

Action Research: Technology Lesson Plan Database Web Site

Loren Alldrin

Deborah Pulskamp

July 2003

Educators motivated to integrate technology into their teaching believe in the power of computers, the Internet, scanners, digital cameras, camcorders, calculators and other forms of technology to enhance student learning. They recognize that effective technology integration motivates learners, keeps them engaged and interested, and helps make learning a painless (or even enjoyable) endeavor.

Though a lack of confidence in their own technology skills keeps many teachers from integrating technology in their teaching, some suffer from a simple lack of motivation. This lack of motivation is often the result of a teacher's inability to see how—in the real world of their classroom—technology can be effectively applied. The traditional form of technology staff development has been to provide software classes (McKenzie, 2001), rather than demonstrations on the use of technology within the existing curriculum.

The Solution: Technology Lesson Plans

By exposing teachers to technology-infused lessons and real-world teaching strategies with technology, the flame of inspiration can be lit. Access to these examples is available through the researcher-developed Technology Lesson

Plan Database Web Site. Further benefit can be had from the rich online collaborative environment that the site provides, where teachers can share their experiences, successes and challenges with technology integration.

In short: when exposed to real-world examples of like teachers successfully integrating technology with their students, most teachers will show increased enthusiasm and motivation for integrating technology in their own classrooms.

Action Research Area of Focus

The purpose of this study is to measure the effect providing online models of best practices and technology-rich lesson plans have on teacher motivation to integrate technology.

The researchers believe teachers will be motivated to more extensively use technology in the classroom through exposure to online lesson plans, examples of “best practices” in technology integration and the opportunity to collaborate with other teachers on both through the Technology Lesson Plan Database Web Site.

Variables

Factors that may exist before study participants review the Technology Lesson Plan Database Web Site:

1. frequency of participant’s integration of technology into classroom

- instruction; use of technology as part of the mandated curriculum
2. frequency of participant use of online technology integration resources(s), namely online lesson plans
 3. participant attitudes toward the effectiveness and practicality of technology integration into existing curriculum
 4. participant motivation towards greater technology integration due to resources other than the lesson plan web site

Research questions

1. Where are teachers acquiring technology based lesson plans?
2. How does access to online lesson plans and best-practice examples affect teacher motivation to integrate technology?
3. How do the following parts of an online lesson plan/best practices database web site affect teacher motivation to integrate technology?
 - a. Numeric rating for each lesson plan
 - b. User-written anecdotes
 - c. User-written adaptations (i.e. for different grade level, subject)
 - d. User-written comments/critiques
 - e. Author-written reflections
 - f. Technology required (hardware/software)
 - g. Optional technology (hardware/software)
 - h. Technology skills required (teacher)
 - i. Technology skills required (student)

- j. "More by this contributor" link
- k. Flexible lesson plan search system
- l. Examples of student work
- m. "Related Links" section for each plan

The Researchers

Deborah Pulskamp is an elementary school teacher in the North Sacramento School District in Sacramento, California. She brings practical experience of the struggle to integrate technology into an existing curriculum and offers a real world perspective on needs of teachers.

Loren Alldrin is the Web Coordinator for the CalStateTEACH program, an innovative statewide teacher preparation program of the CSU system. Loren has a background in staff development focusing on technology.

The Participants

The participants in this action research project will be selected largely from teachers at the school site of Deborah Pulskamp. The urban school serves low income, multiethnic families with limited computer access outside of school. The teachers are familiar with the online survey format through the California Technology Assistance Project (2003) iassessment, used by the district to track technology growth.

Additional participants will be solicited from the CalStateTEACH teacher credentialing program. CalStateTEACH participants are currently working in classrooms, but are new to the profession, giving insight into that population.

The Innovation

The researchers created the Technology Lesson Plan Database Web Site as an alternative to other online teacher resources. Stressing quality of lesson plans over quantity; the web site goes beyond the standard lesson plan databases already found on the Internet. The goal of the Technology Lesson Plan Database Web Site was simple: offer teachers key innovations to familiar lesson plan web sites that they will find inspiring, informative and motivating.

In database development, a review of existing resources was made (see Appendix A), and anecdotal comments by CalStateTEACH participants and other teachers were considered. Many of these comments were specific to the Taskstream web site (<http://www.taskstream.com/>), a popular resource for online lesson plans.

The California Technology Assistance Project (CTAP, 2002) found that 71% of the teachers completing their online survey access model lesson plans and best practices online. Barkley and Bianco (2001) espouse the use of an online lesson plan as a form of modeling by an experienced instructor. It is a form teacher professional development, offering new learning in an online format.

The Technology Lesson Plan Database Web Site can be viewed at

http://cst1.csusm.edu/lp_db/home.php.

Limitations

The Technology Lesson Plan Database Web Site is aimed specifically at educators who have general technological skills. The ability to access the Internet and engage in a simple database search is required for successful participation. A California Technology Assistance Project survey (2002) found that 30% of teachers feel they need training in basic skills. This resource may not be appropriate for them.

Another limitation is in the database itself. After reviewing current online database resources, the researchers created a product that combines the features they found most useful plus many other innovations not found on other web sites. The researchers consider their resource to be superior to other existing lesson plan databases, and will have to use caution to not bias surveys and interview questions accordingly.

Further, because the Technology Lesson Plan Database Web Site is a new resource, the number of lesson plans it contains during the research phase will likely be small. Users who cannot locate lesson plans or best practices examples suitable to their grade level or subject will have to offer their impressions based

on the potential of such a resource. Participants will be notified of this limitation in the promotional literature in an effort to reduce its impact, but because of this the data collected won't be as accurate as if the database held hundreds (or even thousands) of high-quality lesson plans.

Finally, the sampling methods of this research are not random—participants will represent one or more specific sub-sets of the greater teaching community, specifically elementary school teachers in the greater Sacramento area and new teachers in the CalStateTEACH program. The database and survey will be available to anyone who uses the Internet, but the researchers have no control over this population. Because the study may not include responses from teachers at all grade and experience levels, conclusions can't be extrapolated to be representative of all teachers.

Data Collection

The primary data-gathering instrument of this study is a survey administered online. The "any time" availability of this instrument facilitates its use by busy educators. In addition to 24/7 availability, survey development professionals describe the benefit of online surveys as being data compatibility with analysis software. Cautions are based around lack of technological skill in target populations (Shannon, Johnson, Searcy, & Alan, 2002). The Technology Lesson Plan Database Web Site will target populations with Internet skills, so the negative aspects of the online format should have limited impact on the data.

The Technology Lesson Plan Database Web Site survey will aid researchers in the determination of participant demographics, the impact of variables, as well as the motivational power of particular web site features. (see

http://cst1.csusm.edu/lp_db/survey_audit.php or Appendix B for survey.)

Additional qualitative data will be gathered from various sources, providing a triangulation of data. Mills (2000) suggests the use of interviews as a viable qualitative data collection tool. One-on-one interviews regarding the Technology Lesson Plan Database Web Site will offer open-ended questions to participants (see Appendix C). The literature also supports the use of user ratings (Mills, 2000) as a source of data for analysis, and the Technology Lesson Plan Database Web Site allows for users to rate the quality of the resources found. An analysis of these ratings will provide information on web site content.

The Process

The process of this action research is divided into five distinct phases:

1) Develop online technology integration database

This phase involves the creation of an online lesson plan/best practices database web site, based on an evaluation of other online resources and anecdotal comments by users of online resources. The researchers' quality-controlled, web-based lesson plan database and community-building resource is designed to inspire and motivate teachers to apply technology in their classrooms.

2) Promote web site to teachers

After development and testing, teachers will be encouraged to visit the web site through fliers, email and word of mouth. Email is specifically recommended to prompt potential users into action (Shannon, Johnson, Searcy, & Alan, 2002).

The impetus behind the web site and corresponding research will be made clear to users of the site, and all visitors will be encouraged to participate in the survey.

3) Gather quantitative and qualitative data

Data will be collected for a four-week period from the online survey. The quantitative data from this survey will be stored in a database for easy retrieval and analysis. A small number of interviews will be conducted during that time as well. This qualitative data will be used to enhance and clarify the statistical data from the survey. Database user ratings of lessons will be gathered at the end of the collection period and will be used to draw conclusions on content of lesson plans and best practice examples.

4) Data Analysis

Once collected, quantitative data will be analyzed statistically using Microsoft Excel software. Demographic averages will be computed. Motivational effectiveness of the various web site innovations will be tallied and compared. These innovations will be ranked in order of effectiveness.

In addition, data will be analyzed to quantify the correlation between various factors: These factors will include motivational effectiveness of the Technology Lesson Plan Database Web Site and:

1. years teaching
2. current technology integration (student use)
3. current technology use (instructional preparation or delivery)
4. current use of online lesson plans
5. barriers to technology integration/use
6. grade level(s) taught
7. subject(s) taught

Open-ended comments from the surveys will be analyzed for common responses. Qualitative data from follow-up phone interviews will likewise be summarized and analyzed for trends and common responses.

Other goals of data analysis for the Technology Lesson Plan Database Web Site are as follows:

1. identify the features and/or components deemed most motivational by participants
2. identify missing features and/or components desired by a significant number of participants
3. identify correlations and trends in data, including relationships between such factors as years teaching, subject(s)/grade(s) taught, desire to

integrate technology, use of online lesson plans, amount of current technology integration, access to on-site infrastructure and support, barriers to technology integration and others

Finally, the data analysis will seek to answer some "big picture" questions about the Technology Lesson Plans Database Web Site and other aspects of teacher motivation, including:

1. Would such an online resource be of great enough effectiveness to warrant its creation?
2. Which teachers (i.e. years teaching, subject(s)/grade(s) taught, etc.) might benefit most from such a resource?
3. Does the data identify any other factors that might affect teacher motivation to integrate technology?

5) Plan for Improvement

Through action research, school reform efforts can be improved. Action research has the potential to generate the energy and knowledge needed for positive change (McKay, 1992). With the Technology Lesson Plan Database Web Site project, the researchers intend to improve teacher motivation to use technology through online access to high-quality, technology infused lesson plans and examples of best practices technology integration. The effectiveness of the online resource to meet this goal will be determined, and improvements will be

specified in areas as required. Taylor (2001) considers database user feedback to be invaluable in site design.

Numerical survey data, open-ended comments from the survey and responses from direct interviews will be considered when identifying areas of potential improvement. In each of these areas, the researchers will present proposed solutions and/or improvements to enhance the effectiveness of the Technology Lesson Plans Web Site. Where features and components are identified as not being helpful, the proposal for improvement may recommend their removal.

Review Of Literature

The area of technology integration in education has received a great deal of attention in recent years, being the focus of innumerable studies and countless millions of research dollars. As participants in the California State University's iMET Master's Degree program in Education Technology, the authors and designers of this document and corresponding action research project seek to add to this body of knowledge.

The focus is on the factors that motivate—or hinder—teachers in the use of technology in their classrooms. Specifically, the action research project exposes teachers to an online collection of technology-infused lesson plans and best practices examples, then evaluates the effects of this exposure on motivation to integrate technology in their own classrooms.

Action Research—An Overview

When an educator or group of educators researches an area or problem in the classroom or school, the result is action research. Based on Kurt Lewin's field theory of the 1950's, action research involves the development and execution of an intervention with the goal of positively informing practice (Rogelberg, 2002). It is part of the continuous learning process in which many educators engage (Mills, 2000). Action research usually happens on a smaller scale than more

formal research, but still has the power to make great changes in that environment (McKay, 1992).

The most successful action research is a collaborative activity where the research team includes two or more people. It may contain teachers, administrators, or external agency members. Calhoun (1993) finds that collaborative action researchers share results more frequently than do individual teacher researchers. The Technology Lesson Plan Database Web Site action research project is a collaboration between a classroom teacher and the web coordinator at CalStateTEACH, a teacher credentialing organization.

Motivation

The primary area of focus in this action research project is teacher motivation to use technology, and how a rich online resource might positively affect this motivation.

Motivation is an inner state of desire that pushes an individual to satisfy that desire (Muskingum, 1998). It is an internal process that creates and shapes behavior over time (Slavin, 1997). Gardner (2000) finds that some cultures believe motivation comes from opportunities to practice and perform, with a goal of continuous improvement. Multiple intelligence theory suggests that people may be most motivated to learn in areas for which they have some talent. They

are likely to make progress with limited frustration (Gardner, 2000). The extent of motivation for a task is important for learning success (Slavin, 1997).

Maslow's hierarchy of needs has strong implications for motivation research (LeFrancois, 2002; Slavin, 1997; Whitaker, T., Whitaker, B., & Lumpa, 2000) A person's physiological and safety needs must be met before higher needs are considered. These higher needs are social, belonging and acceptance, and esteem, appreciation and recognition. Esteem needs are for self-esteem and that of peers. These meta needs are part of an ongoing process of development (LeFrancois, 2000); Maslow called it self actualization: personal growth and creativity (Whitaker, B. et al., 2000). Motivation to meet these needs creates action.

Expectation of a later benefit is a key feature in human motivation (LeFrancois, 2000). Educators can be motivated by the potential learning benefits of a well planned lesson before they use it. An educator's need to be competent is also a motivator, it is the impetus behind curiosity and information seeking (LeFrancois, 2000). The scaffolding provided by a lesson plan aids in success and feelings of competence. Educators who feel capable and intelligent will act capable and intelligent. (Slavin, 1997).

The Technology Lesson Plan Database Web Site research project aims to give teachers materials that will be immediately familiar and useful, namely lesson plans and best practices examples. The researchers believe this relevance will

enhance motivation—giving teachers materials outside of their expertise or interest creates a waste of unused materials (Dockstader, 1999). Likewise, teachers are more motivated to use technology when they see the connections to the existing curriculum. Lesson plans, by definition, are tied to curriculum, and further benefit is had with a tie to state content standards. Meaningful content creates arousal, a heightened sense of awareness, that, in turn, increases motivation (LeFrancois, 2000). Novel materials increase arousal as well. Sufficiently interesting material can be all the motivator a learner needs (Slavin, 1997).

Motivation strategies should develop or trigger an inner desire for an activity. To accomplish this in others, we must manipulate environmental variables (Muskingum, 2002). Motivators are different for different people (Slavin, 1997). School districts often do this by mandating technology training for teachers. They may also "encourage" motivation to use technology through stipends, in-service credits, and certificate-renewal credits. Rewards of software for completing training and use-it-or-lose-it equipment distribution strategies are other common forms of external motivation (Southern Growth Policies Board, 2002). Extrinsic motivators can generate interest in a new learning (LeFrancois, 2000).

Unfortunately, external incentives may make temporary changes in motivation but are not sustainable (Whitaker, B. et al., 2000). The effectiveness of external motivators ends when the external force is removed. Internal motivation, though

often more difficult to foster, is easier to sustain (Senge, 1999). Praise and acknowledgement create an intrinsic motivational response more likely to last (Whitaker, B. et al., 2000). It creates a sense of personal satisfaction. The intrinsically motivated show more commitment, enjoyment, and persistence in their activities (LeFrancois, 2000). The goal of the Technology Lesson Plan Database Web Site is to foster this powerful, self-sustaining intrinsic motivation.

Senge (1999) finds that intrinsic motivation comes through many opportunities for participants to design, initiate, and implement material themselves. Internal motivation will eventually prompt them to experiment with new projects, learn from their successes and mistakes, and openly discuss the results. The Technology Lesson Plan Database Web Site will offer these opportunities through lesson plan examples and invitations for participants to post new plans.

Wlodkowski (1999) recommends these strategies to motivate adult learners:

1. Share something of value
2. Provide effective feedback
3. Use self-assessment tasks to improve learning
4. Use critical questions to stimulate engagement
5. Use collaborative learning

The Technology Lesson Plan Database Web Site will offer all of these strategies.

This action research project is specifically studying teacher motivation to use technology. Votjek and Votjek (2000) suggest there are three key motivators for teachers to use technology. The first is personal results. When teachers see personal or student improvement through technology use, they will be more enthused to continue their education in technology. The second is when teachers realize their peers support the use of technology. The development of and participation in learning networks increases motivation. The third motivator is observing other educators implementation of technology. It increases the credibility of computer use when others use it successfully. This third motivator is the primary focus of this action research project.

The Technology Lesson Plan Database Web Site is intended to motivate teachers who already have basic technological skills to integrate technology more thoroughly and effectively. They will need these skills not only to access the database, but also to complete the online survey. (Rogelberg, 2002).

Traditionally, teachers are lifelong learners. They evolve in their knowledge of subject matter and teaching skills (Senge, 2000). The database is another tool in that evolution.

Factors Affecting Teachers' Technology Use

No one knows what future society holds, but most teachers, administrators and parents alike would agree that we need to prepare our students for it. Technology is a part of that future. Schools are great environments for technology because of

the access to information it affords, information that can empower and prepare students.

But the availability of technology in the classroom does not always translate into computer use. Surveys at Stanford University found that professor's beliefs and attitudes about teaching affected their technology use. Issues of control and authority became apparent when the computer was used for functions traditionally held by the professor (Cuban, 1997). In the technology-infused classroom, previously effective teaching methods may no longer apply (Hoffman, 1996). Some teachers find this adjustment hard—or impossible—to make.

In their defense, the rapid changes in technology can make it difficult for teachers to keep up. This problem is made more acute by the poor match often found between curriculum and commercially available software (Cuban, 1997). Many factors contribute to this problem, a significant one being the inability of curriculum publishers to depend on schools having the hardware or expertise to use technology extensively. For this reason, technology use is often included only in supplemental curriculum (Kleiman, 2003).

Two thirds of K-12 teachers use computers in the classroom, but do not feel properly prepared. Four out of five teachers had less than 10 hours of technology training in the past year (Pea, 2003). The California Technology Assistance Project surveyed over 14,000 educators in 2002. They found:

1. 30% want training in basic skills
2. 60% want training in tech integration
3. 86% use technology to deliver classroom instruction
4. 66% use for students creating reports or projects
5. 30% use tech for student demonstrations or simulations

The *Technology Counts* 1999 report by Education week surveyed data from all over the U.S. Fourth grade teachers reported:

1. 9% used computers almost daily
2. 17% used them once or twice a week
3. 18% used them once or twice a month
4. 56% used them rarely or never

Percentages were even lower for eighth grade teachers.

The Southern Growth Policies Board (2002), sampled from over two hundred schools in eighteen states regarding teacher professional development. Some of the most highly rated components were training in the integration of technology, informal tips from colleagues, and interaction with master teachers in technology. The Technology Lesson Plan Database Web Site seeks to incorporate features and benefits of each of these components.

The traditional form of technology staff development has been to provide software classes. As evidenced by the above figures, it isn't having much impact.

Change occurs when curriculum is given more importance than software in technology based lessons (McKenzie, 2001).

The literature shows that many teachers have the basic hardware, software, and skills needed to incorporate technology into the classroom. It is the opinion of the researchers that these teachers now need inspiration and motivation, through online lesson plans and examples of best practices in technology.

Online Lesson Plans

Action is created when motivation is combined with a plan, clear instructions, and manageable task. This can extend the learner's zone of proximal development (Muskingum, 2002). One way to accomplish this is through a lesson plan.

Barkley and Bianco (2001) espouse the use of an online lesson plan as a form of modeling by an experienced instructor. Modeling is a demonstration for learners on how something is done—not a copy of activity, but a conceptual framework of the activity. It is appropriate for both cognitive and motor tasks. (LeFrancios, 2000)

In addition, online resources provide a convenient way for teachers to acquire “just in time” learning. The flexible search capabilities of the Technology Lesson Plan Database Web Site allows teachers to quickly access information specifically suited to their needs and skill level, when they need it. A network of peers is available from anywhere in the world with the click of a mouse

(Richardson, 2001). Educators with similar interests can chat, post questions, and share lesson plans and best practices (Votjek, B. & Votjek, R., 2000).

Teaching can be an isolating profession. The National Staff Development Council (NSDC, 2000) finds that educators often work in their self-contained classrooms, with little interaction with their peers. Some educators have specialized roles that aren't duplicated within their school site, leaving only outside sources for collaboration. The Internet in general—and the Technology Lesson Plan Database Web Site specifically—provides a way for teachers to connect and interact.

Teachers in rural and poor, inner city schools have more difficulty with technology. Their students often do not have access to technology at home, so the importance of it in the classroom is high. Researchers have found that teachers in these areas have noticeably less technology training and support (Kleiman, 2003). Higher-level thinking skills are less likely to be incorporated when computers are used. Online access to examples of technology-infused lesson plans and best practices can provide a resource for professional development and collaboration for these higher need teachers.

The International Society for Technology in Education (ISTE, 2000) outlines the components for a powerful technology infused lesson plan: content standards, curriculum resources, student centered learning, and use of current technology.

These plans offer multi-sensory stimulation, multiple paths to completion, collaboration, and require critical thinking.

In National Educational Technology Standards for Students The International Society for Technology in Education (2000) lesson plans contain:

1. Title, curriculum area, and grade level
2. Purpose
3. Brief description
4. Procedure
5. Standards
6. Materials and resources
7. Assessment
8. Contact information for authors
9. Comments from authors

The lesson plans on the Technology Lesson Plan Database Web Site offer these elements, as well as others. Educators will be able to engage in reflective practice through self-evaluation, creating personal growth (Whitaker, B. et al., 2000). Specific feedback from other users will be informative as well as motivational (Slavin, 1997).

It is the researchers' belief that educators will use high-quality online resources when they are offered. One example of this is the WebQuest site at California

State University, San Diego, facilitated Professor Bernie Dodge, which also offers a database of prescreened, high-quality lesson plans. The WebQuest page gets up to 1,700 hits a day (Dodge, 2002).

Databases

Many organizations develop an online database of best practices to aid in their transfer (O'Dell and Grayson, 2000). Chia (2002) finds it to be the first step in knowledge management. It allows database creators to capture and organize information. It allows for easy access to data in a format the user can understand. Lesson plans fit well into this format. A well-built database should make the end user's life easier.

In creating a database, certain planning needs to occur (Bernhardt, 2000). Content should be determined by user needs (Taylor, 2001). The goals and objectives of the database need to be determined (Bernhardt, 2000). An evaluation of current data must be completed. Criteria regarding the specific information desired in the database needs to be established. Determinations as to who will have access to the information and who will be able to enter that information also must be made. Data quality will have to be maintained. The creator must consider all potential uses before building the database (Bernhardt, 2000). How might the information be used? The desired data fields need to be determined and the type of information they will hold: numbers, text, or other (Bernhardt, 2000). Input screens are needed to be explicit in detail for complete

data collection. The database needs to be simple, accurate, and time efficient (Bernhardt, 2000; Chia, 2002). Taylor (2001) finds that there is not one "right" database design. Design review by peers can be helpful in developing the good resource. To prevent design errors, the database must be beta tested before it is available to users (Taylor, 2001).

There are several common barriers to creating a database (Bernhardt, 2000). Many potential builders lack understanding of the database tools available. Some lack of technical skill required. Sometimes it is the expense of hardware or software that holds back the project. Additionally, some believe that databases are only for hard numbers.

There are also limitations to what a database can do—simply making the resource available isn't enough to create change (O'Dell & Grayson, 2000). Each teacher accessing the database will have a unique set of problems, and the diversity of solutions available on the database underscore the fact that no single best practice is suitable for every circumstance. Each user makes sense of the data according to personal experiences. Identical results cannot be expected from different users with different situations (Hildebrand, 1999). The database often will not provide the right answer for a specific situation (O'Dell & Grayson, 2000) and it can't get designate that the right information will get to the right person at the right time (Hildebrand, 1999). A database only can offer examples of what has already been done and open the door to possibilities. These

possibilities can be challenging to acquire. Chia (2002) finds it difficult to encourage users to contribute to the database. Workload effects participation.

The Technology Lesson Plans web site uses a database to store lesson plans and best practices examples. The database tables have been structured to be flexible, intuitive and easy for teachers to use. It is not a knowledge management solution (Hildebrand, 1999), only one tool in the quest for technology integration in the classroom.

Transfer of Knowledge

Teachers are reinventing best practices every day. Due to many factors, teacher isolation being one of the greatest, lesson plans and best practices in education do not spread throughout the schools as one might think. The question of how to best communicate and share proven techniques or strategies is one the business community has explored in depth (O'Dell & Grayson, 2000). Collis and Winnips (2002) find that learning in organizations is often through trial and error, problem sharing and solving, or informal contacts with peers. That information might be shared on electronic discussion boards, but participation may be unstructured and not revisited for further use. They state that explicit knowledge can be transferred by the use of and increasing access to databases.

A lesson plan database contains explicit knowledge presented in a pre-structured way. Best practices represent the tacit knowledge of a field, the hard to define

“know how” and mental models required for success (Collis & Winnips, 2002). This is harder to put into words and fit into a prescribed format. The foundational understandings are too complex to put online; too much prior knowledge is required (O'Dell & Grayson, 2002). In most cases, the wider range of information provided by a lesson plan database is help for teachers, not a self-contained solution. Hence the Technology Lesson Plan Database Web Site is not designed to replace existing sharing mechanisms, but to enhance and support them.

O'Dell and Grayson (2002) discovered that barriers to the transfer of ideas fell into three major categories: lack of motivation, lack of information required to apply the best practices, and lack of skills and resources. The Technology Lesson Plan Database Web Site action research project aims to address all three of these areas, fostering a free flow of teaching techniques and strategies between users of our online resource. Collis and Winnips (2002) have discovered that learning is the most powerful when content is encountered from a variety of sources, and when learners contribute their own experiences.

Technology Integration

Knowledge and learning are living organisms that depend on interrelated fields. Mathematical equations can describe scientific events. The understanding of Shakespeare's life is deepened by the performance of his work. The compartmentalizing of subject matter found in school is artificial (Senge, 2000). The same is true with technology. It is best used in conjunction with curriculum

content. Technology is a tool to enhance content learning (ISTE, 2000). The Technology Lesson Plan Database Web Site will only include lesson plans that integrate technology.

Placing computers in the classroom does not create a technology infused curriculum. A half-day staff development session on technological integration does not either. Former teaching methods may no longer apply (Hoffman, 1996). Integration is not replacing 45 minutes of math with 45 minutes of computer skills. Technological integration is using the computers to teach 45 minutes of math. It is using content areas to apply real world computer skills. According to teacher Jolene Dockstader (1999), there are seven key reasons to integrate technology.

1. A greater depth into content areas is possible.
2. The need to understand computers in today's society.
3. Improved student motivation and engagement.
4. It accesses higher level thinking skills.
5. It increases student research skills.
6. Computer skills should be an isolated subject.
7. Technological literacy is comes from integrating computer skills with curriculum content

Technology can also help teachers provide accommodations for individual students' learning styles and strengths. It can enable student autonomy,

collaboration, and access to information (Kleiman, 2003). Learning can occur in ways not previously possible (ISTE, 2000).

Collaboration

The Technology Lesson Plan Database Web Site will provide multiple opportunities for viewers to collaborate with their peers. They can share ideas through the submission of lesson plans or best practices. They can provide feedback and reflection—in the form of comments, critiques, adaptations and anecdotes—on the work of others. They can rate the quality and effectiveness of lesson plans. This opens the door to the growth of a learning community, a network of peers committed to professional growth. It could be considered a cooperative learning group for adults. Learning communities are invaluable to professional development (Learning, 1996). Educators describe the sharing of ideas, successes, and troubles with other educators as powerful (NSDC, 2001).

In *Schools that Learn*, Art Costa (2000) proposes that cooperative thinking may be the primary intellectual behavior in future society. Increased data sources and multiple solutions to common problems create more powerful work. Members are required to justify their ideas and receive feedback for their works in progress, creating a polished product.

Teachers have less time to interact with peers during the day than most professionals. That is less time for networking about new ideas, offering advice

or support (Dunn, 2001) According to *Learning* magazine (1996) teacher networks are gaining popularity. They offer motivation and support for professional improvement. Teachers can mix and match ideas to create new ones.

Communication within learning communities based at the school site, district level, or tied by a common interest, will positively affect the professional isolation that can occur in teaching. The Internet can be a powerful tool for collaboration when opportunities for discussion are imbedded, such as email or threaded discussion groups. Online teacher resources may actually increase isolation unless these means of collaboration are built in (NSDC, 2001). Professional learning occurs when the educator becomes an active member of a professional community, with the knowledge of how to access information from resources and peers, and applying that information to the classroom (Collis & Winnips, 2002).

Votjek and Votjek (2000) propose that networks of educators have more power to create change than do more formal structures for the transfer of knowledge. These networks tend to form in a lateral fashion, rather than a hierarchal one. The perceived equality in status generates a safe and nurturing environment for the exchange of ideas. Participants can talk to each other freely about their situations and challenges (Senge, 2000). Educators are able to exchange ideas, strategies, and coach each other over learning network (Votjek, B. & Votjek, R,

2000). The chance to share resources and experiences with peers is valued by educators (Whitaker, B. et al., 2000).

Peer recognition helps build a sense of community (Senge, 2000). People want to feel as if they are a valued member of a group. They seek recognition for their abilities and achievements (Muskingum, 2002). Teachers tend to treat other teachers as classroom experts (Learning, 1996), offering that recognition.

Teachers tend to believe the input of another teacher before that of an administrator (Votjek, B. & Votjek, R, 2000). Weight is given to what might be considered “real life” experience (Learning, 1996). In learning networks, teachers can act as leaders in their field without leaving the classroom.

The Technology Lesson Plan Database Web Site offers multiple points for collaboration. When educators share their lesson plans, they are working collaboratively. When database users offer feedback through comments, anecdotes, adaptations, and lesson plan ratings, they are working collaboratively.

The teacher network can expand beyond the school or district, and can encompass any teacher who searches the Internet.

Data Collection

The primary data collection tool for this research is an online survey. This type of survey requires technological literacy of the participants and advanced web design skills of the researchers (Bauman, Jobity, Airey, & Atak, 2000; Rogelberg,

2002). Answer format may include pull down menus, Likert scales, check boxes, or fill in. Extensive testing of the site will be required to assure general functionality and compatibility with multiple browsers (Rogelberg, 2002).

Online surveys are similar to traditional paper surveys in that they are self-administered and offer little interaction with the researcher. They are a viable alternative to traditional surveys, especially for well-defined populations, such as employees (Bauman et al., 2000), saving paper costs and allowing for easy data analysis (Shannon, Johnson, Searcy, Shelby, & Alan, 2002; Rogelberg, 2002). As with a traditional survey, promotional material and incentive to complete are factors (Bauman et al., 2000). Multiple studies have found that the results of Internet based surveys to be valid (Rogelberg, 2002).

In addition to the online survey, several participants will be interviewed to produce additional qualitative data. The effectiveness of direct interviews as a qualitative data collection method is well known, and interviews can be used as the sole source of data collection (McMillan & Schumacher, 2001). Effective qualitative interviewing requires open-ended questions (McMillan & Schumacher, 2001), and the Lesson Plan Web site interview questions are written to elicit open, unconstrained responses. And though open-ended, the interview questions feed into a structured interview format that achieves an important goal—allowing all interviewees to answer the same questions (Mills, 2000).

Educators will be invited to participate in the Technology Lesson Plan Database Web Site survey through promotional flyers sent to teachers in the North Sacramento School District and emails sent to participants in the CalStateTEACH program. Rogelberg (2002) recognizes both of these methods as effective. Participant solicitation for an online survey is similar to that of the traditional paper and pencil format. Bauman, Jobity, Airey, & Atak (2000) consider this invitation be a critical element in data collection. Email is recommended for survey promotion and follow up (Shannon et al., 2002). It offers an easy way to prompt potential participants and secure a fairly instant response. Both paper and electronic promotional materials will offer the opportunity to give input on a new teaching resource, a possible incentive (Bauman et al., 2000).

Additional participants will be solicited from users of the Technology Lesson Plan Database Web Site using onsite links to the survey, as suggested by Rogelberg (2002). A benefit of this type of promotion is that the potential participant is already at the site, which includes the survey (Bauman et al., 2000). Care must be taken when developing this promotion so that it is clear without being intrusive. The more passive user is unlikely to follow the link to the survey, but it allows for proactive participation for some.

It is possible that non-eligible Internet users (i.e. non-teachers) may find the Technology Lesson Plan Database Web Site. Promotional material and the

survey itself must contain eligibility information (Rogelberg, 2002) to avoid use by non-target populations. The use of passwords to access the survey (Shannon et al., 2002; Rogelberg, 2002) or participant registration (Bauman et al., 2000) will filter out many random users. To avoid legitimate users from accidentally submitting responses more than once, an acknowledgement message of survey received should be built in (Rogelberg, 2002). Multiple responses may also be filtered out based on password use, and then eliminated using various criteria (Rogelberg, 2002). The first response may be the only one used, the last, or none.

The Technology Lesson Plan Database Web Site has several features in place to insure the validity of survey data. First, only registered users may access the survey. Second, registered users must be logged in to the site to see the survey. Third, users may only take the survey once. Finally, various data-checking algorithms insure that the data entered into the survey is appropriate and correctly formatted.

There are issues with security with online data collection. A third party could potentially access data either accidentally or on purpose (Rogelberg, 2002). Several participants in the Shannon, Johnson, Searcy, and Alan (2002) study were concerned about participant privacy in online surveys. Questions regarding personal, identifying information should be kept to a minimum, and access to data should be restricted. The Technology Lesson Plan survey does

not solicit personal information, and survey data is stored by a unique user ID instead of by name or social security number.

Analysis Methods

Qualitative data analysis begins with the search for “themes” within the information (Mills, 2000). Words and phrases that pertain to the research questions are categorized based on similar qualities (Cowan, 2001, McMillan & Schumacher, 2001). The researcher may look for high frequency of a certain survey response or repetitious phrases from comments or interviews, (Mills, 2000). For example, statements regarding barriers to technology integration would be categorized together. The system by which the data will be categorized is most often developed during the data collection phase (McMillan & Schumacher, 2001).

The classification of data into categories may be referred to as coding (McMillan & Schumacher, 2001). The Likert scale is one way of coding data. (Cowan, 2001). Coding may be done by grouping similar topics into more generalized categories or by breaking down categories into smaller topics. Categories may be predetermined but the researcher should be prepared for new categories to emerge (McMillan & Schumacher, 2001).

Once collected and coded, data may be managed in several ways. The researcher may cut chunks of text into file folders or paste them onto index cards,

allowing for them to be sorted and shuffled in multiple ways (McMillan & Schumacher, 2001, Mills, 2000). Some forms of data are suited to computer aided management (McMillan & Schumacher, 2001). The computer may also be useful in the creation of charts and graphs, which Mills (2000) recommends for the presentation of certain findings.

In the final analysis, the researchers must address any questions that remain unanswered (Mills, 2000). These may be related to study limitations or inconclusive data. Mills (2000) suggests that these questions may be used for topics of further study.

Data Analysis

Survey Analysis

The main data-gathering instrument for this action research project was a 17-question survey that focused on motivations, attitudes and barriers in technology integration (see Appendix C). Scored on a five-point Likert scale, this survey collected responses from over 90 visitors to the Technology Lesson Plan Database Web Site. The last question was an open-response comment section that allowed participants to share their impressions of the web site in narrative form.

Because of the nature of this action research project and the data it produced, a simple (and practical) data analysis approach was chosen. In lieu of complex statistics more fitting of quantitative data, most of the data analysis for the Technology Lesson Plan Database Web Site survey consists of simple averaging of Likert scores across aggregated and partially disaggregated data.

All Likert score analysis for this project assumes the following point scoring for Likert scale responses:

Response	Points
Strongly Disagree	1
Disagree	2
Neither Agree nor Disagree	3
Agree	4
Strongly Agree	5

A 4.23 aggregate score for a question, for example, would indicate an average response between "Agree" and "Strongly Agree".

In addition to revealing teachers' general perceptions of online lesson plans and specific impressions of the Technology Lesson Plan Database Web Site, this action research project seeks to gain insight into the various motivators for and barriers to general technology integration in the classroom. To that end, a portion of this data analysis will focus on factors other than online lesson plans and how they relate to the efforts of teachers to integrate technology in the classrooms.

Demographic Data

As detailed in the tables below, the majority of respondents were multiple subject teachers. Most have been teaching less than five years.

Subject Area *	Respondents
Multiple Subjects	69
Language Arts	6
Science	6
Social Science	6
Reading	5
Technology	4
Mathematics	3
Fine Arts	2
Music	2
Sociology	2
Special Education	2
Physical Education	1
Vocational Studies	1

** Respondents could make multiple selections. Selecting more than one subject area is not the same as selecting the "Multiple Subjects" option.*

Eighty-nine percent of respondents teach at the elementary school level.

Eighteen percent teach in junior/senior high school, and two percent in higher education. *

** Respondents could select multiple grade levels as appropriate.*

Years Teaching	Respondents
1-5 years	69
6-10 years	14
11-20 years	6
21 + years	4

For several aspects of data analysis, respondents are broken into two populations based on teaching experience as detailed below:

Years Teaching	Respondents
1-5 years	69
6 or more years	24

Overall Trends

When viewed as a whole, several trends are visible in the data:

1) Respondents agreed strongly with the motivation effects of innovations and enhancements introduced with the Technology Lesson Plan Database Web Site.

The Technology Lesson Plan Database Web Site offers several advanced features, and even introduces several innovations to the online lesson plan database category. A key focus of this action research project is the effect of these components on teachers' motivation to integrate technology in their classrooms.

For the sake of the survey, these components were divided into four categories. Data show a very uniform, strong agreement that these components would indeed increase the respondent's motivation to integrate technology in their classrooms (average responses ranging from 3.74 to 4.20, agree).

Questions 13-16: Having access to lesson plans with the following components would positively affect my motivation to use technology in my classroom:

Lesson Plan Template Components	Average Response
<ul style="list-style-type: none"> • Technology required • Optional technology • Tech skills required (teacher) • Tech skills required (student) 	3.93
Lesson Plan Annotations	Average Response
<ul style="list-style-type: none"> • Anecdote • Adaptation • Comment/critique • Reflection 	3.98
Lesson Plan Rating, Tracking	Average Response
<ul style="list-style-type: none"> • Lesson plan rating • Times viewed • "More by author" link • Sort by rating 	3.74
Other Components	Average Response
<ul style="list-style-type: none"> • Flexible search • Student work examples • Related links 	4.20

The strongest agreement with the motivational effect of the components on technology integration (4.20, agree) appears with the last group, including a flexible search engine, embedded student work examples and related web links. In the comments section of the survey, one participant remarked, "This is a great

idea as well as a wonderful way for teachers to share their ideas beyond the school site."

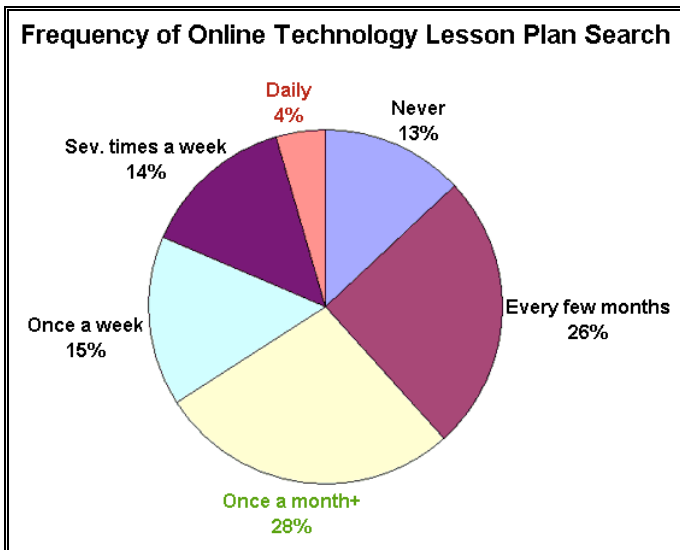
2) Respondents agreed that all factors listed in question 9 would be helpful for overcoming a lack of inspiration or ideas for technology integration (average of all factors: 4.20, agree). Most agreement was seen in the factors "Access to high-quality, technology-infused lesson plans" (4.33, agree) and "Access to a library of Internet web site links pertaining to technology integration" (4.30, agree).

Question 9: If a lack of inspiration or ideas for technology integration is a barrier to using computers in your classroom, how helpful would you find the following resources?

I would find the following resources helpful for inspiration and/or ideas:				
High-quality tech LPs	Best practices	Tech integration links	Peer interaction	Interaction with tech-using community
4.33	4.13	4.30	4.14	4.13

3) When it comes to searching out technology-infused lesson plans on the Internet, the majority of respondents conduct such a search every few months (26%) or more than once a month (28%).

Question 12: How often do you search the Internet for technology-infused lesson plans?



The lesson plans they find online are, according to the survey, perceived to be useful (3.90, agree). One participant noted that, "Too many technology lesson plans are big on "sizzle" but short on "steak".

Question 11: In general, how useful have you found lesson plans distributed on the Internet?

I have found lesson plans distributed on the Internet to be useful
3.90

4) When planning technology-infused lesson plans, respondents rely most on online resources other than online lesson plans (3.82 compared to 3.55, both agree). Least agreement was found in use of lesson plans provided by the district (2.56, neither agree nor disagree).

Question 10: If you currently integrate technology into your curriculum, how much do you rely on the following resources when planning technology-infused lessons?

I rely on the following resources when planning technology-infused lessons:					
Online lesson plans	Other online resources	Best practices research	Lesson plans from peers	Lesson plans from district	Lesson plans from workshops
3.55	3.83	3.02	3.54	2.56	3.61

5) The majority of student access to technology occurs in classrooms and computer labs, with an almost even split.

Question 3: Where do your students primarily access technology tools at school?

Student Technology Access			
Classroom	Other classroom	Lab	Library
69%	9%	71%	22%

** Because teachers could make multiple selections, percentages do not add up to 100%.*

6) Motivating factors for current technology integration in the classroom (student use) include the perceived importance of students acquiring technical skills (4.68,

strongly agree) and an improvement in student motivation and interest (4.55, strongly agree). Least motivational for technology use was being required by the administration (3.06, neither agree nor disagree). All other factors were found to be motivational by the respondents (agree).

Likewise, motivation for personal technology use on the part of the teacher (for preparation and/or delivery of curriculum) lies largely in the improvement in student motivation and interest (4.33, agree). Lowest agreement was again in motivation by technology use being required by the administration (2.71, neither agree nor disagree). All other factors were found to be motivational by the respondents (agree).

Question 5: If you currently integrate technology into your curriculum (i.e. require or encourage student use of computers), how much do the following factors motivate you to do so?

I am motivated to integrate technology into my curriculum because: (average)				
Enhance comprehension & retention	Improve student motivation & interest	Make teaching more fun	Tech skills important	Required by administration
4.11	4.55	3.90	4.68	3.06

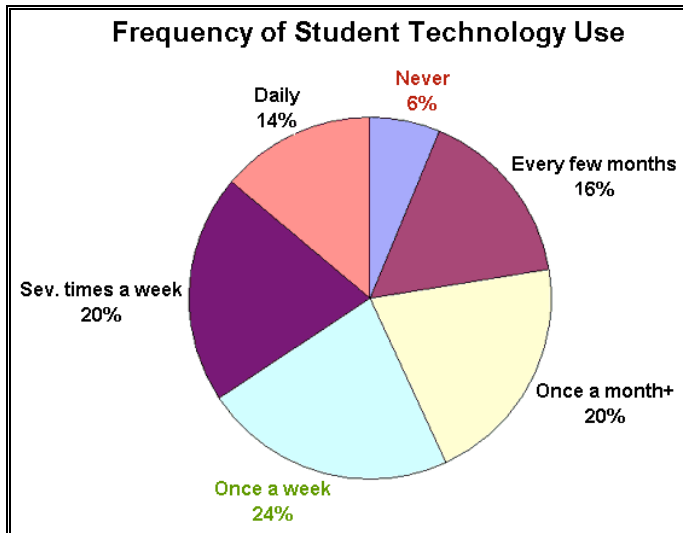
Question 6: If you currently use technology for your own preparation and/or delivery of curriculum (in contrast to computers use by students themselves), how much do the following factors motivate you to do so?

I am motivated to use technology in curriculum prep/delivery because:					
Enhance comprehension & retention	Improve student motivation & interest	Make teaching more fun	Make teaching easier	Personal growth	Required by administration
4.02	4.33	4.08	4.15	4.01	2.71

In the comments section survey participants responded, "I feel that technology integration really prepares my 3rd graders for modern life, but technology integration lessons are rare." and "I think your site looks very promising, especially for teachers like me who do not truly understand the benefits of technology integrated lesson plans."

7) Most respondents currently utilize technology in their classrooms; only 6% of those surveyed said they "never" integrate technology into their curriculum. The majority of respondents have their students use technology once a week (24%), with slightly fewer respondents indicating that they require their students to use technology several times a week (20%) or more than once a month (20%).

Question 4. *Approximately how often do you require your students to use technology in their assignments?*



8) On average, respondents to the Technology Lesson Plan Database Web Site survey agreed that they would like to use computers more extensively in their classrooms (4.37, agree).

Question 7: *How strong is your desire to use computers more extensively in your classroom?*

I desire to integrate computers more extensively in my classroom
4.37

9) A lack of hardware or software is the leading barrier to those teachers who wish to integrate technology in their classrooms to a greater degree (3.43, neither agree nor disagree). The barrier indicated as having the least effect was that of the teacher not seeing the benefit of technology (1.78, disagree).

A lack of skills on the part of the teacher scored quite low (2.20, disagree), indicating that a lack of training or skills is not perceived by most respondents as a major barrier to technology integration in their classrooms.

Other than a lack of hardware or software, all factors fell below 3.0 (neither agree nor disagree). This may indicate that teachers surveyed don't feel the presence of strong barriers to technology integration in their classrooms.

Question 8: If you currently integrate computers into your curriculum less frequently or extensively than you would like, how strongly do the following factors affect your technology integration?

The following factors are barriers to technology integration in my classroom:									
Too much time to adapt curric.	No time in day	Teacher lack of skills	No/difficult access	Lack hardware or software	No lessons that fit	Lack ideas for where, when	Don't see benefit	No admin support	Too many tech problems
2.88	2.70	2.20	3.00	3.43	2.95	2.33	1.78	2.31	2.71

Three subjects reaffirmed the barrier of limited hardware in the comments section.

Teaching Experience

When response data was disaggregated by amount of teaching experience (1-5 years and 6+ years), several notable trends emerged.

1) As compared to the more experienced teachers, newer teachers thought the various technology tools listed in question 9 would be more helpful to overcome a lack of inspiration or ideas for technology integration.

Newer teachers felt high-quality, technology-infused lesson plans would be most helpful. More experienced teachers identified a library of Internet web site links pertaining to technology integration as the most helpful.

Question 9: If a lack of inspiration or ideas for technology integration is a barrier to using computers in your classroom, how helpful would you find the following resources?

Helpful to overcome lack of inspiration or ideas						
Teaching Experience	High-quality technology lesson plans	Tech integration best practices	Technology integration links	Peer interaction	Connection to tech-using community	Average
1-5 yrs. (N=69)	4.43	4.20	4.35	4.23	4.20	4.28
6+ yrs. (N=24)	4.05	3.91	4.18	3.86	3.91	3.98

2) More experienced teachers listed "required by administration" as a greater motivating factor for technology integration than did the new group, both in classroom integration and preparation/delivery of curriculum.

Question 5: If you currently integrate technology into your curriculum (i.e. require or encourage student use of computers), how much do the following factors motivate you to do so?

Question 6: If you currently use technology for your own preparation and/or delivery of curriculum (in contrast to computers use by students themselves), how much do the following factors motivate you to do so?

Motivation: Technology Use Required by Administration		
Teaching Experience	Technology integration in curriculum	Preparation and/or delivery of curriculum
1-5 yrs. (N=69)	2.97	2.59
6+ yrs. (N=24)	3.30	3.05

3) More experienced teachers listed several factors as greater barriers to technology than did teachers with less experience.

Question 8: If you currently integrate computers into your curriculum less frequently or extensively than you would like, how strongly do the following factors affect your technology integration?

Barriers to Computer Integration in Curriculum			
Teaching Experience	Too much time to adapt curriculum/teaching	Don't know where or how to apply the computer in curriculum	The administration doesn't support technology
1-5 yrs. (N=69)	2.76	2.26	2.23
6+ yrs. (N=24)	3.21	2.56	2.50

Frequency of Technology Integration

When response data was disaggregated by frequency of current technology integration, several notable trends emerged.

1) Respondents that state they "never" integrate technology into their curriculum identified access to high-quality, technology-infused lesson plans as the most helpful factor (4.80, strongly agree) in overcoming a lack of inspiration or ideas for technology integration.

Question 9: If a lack of inspiration or ideas for technology integration is a barrier to using computers in your classroom, how helpful would you find the following resources?

Helpful to overcome lack of inspiration or ideas	
Frequency of technology integration in curriculum	High-quality technology lesson plans
Never	4.80
Every few months	4.33
Once a month+	4.44
Once a week	4.40
Several times a week	4.24
Daily	4.00

2) Several motivating factors for technology integration increase in importance with frequency of technology integration.

The more frequently respondents integrated technology in their curriculum, the more they were motivated by an improvement in student motivation, interest and engagement and a belief that technology skills are important for their students (4.93 for both, strongly agree). Though administration mandate for technology integration remained the lowest motivational factor, it too increased in importance with frequency of technology integration (from 2.00, disagree to 3.86, agree).

Question 5: If you currently integrate technology into your curriculum (i.e. require or encourage student use of computers), how much do the following factors motivate you to do so?

Motivation for currently technology integration in curriculum			
Frequency of technology integration in curriculum	Improve student motivation & interest	Student technology skills important	Required by administration
Never	4.20	4.40	2.00
Every few months	4.27	4.67	2.29
Once a month+	4.68	4.63	3.11
Once a week	4.65	4.75	2.75
Several times a week	4.56	4.76	3.53
Daily	4.93	4.93	3.86

Frequency of Online Lesson Plan Search

When response data was disaggregated by frequency of online technology lesson plan searches, several notable trends emerged.

1) As respondents' frequency of online lesson plan searches increases, so does their favorable impressions of the enhancements and innovations of the Technology Lesson Plan Database Web Site.

When comparing teachers who search the Internet for technology-infused lesson plans less than once a week with those that search the Internet *at least* once a week, the latter group indicated stronger agreement that they would find the

various enhancements and innovations of the Technology Lesson Plan Database Web Site motivational for their own technology integration

Questions 13-16: Do the following lesson plan components increase your motivation to apply technology in your own classroom? (paraphrased)

Technology Lesson Plan Database Web Site components deemed motivational				
Frequency of online lesson plan searches	All components	Annotations: anecdote	Rating/tracking: number of times viewed	Other: student work examples
Less than once a week	3.91	3.73	3.42	4.03
At least once a week	4.12	4.13	3.87	4.40
Difference	0.21	0.40	0.45	0.37

2) As respondents' frequency of online lesson plan searches increases, not knowing "where or how to apply the computer" decreases as a barrier to technology integration

When comparing teachers who search the Internet for technology-infused lesson plans less than once a week with those that search the Internet *at least* once a week, the greatest change in perception of barriers (0.82) appears in the area of not knowing "where or how to apply the computer in curriculum." The next largest difference (0.78) appears in the area of technical problems.

Question 8: If you currently integrate computers into your curriculum less frequently or extensively than you would like, how strongly do the following factors affect your technology integration?

Barriers to Computer Integration in Curriculum		
Frequency of online lesson plan searches	Don't know where or how to apply the computer in curriculum	Too many technical problems
Less than once a week	2.53	2.90
At least once a week	1.70	2.12
Difference	0.82	0.78

Survey comments

Almost half of respondents added comments at the end of the survey (question # 17). The researchers used this additional data source to reinforce key findings. One user commented "Any resource that will promote and facilitate the use of technology in both planning and executing the lesson plan is highly valuable to educators." Two subjects specifically mentioned the standards feature as a benefit, while two others appreciated the comments feature. Multiple comments noted the web site's ease of use, although one subject found the search feature to be confusing.

As expected many of the comments lamented the lack of lesson plans on the Technology Lesson Plan Database site. However, one participant commented, "I think it is positive that to start you have lessons at all levels. Too often sites are directed toward just high school or just elementary school, but we can all learn from each other, no matter what grade we teach."

One participant stated, "Please keep this up. This the kind of resource I've been looking for (and would be willing to contribute to)." Another wrote, "I appreciate

that you allow visitors to add their own lesson plans to the database. People like to feel like what they have done/created can be appreciated by others." Several potential contributors noted that adding a plan would be time consuming. Others wanted a feature which would allow them to upload lessons that they have developed for other sites.

For detailed results of survey responses in tabular format, see Appendix D.

Interview Analysis

The researchers conducted four open-ended interviews to triangulate survey data and to acquire additional information. All of the subjects were classroom teachers in the greater Sacramento area. Three had been teaching five to six years, while the fourth had been teaching twenty-seven years. Two of the teachers worked in elementary education, one in high school, and one at the community college level. The more experienced teacher had the least confidence in her technology skills and used technology infrequently. Of the other three, one used technology mainly for resources, while the last two were actively integrating computers in the curriculum.

Interview Results

1. What do you think when you hear the words "technology integration"?			
Important, but need skills for self first	Confusion, use caution, bells and whistles, fun	Use technology any way you can	Repetitious staff development - exciting if has needed equipment

2. Does a lack of inspiration or application ideas affect your desire to use technology in your classroom? If so, how?

Yes, don't have skills to apply tech	Yes, not aware of other's work, don't want to reinvent wheel	Never at a loss for ideas	Sometimes, for a specific lesson, usually creative
--------------------------------------	--	---------------------------	--

3. Describe your experiences, if any, with lesson plans downloaded from the Internet.

none	For astronomy-plans and resources (photos etc.)	Rather make own, poor quality, too basic, lacking creativity	Always need to be modified for own use, increasingly standards based
------	---	--	--

4. What lesson plan web sites do you currently use?

none	Astronomyin yourhands.com	none	Search engine for current topic, edu. Newsletter (hard copy) with links
------	---------------------------	------	---

5. Describe how well the lesson plans you've found on the Internet support or address technology integration in the classroom.

Have not looked	Not a lot	Not found any, not actively looked	Don't look for them, add own technology to lessons
-----------------	-----------	------------------------------------	--

6. What were your overall impressions of the Technology Lesson Plans web site?

Easy to understand, simple, standards good	Transparent-objectives and execution clear, usefulness, sharing not ownership, self policing	Easy to use, a good start, good ideas	Good to compile ideas, more people need to know about it
--	--	---------------------------------------	--

7. What would make the Technology Lesson Plans web site more motivational for you? More useful?

More topics, plans	Browse feature, student responses to lesson	More plans	Place to post course outlines to aid sharing ideas
--------------------	---	------------	--

8. If the Technology Lesson Plans web site was stocked with a wealth of high quality, technology-infused lesson plans, how often would you use it?

Weekly, increased use with familiarity with site	When stuck for ideas, once a week	In spurts, near start of year, every other week, more w/ new curriculum	Maybe would use it
--	-----------------------------------	---	--------------------

9. Would you pay an annual fee (\$30 a year, for example) to use it? Would your administration?			
Depends on comparable free resources, uses hard copy resources now, maybe administration	Would try to get someone else to pay, Administration may pay if it was the "best" site	Personal – yes, administration- maybe with grant money	If well stocked administration might

10. Would you be more motivated to use the site once it was paid for?			
Sure	Probably not, use for value, not cost	Probably	Not necessarily

11. If you were not motivated to contribute a lesson plan to the Technology Lesson Plans web site, why not?			
Time, would post if the plan was good	Apathy, work load	Would be motivated to contribute	Tech plans not written out, technology added to plan after written

12. If the Technology Lesson Plans web site compensated contributors monetarily for their approved lesson plans, would you contribute?			
Not for the money	More inclined	Would do without	Probably, what if site fee was to add a lesson to be able to use?

13. Is there anything else you'd like to share on the topic of technology integration in the classroom, online lesson plans or the Technology Lesson Plans web site?			
Need time and practice with technology, have other concerns, prefers paper based resources	nothing	Internet use would increase with higher quality plans, great site	nothing

Interview Summary

Online lesson plans were generally considered a good concept by interviewees; they did not want to "reinvent the wheel. Interview subjects found many online lesson plans to be poor quality and needing modification to suit their needs. The inclusion of technology in online plans overall was stated to be limited and did not appear to be a factor in lesson plan choice.

The Technology Lesson Plan Database Web Site was considered to be generally motivational in both interview and survey responses. Interviewees found it easy to use, which is also stated frequently in the comment section of the survey. Half of the interviewees specifically noted the way the site allows for sharing among peers. When asked how often he or she might use the site, answers ranged from "might use it" to "once a week". Survey results indicate that participants are using online lesson plans on a monthly or bimonthly basis. Two interview subjects indicated they would use it on an "as needed" basis. When asked about the possibility of a fee being imposed for site use, interview participants were more likely to ask administration to pay for it than to pay out of pocket. Fees did not appear to be strong factor in potential site use.

None of the subjects had contributed a lesson to the Technology Lesson Plan Database Site. Two cited the primary cause as workload. The suggestion of pay for contributions was a mild incentive for half of the participants. One subject recommended that the "fee" for using the site be a lesson plan contribution. Other site suggestions included a place for student comments on a lesson, and a place to post course outlines to facilitate sharing among teachers of similar subjects.

Conclusions

Though the data provide interesting insights into the factors that both motivate and hinder teachers' technology integration in their classrooms, the real focus of this research project is on the motivational effects of the Technology Lesson Plan Database Web Site. To that end, what follows are some conclusions pertinent to the site and its tools, as well as teacher use of other online resources and general observations on lesson plan usage in technology integration.

1) An online lesson plan database like the Technology Lesson Plan Database Web Site, if made available to teachers, could have a positive impact on teachers' motivation to integrate technology in their classrooms.

The innovations and enhancements of the Technology Lesson Plan Database Web Site were seen as motivational by the majority of survey respondents. Of the innovations and enhancements listed, flexible search, student work examples, related links and annotation features (anecdotes, adaptations, comments/critiques and reflections) were seen as the most useful.

2) A library of online lesson plans—with high-quality content and a focus on technology integration—could positively impact teachers' lack of inspiration and ideas for technology integration.

Access to high-quality, technology-infused lesson plans was identified by teachers surveyed as the most helpful resource for overcoming a lack of inspiration or ideas for technology integration.

3) A lesson plan database like the Technology Lesson Plan Database Web Site would enhance a category of online resource already found helpful by teachers.

On average, teachers surveyed agreed that the lesson plans they had found on the Internet were useful, but several found them lacking in quality.

4) A lesson plan database like the Technology Lesson Plan Database Web Site could help eliminate two of the greatest barriers to technology integration identified by teachers surveyed.

After a lack of hardware/software and difficult (or non-existent) Internet access, the two greatest barriers to technology integration were identified as "Can't find pre-made lessons that meet classroom objectives" and "Takes too much time to adapt curriculum/teaching". A library of high-quality, technology-infused lesson plans could eliminate both of these barriers.

5) While helpful for all teachers, a lesson plan database may offer the greatest inspiration and technology integration ideas to new teachers.

Even more so than for teachers with six or more years of teaching experience, newer teachers (with five or fewer years of experience) rated high quality, technology-infused lesson plans as helpful to overcome a lack of inspiration or ideas for integrating technology into their curriculum.

6) An online library of high-quality, technology-infused lesson plans could help "jump-start" those teachers who do not yet integrate technology into their curriculum.

More than any other group, respondents that do not currently integrate technology into their curriculum strongly identified access to high-quality, technology-infused lesson plans as the most helpful factor in overcoming a lack of inspiration or ideas for technology integration.

7) The Technology Lesson Plan Database Web Site is an improvement over the majority of existing online lesson plan databases.

Those teachers most familiar with other online lesson plan resources give the highest marks to the innovations and advanced features of the Technology Lesson Plan Database Web Site.

Plan for Improvement

The Technology Lesson Plan Database was well received by all users. No specific feature was rated less than 3.57 (neither agree nor disagree). There was no strong support for additional features either. Based on these findings, no components will be added or removed from the database.

The primary limitation of the study and Technology lesson Plan Database Web Site was the low number of lesson plans available. The researchers will improve this area by adding additional lesson plans and soliciting them from others. The participant suggestion that users be required to add a plan to have access to the site is an interesting one, and will be explored further.

Summary

The Technology Lesson plan Database action research project finds that the participating educators are motivated by high quality, technology infused online lesson plans, regardless of professional maturity or access to technology.

Barriers beyond inspiration continue to exist, but these educators realize the value of technology. Due to the sampling methods used by this study, with the majority of respondents being early in their teaching career, the results may not translate to educators in general.

One participant observed, "I have found through my research and experience that good technology use also depends on good teaching practices." The

researchers agree. It is hoped that the examples in the Technology Lesson Plan Database Web Site will be a model for such teaching.

Appendix A

Review of Existing Resources

Online Resource	Technology	Search Capabilities	Quality Controlled	Standards Addressed	Rating system	Peer response	Student examples	Comments
Ask ERIC	Not the focus	Subject, keyword, grade level	yes	Limited	No	No	No	Funded by U.S. Dept. of Ed.
Lesson Plans Page	Not the focus	Subject, grade level	No	no	No	No	No	Many ads
Blue Web'n	Yes	Subject, keyword, grade level	Limited	Limited	Yes	No	Limited	Outbound links, not all lesson plans
Discovery School	Not the focus	Subject, grade level	No	Yes	No	No	No	Funded by Discovery Channel
Edhelper	Not the focus	Keyword	No	Limited	No	No	Limited	Outbound links, not all lesson plans
University of Houston	Yes	Sort, not search	Limited	Yes	No	No	No	Plans by pt3 participants
Internet for Classrooms	Yes	No	No	Limited	No	No	Limited	Outbound links
Taskstream	Limited	Subject, keyword, grade level, author	No	Yes	No	No	Yes	Fee based service

Site Review References

AskERIC. Retrieved February 26, 2003, from <http://www.askeric.org>.

Blue Web'N. Retrieved February 26, 2003, from

<http://www.kn.pacbell.com/wired/bluewebn/index.html>.

DiscoverySchool.com. Retrieved February 26, 2003, from

<http://school.discovery.com/teachers/>.

EdHelper.com. Retrieved February 26, 2003, from <http://www.edhelper.com/>.

Internet4Classrooms.com. Retrieved February 26, 2003, from

http://www.internet4classrooms.com/integ_tech_lessons.htm

LessonsPlansPage.com. Retrieved February 26, 2003, from

<http://www.lessonplanspage.com>.

Taskstream. Retrieved March 16, 2003, from <http://taskstream.com>

University of Houston/Clear Lake. Retrieved February 26, 2003, from

<http://pt3.cl.uh.edu/lessonplan/lessonplan.cfm> and

<http://pt3.cl.uh.edu/lessonplan/lessonplansee.cfm>

Appendix B

Survey

General Information

1. What grades do you currently teach?

	Primary (1-3)	Intermediate (4-6)	Secondary (Jr. High)	Secondary (Sr. High)	Higher Ed./ Adults
Please check all that apply:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How long have you been teaching?

	1-5 Yrs.	6-10 Yrs.	11-20 Yrs.	21+ Yrs.
Please check one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Where do your students primarily access technology tools at school?

	Your Classroom	Other Classroom(s)	Computer Lab	Library'/ Media Center	Other (fill in)
Please check all that apply:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

4. Approximately how often do you require your students to use technology in their assignments?

	Daily	Several Times A Week	Once a Week	At Least Once A Month	Every Few Months	Never
Please check one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. If you currently integrate technology into your curriculum (i.e. require or encourage student use of computers), how much do the following factors motivate you to do so?

I am motivated to integrate technology into my curriculum because:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Computers enhance comprehension and retention of the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computers improve student motivation, interest and engagement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student use of computers make teaching more enjoyable for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computers skills are important for my students to have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer integration is required by the administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other factors (fill in)	<input type="text"/>				

6. If you currently use technology for your own preparation and/or delivery of curriculum (in contrast to computers use by students themselves), how much do the following factors motivate you to do so?

I am motivated to use technology in curriculum prep/delivery because:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Computer-enhanced delivery enhances comprehension and retention of the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer-enhanced delivery improves student motivation, interest and engagement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a tool, computers make teaching more enjoyable for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a tool, computers make teaching easier for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a personal need to better understand and apply computers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer use in curriculum prep/delivery is required by the administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other factors (fill in)	<input type="text"/>				

7. How strong is your desire to use computers more extensively in your classroom?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I desire to integrate computers more extensively in my classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. If you currently integrate computers into your curriculum less frequently or extensively than you would like, how strongly do the following factors affect your technology integration?

The following factors are barriers to technology integration in my classroom:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Takes too much time to adapt curriculum/teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Don't have time in the day for technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lack the computer skills I need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No computer access, or access too difficult	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Don't have the computer hardware or software needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can't find pre-made lessons that meet classroom objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't know where or how to apply the computer in my curriculum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't see how a computer will really enhance my curriculum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The administration doesn't support technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've experienced too many technical problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other factors (fill in)	<input type="text"/>				

9. If a lack of inspiration or ideas for technology integration is a barrier to using computers in your classroom, how helpful would you find the following resources?

I would find the following resources helpful for inspiration and/or ideas:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Access to high-quality, technology-infused lesson plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to best practices and case studies in technology integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to a library of Internet web site links pertaining to technology integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One-on-one interaction with peer teachers successfully integrating technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connection to a larger community of technology-using teachers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. If you currently integrate technology into your curriculum, how much do you rely on the following resources when planning technology-infused lessons?

I rely on the following resources when planning technology-infused lessons:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Lesson plans from the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other teacher resources on the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Best practices research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lessons from my peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lessons from my district	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lessons or ideas I get from workshops/staff development training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other resources (fill in)	<input type="text"/>				

11. In general, how useful have you found lesson plans distributed on the Internet?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have found lesson plans distributed on the Internet to be useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. How often do you search the Internet for technology-infused lesson plans?

	Daily	Several Times A Week	Once a Week	At Least Once A Month	Every Few Months	Never
Please check one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lesson Plan Database

If you haven't already spent some time exploring the Technology Lesson Plans database site, please do so now. You can get to the site by minimizing this browser window and returning to the previous window. (If you can't return to the main site window, click [here](#).)

Be sure to KEEP THIS WINDOW OPEN and return to it to continue taking the survey.

You've now had some time to explore the lesson plan database web site. As you answer the questions below, please consider how access to online lesson plans and "best practices" examples might affect your motivation to use technology in your own classroom.

13. Technology use is an integral part of the lesson plans you've viewed on the Technology Lesson Plans online database. Do the following lesson plan components increase your motivation to apply technology in your own classroom?

Having access to lesson plans with the following components would positively affect my motivation to use technology in my classroom:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Technology required (hardware/software)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Optional technology (hardware/software)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology skills required (teacher)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology skills required (student)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. The Technology Lesson Plans allows users to "annotate" and extend each lesson plan. Does the availability of these community feedback features increase your motivation to apply technology in your own classroom?

Having access to lesson plans with the following components would positively affect my motivation to use technology in my classroom:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
User-written anecdotes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User-written adaptations (i.e. for different grade level, subject)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User-written comments/critiques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Author-written reflections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. The Technology Lesson Plans website tracks user ratings of the resources it offers, and allows you to easily access lesson plans submitted by teachers whose work you find useful. Do the following lesson plan components increase your motivation to apply technology in your own classroom?

Having access to lesson plans with the following components would positively affect my motivation to use technology in my classroom:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Numeric rating for each lesson plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of times each lesson plan has been rated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"More by this contributor" link	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sort lesson plans by rating (after search)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. The Technology Lesson Plans site has other features designed to increase its usefulness for teachers. Do the following web site features increase your motivation to apply technology in your own classroom?

Having access to the following web site features would positively affect my motivation to use technology in my classroom:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Flexible lesson plan search system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Examples of student work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"Related Links" section for each plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. In an effort to improve this online resource, we'd appreciate any comments you may have. Comments could include areas of the site you liked, areas that need improvement, or things you'd like to see added to the web site. Any and all feedback will be considered. (Comment limit is 500 characters, or about 100 words.)

Additional Comments:
<input type="text"/>

Appendix C

Interview Questions

Name

Grade/Subject

Years teaching

How do students access technology?

1. What do you think of first when you hear the words, "technology integration in the classroom?"
2. Does a lack of inspiration or application ideas affect your desire to use technology in your classroom? If so, how?
3. Describe your experiences, if any, with lesson plans downloaded from the Internet.
4. What lesson plan web sites do you currently use?
5. Describe how well the lesson plans you've found on the Internet support or address technology integration in the classroom.
6. What were your overall impressions of the Technology Lesson Plans web site?

7. What would make the Technology Lesson Plans web site more motivational for you? More useful?

8. If the Technology Lesson Plans web site was stocked with a wealth of high quality, technology-infused lesson plans, how often would you use it?

9. Would you pay an annual fee (\$30 a year, for example) to use it? Would your administration?

10. Would you be more motivated to use the site once it was paid for?

11. If you were not motivated to contribute a lesson plan to the Technology Lesson Plans web site, why not?

12. If the Technology Lesson Plans web site compensated contributors monetarily for their approved lesson plans, would you contribute?

13. Is there anything else you'd like to share on the topic of technology integration in the classroom, online lesson plans or the Technology Lesson Plans web site?

Appendix D - Results Spreadsheet

[This document is best viewed in Excel.](#)

References

- Bauman, S., Jobity, B., Airey, J., & Atak, H. (2000). *Intros, Invites, and Incentives: Lessons from a Web Survey*. Paper presented at the meeting of the American Association for Public Opinion Research Annual Conference, Portland, OR. [electronic version]. Retrieved May 1, 2003 from <http://www.wirthlin.webaxxs.com/wintellitech/aapor5.PDF>.
- Barkley, S., & Bianco, T. (2001). Online and onsite training: when to mix and match. *Educational Technology*, 41(4), 60-62
- Bernhardt, V. (2000). *Designing and Using Databases for School Improvement*. Raleigh: Eye on Education.
- Calhoun, E. (1993). Action research: three approaches. *Educational Leadership* 51 (2), 62-65.
- California Technology Assistance Project. (2003). Retrieved on April, 5, 2003 from <http://www.iassessment.com/ctap.html>.
- California Technology Assistance Project. (2002). *State Report*. Retrieved December 18, 2002 from <http://www.iassessment.com/ctap.html>.
- Chia, E. (2002) Conference: Implementing a knowledge database. *MISweb.com: IT News*. Retrieved April 25, 2003 from http://www.misweb.com/newsarticle.asp?doc_id=19693&rgid=5

- Collis, B., & Winnips, K. (2002). Two scenarios for productive learning
- Cowan, G. (2001) *Understanding and Conducting Research in Education: A User Friendly Approach*. Dubuque: Kendall/Hunt Publishing.
- Cuban. L. (1997). High tech schools and low tech teaching. Originally published in *Education Week*, 16(34).
- Dockstader, J. (1999). Teachers of the 21st century know the what, why, and how of technology integration. Originally printed in *T.H.E. Journal*, January, 73-74.
- Dodge, B. (2002). *The WebQuest Page*. Retrieved November 23, 2002 from <http://webquest.sdsu.edu/>.
- Dunn, K. (2001). Technology: Computer Confidants. *Teacher Magazine*. 13(3), 6,8.
- Education Week. (1999). *Technology Counts '99*. Retrieved December 19, 2002 from <http://www.edweek.org/sreports/tc99/tables/us-t1.htm>.
- Gardner, H. (2000). *The Disciplined Mind*. Harmondsworth: Penguin Books.
- Hildebrand, C. (1999) Does KM=IT? *CIO Enterprise Magazine*. Retrieved July 25, 2003 from http://www.cio.com/archive/enterprise/091599_ic.html.
- Hoffman, B. (1996). Managing the information revolution: planning the integration of school technology. *NASSP Bulletin*, 80(582), 89-98

International Society for Technology in Education. (2000). *National Educational Technology Standards for Students: Connecting Curriculum and Technology*.

International Society for Technology in Education in conjunction with U.S. Department of Education.

Kleiman, G. (2003). Myths and Realities about Technology in K-12 Schools.

Retrieved March 23, 2003 from

<http://www.edc.org/LNT/news/Issue14/feature1.htm>.

LeFrancois, G. (2000). *Psychology for Teaching*. Belmont: Wadsworth.

(1996). Make the Connection. *Learning Magazine*, 25(2), 56-58.

McKay, J.A. (1992). Professional development through action research. *Journal of Staff Development*, 13 (1), 18-21.

McKenzie, J. (2001). From Now On: How Teachers Learn Technology Best.

Retrieved April 18, 2003 from

<http://optin.iserver.net/fromnow/mar01/howlearn.html>.

McMillan, J., & Schumacher, S. (2001). *Research in Education*. New York:

Addison Wesley Longman.

Mills, G. (2000). *Action Research*. Upper Saddle River: Prentice-Hall.

Muskingum College Center For Advancement of Learning. (1998). *Learning Strategies Database: Motivation*. Retrieved April 10, 2002 from <http://www.muskingum.edu/~cal/database/motivation.html>.

National Staff Development Council. (2001). *E-Learning for Educators: Implementing the Standards for Staff Development*. NSDC:Oxford, OH.

O'Dell, C., & Grayson, C. (2000). *Identifying and Transferring Internal Best Practices*. Retrieved April 17, 2002 from <http://www.apqc.org/portal/apqc/site?path=root>.

Pea, R. (2003). Bridging the Digital Divide: Technology, Equity and K-12 Learning. Retrieved April 29, 2003 from <http://www.ccst.ucr.edu/cpa/bdd/BDDreport/BDD09.html>.

Richardson, J. (2001). E-learning Potential: Online staff development has great possibilities – and pitfalls. *Results*, September 2001. Retrieved April 4, 2003 from <http://www.NSDC.org/library/results/res9-01rich.html>.

Rogelberg, S. (Ed.). (2002). *Handbook of Research Methods in Industrial and Organizational Psychology*. Oxford: Blackwell.

Shannon, D., Johnson, T., Searcy, S., & Alan L. (2002). Using electronic surveys: advice from survey professionals. *Practical Assessment, Research & Evaluation*, 8(1). Retrieved April 27, 2003 from <http://ericae.net/pare/getvn.asp?v=8&n=1>.

Senge, P., Cambron-McCabe, N., Lucas, T. Smith, B., Dutton, J., & Kleiner, A., (2002). *Schools That Learn*. New York: Doubleday.

Senge, P., Kliener, A., Roberts, C., Ross, R., Roth, G., & Smith, B. (1999). *The Dance of Change: The Challenges of Sustaining Momentum in Learning Organizations*. New York: Doubleday.

Slavin, R. (1997). *Educational Psychology*. Boston: Allyn and Bacon.

Southern Growth Policies Board. (2002). *Making Tech Happen*. Retrieved April 22, 2002 from <http://www.southern.org/pubs/MTH/makingtech.shtml>.

Taylor, A. (2001) from *SQL For Dummies*. (4th ed.) Retrieved July 25, 2003 from <http://cda.dummies.com/WileyCDA/DummiesArticle/id-1032,subcat-DATABASES.html>

Votjek, B., & Votjek R. (2000). Technology: Off and running - how to lead and support learning driven change. *Journal of Staff Development*, 21 (1).

Whitaker, B., Whitaker, T., & Lumpa, D. (2000). *Motivating and Inspiring Teachers*. Raleigh: Eye on Education.

Wlodkowski, R. (1999). *Enhancing Adult Motivation to Learn*. San Francisco: Jossey-Bass.