting a computerized database. (i.e., What were the original 13 colonies?)
- 11) Ask students to answer a question which requires searching a computerized database by one and two fields. (i.e., Which is the best state(s) to build a beach club for rich retirees?)

The teacher with limited computer experience may be at the first step of the continuum where he has to find a computer to use in the classroom. The more technologically-experienced teacher, however, may have already demonstrated how to sort a computerized database in her class. This means that the less experienced teacher has further to develop to reach step 11 where the students are actually using higher-order thinking skills to answer a question that requires synthesizing information from two or more fields.

An equitable form of evaluating the success of your staff development program would be to count the number of steps along this continuum that teachers progress in a given period of time as a result of the workshop(s). You might call this a “developmentally appropriate” approach to learning technology. If the first teacher progresses to step 5, it can mark as much progress along this continuum as if the second teacher progresses to step 10. Last month I cited research by Showers, Joyce & Bennet (1987) that stated change in classroom teaching practice only occurred if staff development included components that visited a teacher’s classroom and provided feedback and/or team teaching. Additional assistance may be necessary to bring the less experienced teacher along the way, but that is an additional success story that can be added to the evaluation.

Improvements in the Students’ Skills

Staff development has only recently begun to have been evaluated by identifying changes in students’ skills. The irony of this is that the ONLY reason we have schools is because of the students. The ONLY reason that we provide staff development is to better serve the student population. While some of your staff development program for technology may teach teachers how to send email, it is used to help these professionals do their job more efficiently.

While evaluating the success of a workshop may just involve passing out a form at the end of a session and then tallying the results, identifying changes in student skills as the result of work done in a series of staff development sessions is much more complex and often requires a great deal of time. Imagine an instance where a school wants to integrate word processing into the process approach to writing instruction. Instead of using a pen to write a rough draft of a story, editing it, and then having to completely rewrite the paper, students would use a computer. They would use an idea generating program for their prewriting activities, they would then compose their story directly into a word processor, and then revise it. There is no need to rewrite the paper because the revised paper is ready to be published in a polished form.

This sort of integration doesn’t happen in a week. It requires teachers rethinking the process of teaching writing. It requires teaching students keyboarding skills. It requires time. Changes like this must be evaluated longitudinally over a long period of time and even between grades. This type of evaluation is difficult, but it is what makes it all worthwhile.

That's the end of this series. Help me evaluate the effectiveness of my "staff development program for technology". Did this series address your needs? What part was most beneficial? What should I leave out next time? What other topics would you like to see covered? Contact me at Zeitz@uni.edu

Dr. Leigh E. Zeitz is the Instructional Technology Coordinator for the Malcolm Price Laboratory School and Assistant Professor for the University of Northern Iowa.

References

Joyce, B. & Showers, B. (1995) *Student achievement through staff development: Fundamentals of school renewal*. (2nd ed.) New York: Longman Publishers.

Kearsley, G., Hunter, B., & Furlong, M. (1992). *We teach with technology: New visions for education*. Wilsonville, OR:Franklin, Beedle & Associates, Inc.

Technology Staff Development Evaluation Form

Workshop: _____

Workshop Instructor: _____ Date(s) taken: _____

Name(optional): _____ School/dept (optional): _____

The material covered matched my expectations: 4 3 2 1 n/a

Comments:

The instructor displayed a thorough knowledge of the material. 4 3 2 1 n/a

Comments:

The workshop format fit the topic of the workshop. 4 3 2 1 n/a

Comments:

The activities were effective for the information that was covered. 4 3 2 1 n/a

Comments:

The materials accompanying this workshop were effective for the information that was covered. 4 3 2 1 n/a

Comments:

I feel that the length of the workshop was appropriate for the information that was covered. 4 3 2 1 n/a

The instructor presented enough examples of applications to enable me to use this information/skill in my classroom. 4 3 2 1 n/a

Comments:

I would like to take more workshops on this topic. Yes No

In these workshops, I would like to learn more about: _____

Additional comments I would like to make: _____

**Staff Development Workshop Evaluation Form
Figure 1**