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WHO'S AFRAID OF THE "BIG BAD TECHNOLOGY WOLF?" CREATING A COMFORT ZONE FOR USING INSTRUCTIONAL TECHNOLOGY IN THE CLASSROOM!

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ABSTRACT

Legislative mandates, state curriculum requirements, professional educational guidelines, and a shrinking global environment that is encompassed with technology have forced educators to provide learning experiences that prepare the student for a high level of literacy in this area. Principals are forced to motivate teachers to utilize instructional technology to prepare their students to meet these curriculum and legislative components as well as prepare them to compete in a technology mandated workforce. Many schools lack the time and other resources to support teachers in the change process of implementing technology into their curriculum. Cooperatives between schools and institutions of higher education can help administrators provide an economically feasible solution to the growing need of technological literacy in their schools.

Legislative mandates such as *No Child Left Behind* (NCLB PL 107-110), the Enhancing Education Through Technology (ED Tech) program, professional technology organizational guidelines, states' educational curriculum requirements and the push from the world of business create demands for student competence in computer literacy to survive in a rapidly growing global community. Today, individuals submit employment applications on-line, complete e-banking transactions, participate in electronic commerce activities, take classes through the Internet and meet simultaneously through interactive video-conferencing with individuals on continents thousands of miles away. All the result of changes in a world that is encompassed with technology.

Numerous discussions and research show that media does affect learning. Technology, especially computers, has unique capabilities that support instructional methods (Hastings & Tracey, 2005). Teachers are the major contributors or key to student success in the area of technology. Teachers must master methods, knowledge and techniques to meet the mandates, guidelines and state curriculum requirements for instructional technology.

Many teachers go through five stages in integrating technology within their classroom and into their instructional management systems. At any given time, teachers fall within one of these levels of technology literacy. At level one, they know it is out there but they are not technology users. They usually have a very high level of dissonance. At the second level, teachers are gaining information and reassessing their viewpoint of technology. This is usually provided by in-service training, discussions with their peers, etc. At level three, they make a decision to accept or reject technology. Those that accept, begin the process of learning how and utilize this tool in their instruction. At level four, teachers begin to design instructional learning experiences that incorporate technology. The last stage, or level five, becomes a comfort stage where they begin to invent new applications for the use of this tool in their classroom. Students are involved in skills that not only help them master critical academic content, but also apply basic skills through the use of technology in their assignments, etc. (Goddard, 2002). Data in rural schools have also indicated that as one experiences more with computers, their level of anxiety decreases and the use of instructional technology increases (Hong & Koh, 2002).

Principals have been given the responsibility of improving the learning outcomes of their students in several important areas. Graduates are expected to perform at least at a minimal level in reading, language arts, mathematics, science, and technology. The use of instructional technology can support and enhance the acquisition of these mandated skills. Administrators face the resistance of educators converting from traditional teaching methods to instructional technology. This may be one of the reasons for the lack of technological progress in today's educational environments. Many schools are unable to provide adequate time and other resources to support teachers in the change process of implementing technology into their curriculum (Dawson & Rakes, 2003). Rural districts face more special challenges in meeting these goals than urban districts (O'Connell & Phye, 2005).

In Texas, both preservice and in-service teachers are expected to possess minimal technology skills. Those teachers that have experience with technology have little concern about its implementation into their daily instructional practices. Individuals with little or no experience

have significant fears and can be resistant to using it in their teacher-related tasks (Crawford & Willis, 2002). Rural school districts face additional challenges in providing effective training to increase the instructional technology skills of the proficient and novice user. Innovative partnerships between schools, institutions of higher education, etc. can be catalysts for change that will provide effective training to meet these needs (Williams, 2003).

Many school districts are great distances from colleges and universities. This makes it difficult for teachers to commute and attend courses or workshops that would assist in providing current instructional pedagogy to upgrade their technology skills. Requiring teachers to attend professional conferences and workshops to improve these skills can also be quite costly to the school district and/or teacher (Borady-Ortman, 2002).

Technology Collaborative

One option that has worked to assist a rural secondary school in Southeast Texas in their goal to upgrade technology skills is through the use of a distance education program. The major cost of the project was time. Time given through community service by university personnel to develop the online course as provided in one-on-one assistance to participants throughout the project, time spent by the high school teachers to complete the various units, assignments and take end of unit exams, and the time the principal spent writing a small grant to secure laptop computers for his faculty to use for the project and eventually to help them implement instructional technology in their daily teaching activities.

In addition to scholarly development and research, the mission of many universities and colleges is to provide service and outreach as well as educational development for our alumni and friends. Institutions of higher education want to engage with their communities at the local, state, national and global level. When a principal of a rural school district approached a professor of instructional technology at Lamar University, a collaborative agreement was formed between the two educational environments. Both the goal of the principal to provide effective instructional technology training for his teachers and the goal of the university faculty to provide educational development through outreach in the community were met through this effort.

Project

The school district secured a grant providing laptop computers, hardware and software for secondary teachers. They felt it was important for all their teachers to have computers for the training (Thomas, Larson, Clift & Levin, 1996). The grant provided the hardware but did not provide financial support to train educators in how to integrate technology skills into daily educational activities. The overall purpose of this collaborative effort was to help teachers

incorporate new technology skills that would positively impact students' academic success and to help students become productive members of society. The project was developed to assess the impact of initial and post-project attitudes of teachers toward instructional style, their level of computer literacy, intrinsic barriers affecting the use of instructional technology, their self-monitoring of learning new instructional technology skills and the use of peer tutoring as a support for learning new technology.

The Texas State Board for Educator Certification (SBEC) Technology Applications Standards for beginning teachers were used as the cornerstone for building a distance education program that would be used as a training tool for secondary teachers in the rural high school. The participants in the online training course were to use technology-related terms, concepts, data input strategies and ethical practices to make informed decisions about current technologies and their applications. They were guided through activities to evaluate a variety of electronic information, as well as use technology tools to support individual and group problem-solving. Communicating information in different formats to diverse audiences was addressed through several of the units. In the end, teachers were to plan, organize, deliver and evaluate instruction and its effectiveness through current technology (Griffith & Rice, 2004).

The online distance education course allowed teachers to work at their own speed and time, to complete four units that moved them into higher skill levels. WEBCT, a popular program used in the development of online courses, was the vehicle for developing the program. Web files were designed and uploaded to the university's WEBCT format. Level one included knowledge of basic computer terminology, ethics and general computer operations. The second level covered the use of a variety of basic software programs. Level three moved into the aspect of how to incorporate the use of technology within the curriculum and its application to daily/weekly instruction. The last level, focused on instructional technology collaboration between faculty and other support systems. Each of these levels progressed from basic to intermediate.

The Faculty was given a laptop that was provided through a small grant secured by the high school principal. After completing an online pre-project survey of instructional technology attitudes and a one-on-one introduction session with the university faculty mentor, the high school educators began their training sessions. Individual instruction on how to access the online training helped individuals who were unfamiliar with the use of online courses and gave them a basic understanding of how to move through the units of study in the online project. Members of the Lamar University team visited the school district throughout the school year to work individually with teachers that needed additional assistance. Individuals not completing the units or those having difficulty with sections were monitored and assisted in any problem areas.

Each of the four units were developed with specific training objectives and goals. When the teacher had completed a unit there was a post-training test. Participants had the opportunity to take several pre-test for review before taking the final unit test. After completing the unit activities and taking the final unit test, the participant was eligible to move to the next training level. The school district had determined that ninety percent of their faculty would be able to complete the requirements of units one and two. Eighty percent of their faculty would be able to

complete units three and four.

Results

Data were collected through pre- and post-surveys as well as progressions through the instructional units to determine the effectiveness of the training project. Participants had to complete the end of level exams at a passage rate of 90% before moving on to the next level. Results indicated that the participants made significant gains in both technology usage as well as implementation of instructional technology in their classroom.

Graphics, desktop publishing, database, spreadsheets, multimedia, and web page development were addressed in both the pre- and post-surveys. Data collected on graphics usage indicated only seven percent considered themselves advanced in this area. After completing the online training sessions, thirty-percent of the educators participating in the project felt they were advanced graphics users. This was a considerable increase for individuals who had many fears concerning their abilities in this area. On the pre-survey, 39% had never used graphics in their instruction while the post-survey information indicated only seven percent (Griffith & Rice, 2004).

In the area of desktop publishing, pre-survey data indicated only 11% were advanced and 27% were intermediate users. Thirty two-percent were beginners and 30% never used desktop publishing. The post-survey had increases in the advanced level (27%) and intermediate levels (42%). The beginner level decreased to 24% and never used to 7%.

After completing the online training units, databases and spreadsheets also followed a similar pattern of increases in the advanced and intermediate skill areas. The beginner and never used categories decreased significantly. The pre-survey indicated only 7% were at the advanced level for databases and 12% for spreadsheets. After completing the training units data showed an increase to 42% in the skills of database and spread sheets. Pre-survey information showed database beginners were at 33% while post-survey results indicated a decrease to 21%. Those that never used the skill were at 24% on the pre-survey and 7% on the post-survey.

The final skill area implemented in the instructional technology training units was multimedia and web page development. Multimedia rose in the advanced skills area from 18% to 49%. The intermediate level also rose from 21% to 36%. The beginner level decreased from 49% to 15% and the never used level changed from 12% to 0% (Griffith & Rice, 2004).

Pre-survey data for web page development indicated only 1% were at the advanced level. This increased to 35% after training. The intermediate level indicated 5% at pre-training with an increase to 40% after completing the online units. The beginner level was 6% and the never used level 88%. The never used level decreased from 88% to 10% while the beginner level increased to 15% (Griffith & Rice, 2004).

Conclusions

The overall goal of the project was to have teachers increase their instructional technology skills which could and would later be incorporated within their daily instruction. Teachers worked at their own pace through units in each of the four levels of computer literacy. Through the use of updated technology training, the participants would be able to work in a less frustrating environment. The training equipped the teachers with the skills necessary to work at a competency level required by the Texas State Board of Educator Certification.

Significant increases were made in the areas of graphics, desktop publishing, database, spreadsheets, multimedia, and web page development (Figure 1). The greatest gains were seen in web page development where initially 88% had never used this skill. After completing the training units this percentage dropped to 10%. Graphics and desktop publishing were 39% and 30% for those in the never used level. Both dropped to 7% after teachers completed the online training units.

The collaborative effort between the rural school district and university offered educators a cost-effective mean for gaining critical skills that enhanced their job performance. The project offered educators standards-based professional development and provided resources and support to develop their technology skills. University faculty and research assistants were able to glean information on the project effectiveness, changes in attitudes of in-service teachers toward technology usage, as well as insight into community needs of schools in rural settings. The project helped meet the training needs of the rural high school as well as the community involvement needs of the university. Future studies and collaborative efforts are planned to extend the study to other areas of instructional technology.

TECHNOLOGY SKILLS -Figure 1

Instructional Technology Skill	Advanced Level	Intermediate Level	Beginner Level	Never Used Level
Graphics				
(Pre-Survey)	7%	12%	42%	39%
(Post-Survey)	30%	36%	27%	7%
Desktop Publishing				
(Pre-Survey)	11%	27%	32%	30%
(Post-Survey)	27%	42%	24%	7%
Database				
(Pre-survey)	7%	36%	33%	24%
(Post-survey)	42%	39%	21%	7%
Spread Sheets				
(Pre-survey)	12%	39%	29%	20%
(Post-survey)	42%	33%	21%	4%
Multimedia				
(Pre-survey)	18%	21%	49%	12%
(Post-survey)	49%	36%	15%	0%
Web Page Development				
(Pre-survey)	1%	5%	6%	88%
(Post-survey)	35%	40%	15%	10%

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