

The Technology Lead Teacher Program -
Peer Training in Technology

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Introduction

For many years teachers have witnessed the infusion of millions of dollars' worth of hardware and software into schools. The "Wave of the Future" has swept into nearly every classroom and school. Few people have doubted the appropriateness of purchasing computers. The prevailing opinion has been that if they are in the classroom some good will come of it.

Now that computers and, more broadly, instructional technology, has been a part of the school environment for many years, there is a move to show actual results and benefits from this investment. Administrators and school boards wish to see what they are getting for their money. This has given rise to a push for accountability on the part of the school systems to show that they are using technology, how they are using technology, and what effect new technologies have on learning.

A by-product of this movement to justify the costs of technology are mandates regarding the skills of teachers and other professional personnel. Various states have adopted competencies that all professional staff must meet.

Inasmuch as this is the first attempt to quantify the skills and performance of teachers in this area, school divisions across the country will need to provide access to training for all licensed personnel. How will local school divisions meet the training needs of their staffs?

Given the need for training in areas that have been targeted, new approaches to staff development, concentrating not only on basic technology skills but integration skills as well, must be developed. In a relatively short amount of time, all teachers must meet the goals.

This study seeks to identify strategies and programs which will meet the needs of the instructional staff in completing the state-mandated technology standards.

Review of Literature

Many studies have reported on the effects of technology in the schools. While several of these studies found evidence that technology can improve student achievement, researchers have been wary of presuming that the same results could be replicated in other classrooms where teachers might be less motivated or knowledgeable about computers. (Archer, 1998)

Where once the purchase of computers was seen as good for its own sake, now teachers are called upon to show how they will be used in the classroom and how their use will affect test scores. Policymakers and the public are finally starting to demand evidence that their investments in education technology have been worthwhile. (Trotter, 1998)

Since the first computers were introduced into classrooms some twenty years ago, the need for training has not gone unnoticed. From the earliest, it was recognized that technology training was something that was critical to the integration of new technologies. Unfortunately, most of the training was provided to those with an aptitude or at least an affinity for computers and other technologies. The training that these people were given was normally in the area of training on the *operation* of the computer rather than its use as a tool for learning and for teaching. However, unlike toasters or televisions, educational technologies are not household appliances you simply plug in and turn on. They demand significant amounts of effort, at both individual and organizational levels, to successfully implement and integrate. (Southern Technology Council, 1997)

In a report titled, "Harnessing Technology for Teaching and Learning", the Educational Commission of the States reported, "Few states or schools mandate or invest adequately in either preservice or inservice training for teachers. As a result, most teachers have not had the opportunity to observe and learn about the wide range of educational uses for technology in the classroom".

Now, as teachers are called upon to show the effects of technology on student achievement and learning, more and more of them are looking for insight as to how they can effectively integrate technology into the curriculum. The benefits of technology are being seen in areas that are hard to measure - higher order thinking skills, for example. For this reason, professional development programs are being developed to focus on integration strategies rather than on the basics of computer operations. The use of technology is not as easy as putting in software and letting the students play an educational 'game'. A unique attribute of computers as an educational innovation is that their use demands many new skills and competencies and embraces changes to educational ideologies. (Norton, 1998) These changes to educational ideologies can only be facilitated by those within the educational community. Training in the effective use of technology must be conducted by practitioners who understand the educational environment and who understand the need for this change.

Staff Development programs have often relied on outside instructors to work with teachers in their preparation to use technology in the classroom. While these outside trainers might be well versed in the operational intricacies of the computer, they are often not aware of the realities of the classroom, nor of the methods by which technology can be exploited to the fullest. Providing continuing education for teachers is more important now than ever before as the role of teachers is shifting to meet the demands of a rapidly changing society. Fortunately, in recent years there has been a growing commitment in some school districts to a vastly improved conception of staff development, one which entails peer coaching and substantial, long term investment. (McKenzie, 1991)

In order to address the needs of the teachers in professional development, many systems are experimenting with new approaches to technology training. Recognizing that teachers need both basic skills and integration strategies and methodologies, a number of school systems are

utilizing teachers as technology trainers. This type of peer training has several advantages, not the least of which is that the trainer is a teacher who understands teaching and learning. Training provided by practitioners has been used in many areas for technology staff development. School-based personnel stated repeatedly that the most effective training was provided on-site by teachers for teachers. Training sessions led by outside trainers with no k-12 experience were not as helpful. (Southern Technology Council, 1998)

With mandates for teacher competencies becoming more and more commonplace, there is a great need to discover new and effective strategies for widespread technology training programs. Where once only those who were interested in ‘trying’ technology in their classrooms participated in technology training, now all teachers are being called upon to demonstrate competence in the use of technology. This has created the demand for new professional development strategies to meet this growing need.

Statement of the Problem

Many school divisions across the country have been burdened with mandates from state and local governments to provide training for professional staff. While the competencies provide a framework from which school divisions can derive training curricula, there remains the problem of bringing all professional staff in the localities to the level of meeting those competencies in a relatively short amount of time. Clearly, new models for large scale training need to be developed and implemented quickly.

One such model might be peer training. Research has shown this to be an effective model. However, very often the people chosen to be peer trainers are teachers who are comfortable with technology but may have little to no teaching experience. There is a need for exemplary teachers who understand curriculum and methods to serve as models of effective technology integrators for their peers. These teachers may not have experience with technology and may not be

comfortable as peer tutors. Therefore, the problem of the study is to evaluate the attitudes and use of technology of exemplary teachers after receiving training.

Questions

- Will a Technology Lead Teacher program effect the skill level of the participants?
- What effect on the attitudes towards technology integration will this program have?
- Will a Technology Lead Teacher program provide the participants with the skills necessary to effectively integrate technology into their teaching?

Methodology

Design

The Technology Lead Teacher program being implemented has three main goals: train a cadre of teachers (TLTs) via a technology certification program at a local college; design and implement a training program for the TLTs to follow; train remaining division staff on state mandated technology standards

The ultimate goal is to insure that all Instructional Personnel will meet mandated technology standards prior to the beginning of the 2002 - 2003 school year. This program is unique so far as is known and the success or failure of the program to meet its goals will be of interest to all school divisions.

This research project sought to identify factors which would indicate the effect this program had on the attitudes and skills of the participants. Specifically, data regarding the technology skill level of the participants will be collected by means of observations of demonstrated skills and surveys given before and after participating in the training program. This data will then be analyzed to discover the effect of the training on the level of competency of the participants.

Additionally, inasmuch as the level of technology integration into the curriculum is influenced by teachers' attitudes and perceptions about technology, data will be collected through interviews and observations of the sample group.

Due to time constraints, the collection of data was completed prior to the completion of the full training. It is felt that there was sufficient time to reveal changes in the skill level and attitudes towards technology integration of the sample group.

Subjects

Based on the available funding and the expense of contracting with a local college for the technology certification courses, it was determined that training would be provided for 70 teachers within the county. Since the number of trainers needed at a school site is determined by the size of the staff, the number of participants was tied to the number of students within each building.

Experience with training for teachers has shown that forced participation significantly lowers motivation to succeed and builds resentment. For this reason, it was strongly recommended to principals that the participants from each building be volunteers. Those teachers who have an interest in participating were asked to complete an application form and submit it to the principal. While it was left to the principal to make the final determination as to who would participate in the program, the Coordinators of Instructional Technology and the Professional Growth Coordinator suggested that the teachers be:

- Voluntary participants;
- On continuing contract in good standing;
- Broadly endorsed;
- Committed to technology lead teacher model;
- Willing to satisfactorily complete six, one-credit college courses offered on approximately one weekend per month during the school year and also during the summer months;
- Willing to teach ten hours per semester of Technology Integration and Competency Training for four semesters beginning in the fall 1999;

- Willing to be a contributing evaluator of peers with regard to VDOE required assessments
Instructionally skilled, effective teachers
- Innovative/open to new teaching methods
- Knowledgeable of curriculum and methodologies;
- Able to relate well with fellow teachers and the administrative staff
- Strong instructional educators

The philosophy behind these criteria was that the Technology Lead Teachers were to serve in their buildings as models of excellent teachers integrating technology. It is thought that these teachers, by virtue of their standing within their buildings as outstanding teachers would provide the best model for the instructional use of technology. Hence the emphasis on participants being outstanding teachers rather than technologically competent.

Four cohorts were created from the 67 participants in the program. Each cohort attended all classes as a group. The four cohorts are comprised of teachers from Elementary (cohorts 1 and 2); Middle (cohort 3); and High School (cohort 4). Participants from the Central Office (administrators, coordinating teachers, supervisors, etc.) were placed in appropriate cohorts.

The names of the participants from each building were given to the Professional Growth Coordinator by December 15, 1998.

The population of Technology Lead Teachers to be studied is too large to effectively measure the skill levels of all participants. Therefore, a sample group of 10 have been identified for study using a systematic sampling strategy from the full list of participants. These ten teachers were selected randomly from the 32 participants in Cohorts one and two. These two Cohorts were chosen because they would have participated in over half of the training at the conclusion of this study. The breakdown of grade levels taught by the 10 subjects are as follows:

- 1 pre-kindergarten
- 2 kindergarten
- 1 kindergarten-first grade combined

- 1 second grade
- 1 third grade
- 1 fourth grade
- 1 fifth grade
- 2 k-12 special education

Each teacher indicated that they teach all subjects. The years of experience of these teachers range from 3 to 28 with the average being 10.3% years of teaching. The level of expertise with technology is varied as was expected with some teachers professing to have no experience at all and others indicating that they had some experiences. All but one of the subjects have e-mail accounts which would be an indicator of some level of technology use. All of the subjects are women.

The subjects are teachers coming from seven different schools. Each teacher had a modern, multimedia capable computer in her classroom and access to a lab of 25 computers. All of the teachers had access to the same software within their respective buildings.

Instruments

Several instruments for collecting data were employed in this study. In order to collect demographic data on the subjects, and to gather information to be used to stratify results which might give indications of the effectiveness of the training to different groups, an information sheet (appendix H) was distributed to all participants for them to complete at an orientation session prior to the beginning of the training. This data was then entered into a database in order to facilitate management of the data.

A Technology Needs Assessment survey (appendix I) was developed and distributed to the participants at the beginning of the program and at the completion of the third class. This instrument was designed to be a self-assessment of the technology skills that each of the

participants possess. Of the 33 questions on the Technology Needs Assessment, seven (#s 1, 2, 9, 25, 26, 32, and 33) were included to assess the respondent's attitudes towards technology use and integration; 11 questions (#s 3, 4, 5, 7, 12, 15, 21, 22, 24, 28, and 31) were designed to measure the skill level of the respondent; and 15 questions (#'s 6, 8, 10, 11, 13, 14, 16, 17, 18, 19, 20, 23, 27, 29, and 30) were included to measure the degree to which the participant integrated technology as part of their teaching. The responses were given on a five-point Likert Scale that ranges from (1) "strongly agree" to (5) "strongly disagree".

Treatment

The school division has developed a program whereby a number of teachers in each building will be trained and then provide training to the staff of their respective buildings. This cadre of teachers will be known as Technology Lead Teachers (TLTs). While the motivation for this level of training is the commonwealth's mandated technology competencies, the feeling in the division is that the emphasis should be on instructional uses of the technology. Rather than targeting teachers who are already competent in the use of technology, the division seeks to identify outstanding teachers to receive this training. The assumption being that those teachers are more likely to be successful in reaching their peers while providing training in the integration of technology into teaching.

By virtue of its proximity to the school division, and the basic design of its Technology Certification program, the division has contracted with a nearby college to provide its program on-site for the Technology Lead Teacher program. For several years this college has offered a Technology Certification program for teachers. This program is designed to provide training for in-service teachers in order to meet the state's requirement for technology competency. To complete this program, participants must complete five of the six courses offered (four are required, participants must choose one of the two remaining electives) which are typically held

on Friday evenings and Saturdays.

The subjects are attending, in cohorts, this series of six technology certification classes over the course of 5 months. During the course of this program, the subjects will attend classes, participate in training, and produce work which will ultimately lead to their certification in technology standards. A complete description of the program is included in appendix A.

It was determined that, in order to provide for the specific training needs of the school division staff and the requirements and responsibilities of the Technology Lead Teachers, certain modifications would need to be made to the technology certification program. Specifically, since the Technology Lead Teachers would be providing a significant amount of training at their schools, an adult education component was added. Also, instruction in the evaluation of teacher's technology competencies will be provided to prepare the Technology Lead Teachers to effectively provide training in those competencies and evaluate their student's (teachers within their buildings) mastery of those competencies.

It was determined that the most efficient manner in which to train the Technology Lead Teachers would be to offer a series of six courses, all of which would be required for certification by the college. A description of the six classes to be offered can be found in the appendix.

Procedures

Since the classes offered are to meet on Friday evenings (4:00 pm - 10:00 pm) and all day Saturday (9:00 am - 4:00 pm) it was necessary to stagger the scheduling of each class. An attempt was made to offer classes approximately every 3 - 4 weeks for each cohort. This provides the opportunity for the Technology Lead Teachers to return to their classrooms and practice skills learned in each course prior to the next course.

Over the course of this study (which, of necessity, does not cover the length of the TLT training), participants have been interviewed and given questionnaires designed to elicit

information pertinent to the aims of the study.

All members of the sample group were given the self-assessment survey at an orientation meeting prior to the beginning of the program. This established a baseline against which changes in the level of competence can be measured. Surveys were completed by the focus group to gather information regarding the perceptions of, and attitudes towards, technology integration and the meeting of the technology standards.

During the course of the program the members of the sample group will continue to be interviewed. Data have been collected and organized in such a manner as to illustrate the progress of the participants towards meeting the standards.

At the conclusion of the program the subjects will be assessed a final time. This assessment will be used to gather data on the skill level of the participants as measured against the technology standards.

Results

The first question of the study asked: Will a Technology Lead Teacher program effect the skill level of the participants? In order to answer this question an information sheet (appendix H) and a Technology Needs Assessment survey were distributed to all participants at the initial meeting of the TLTs. These surveys were then collected and scanned to obtain raw scores for each of the 33 questions. The surveys were also distributed at the completion of the third (or six) TLT class. The number of responses to each of the five choices on the Likert scale were calculated and the percentage of respondents in each category was calculated.

In addition to the surveys that were completed, each participant was asked to complete an information form which was designed to collect demographic data on the participants. These data showed that there was a high level of personal computer use - most of the participants indicated that they had computers at home and that most had e-mail and Internet access at home

(table 1).

	<u>0-5</u>	<u>6-10</u>	<u>11-15</u>	<u>16-20</u>	<u>21-25</u>	<u>26-30</u>	<u>31+</u>
Years of teaching experience	31.1%	21.3%	8.2%	13.1%	11.5%	9.8%	4.9%
				<u>Yes</u>	<u>No</u>		
Do you have a home computer?				81%	19%		
Do you have access to e-mail at home?				67%	33%		
Do you have access to the Internet at home?				71%	29%		

Table 1. Summary of Demographic Data

Results of the analysis of the data from the initial administration of the Technology Needs Assessment revealed that the participants were of varying abilities with regards to technology and its uses prior to the start of the training. In order to answer the questions posed in this study, the Assessment was administered to the participants at the completion of the third class.

A comparison between the responses to those questions which address the skill level of the participants given on the first administration of the survey and the follow-up administration is shown in table 2. For clarity and space, the response categories have been compressed (Strongly Agree combined with Agree Somewhat; and Strongly Disagree combined with Disagree Somewhat). The results show a marked increase in the perceived skill level of the participants. In nearly every question related to skill level there was a significant increase in responses in the Strongly Agree/Agree Somewhat category. It is interesting to note that there was a decrease in positive responses in three of the questions. These questions dealt with the Standards of Learning for technology, use of technology for managing student data, and the use of Desktop Publishing Software.

	Strongly Agree/ Agree		Neutral		Disagree Somewhat/ Strongly Disagree	
	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>
3. I can save and retrieve information on a hard drive and/or floppy disk	100	100	0	0	0	0
4. I use the skill of word processing (letters, memos, worksheets, tests).	100	100	0	0	0	0
5. I understand and comply with copyright laws of computer software.	91.2	100	8.8	0	0	0
7. I use software as a productivity tool (newsletters, signs, certificates, etc.)	86	100	10.5	0	3.5	0
12. I utilize e-mail (if available in the building).	88	100	7	0	5.3	0
15. I am able to select appropriate software which supports the instructional program.	87.7	83.3	10.5	0	1.8	16.7
21. I use Va-PEN or other telecommunications programs for personal use.	71.9	83.3	15.8	16.7	12.3	0
22. I use the computer for managing student data.	75.4	66.7	14	16.7	10.5	16.7
24. I use desktop publishing software (e.g. PageMaker) if available.	59.6	50	19.3	33.3	21	16.7
28. I utilize technology for assessment of student growth and development of portfolios.	45.6	83.3	36.8	0	17.5	16.7
31. I use interactive programming tools (i.e. HyperStudio) to develop and share curriculum materials.	21.1	50	43.9	16.7	35.1	33

Table 2. Summary of Technology Skills Survey

Responses to questions relating to Skill Level

The second question of this study asked: What effect on the attitudes towards technology integration will this program have? In order to answer this question, data were collected from the Technology Needs Assessment from questions which related to the attitudes towards technology integration on the part of the participant. A comparison of the results of the first and second administration of this survey are shown in table 3.

The responses relating to attitudes show an increase in all but one question. A comparison of

the pre- and post-training testing show that the participants feel much more positive in their attitudes towards using technology in their classrooms. Significantly, the number of positive responses decreased on one question which dealt with an awareness of the Technology Standards of Learning. It is felt that the training that the participants have received has shown to them that they are not aware of things that they might have felt they knew ahead of time.

	Strongly Agree/ <u>Agree</u>		<u>Neutral</u>		Disagree Somewhat/ <u>Strongly Disagree</u>	
	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>
	1. I feel comfortable using the computer for personal use.	98.2	100	1.8	0	0
2. I am comfortable using the computer that is available at school.	96.5	100	1.8	0	1.8	0
9. I have an awareness of the technology available in my school.	93	100	7	0	0	0
25. I am aware of the technology standards for instructional personnel.	73.7	100	21.1	0	5.3	0
26. I am aware of the technology Standards of Learning.	84.2	83.3	10.5	16.7	5.3	0
32. I am a leader in working to maximize the integration of technology into the curriculum	70.2	100	22.8	0	7	0
33. I work with others to plan for the expansion of technology.	71.9	83.3	22.8	16.7	5.3	0

Table 3. Summary of Technology Skills Survey

Responses to questions relating to Attitudes towards Technology Integration

The third question of this study asked: Will a Technology Lead Teacher program provide the participants with the skills necessary to effectively integrate technology into their teaching? In order to answer this question, data were collected from the Technology Needs Assessment which was administered prior to the beginning of the training and again after the completion of three classes. Certain of the questions were designed to elicit responses to indicate the level of skills needed to effectively integrate technology. A comparison of the results from the pre- and

post-training administration is shown in table 4.

The results show that there was an increase in some areas while other areas decreased in the amount of technology use. This is likely due to the fact that many of the participants, because they were chosen more on the basis of their teaching ability than their technical expertise, were not aware of the meaning of some of the questions prior to participating in the training.

	Strongly Agree/ Agree		Neutral		Disagree Somewhat/ Strongly Disagree	
	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>	<u>Pre</u>	<u>post</u>
6. I am familiar with software programs related to my position.	93	100	5.3	0	1.8	0
8. My students use the computer to reinforce skills.	68.4	83.3	22.8	16.7	8.8	0
10. I incorporate instructional TV and video into my instructional program	86	66.7	12.3	33.3	1.8	0
11. I feel comfortable using the computer lab with a group of students	86	83.3	10.5	16.7	3.5	0
13. I am aware of assistive technology resources available to address special needs students.	54.4	50	21.1	50	24.6	0
14. I use the computer to develop and present instructional material.	84.2	66.7	14	33.3	1.8	0
16. My students use software which supports the instructional program.	71.9	83.3	24.6	16.7	3.5	0
17. My students utilize technology in research and the development of projects.	63.2	66.7	24.6	33.3	12.3	0
18. My students use equipment such as a scanner or digital camera (if available in the building).	19.3	0	54.4	50	26.3	23
19. I use the computer lab to support what I am doing instructionally.	64.9	66.7	24.6	33.3	10.5	0
20. I use telecomputing projects with my students.	19.3	16.7	42.1	66.7	38.6	0
23. I use technology to accommodate the special needs of students	50.9	66.7	33.3	33.3	15.8	0
27. I integrate technology into classroom activities on a regular basis.	70.2	100	19.3	0	10.5	0
29. My students utilize desktop publishing software (i. e. PageMaker) if available.	38.6	16.7	33.3	66.7	28.1	16.7
30. My students use programming tools (i.e. HyperStudio) to create multimedia presentations.	24.6	16.7	36.8	50	38.6	33.3

Table 4. Summary of Technology Skills Survey
Responses to questions relating to Technology Integration

Conclusions

The results of the needs assessment show that there is a definite increase in the skill level of the participants. In nearly every area that was measured, there were significantly more positive responses to the skill related questions than at the initial administration of the assessment. Judging by these results and observations made by the researcher, the TLT program has been successful thus far in increasing the technological competence of the participants.

More difficult to assess is the effect that the TLT program has had on the attitudes and integration skills of the participants. This is due in large part to the nature of the assessment instrument that was used. While there were increases in many areas, there were also a significant number of negative responses as well. The researcher feels that part of the difficulty stems from the fact that, until participating in the training program, many of the participants were not aware of the nature of technology integration and its use in the classroom. While they may have felt initially that they had used technology effectively in the classroom, they became aware in the classes that perhaps they had not. It is difficult to assess the effect of the program based on this data.

Discussion

This study was undertaken as part of the researcher's degree requirements for George Mason University. The TLT program has been instituted in the researcher's school division and will be continued over the next three years. The response to the program has been overwhelmingly positive. Two additional cohorts have been added to the original four and a cohorts are being planned for administrators and school board members.

The participants have generally been very enthusiastic about the program and their developing skills in technology integration. Significantly, many have expressed confidence in using technology in their classrooms. While this was a goal of the program and was certainly

hoped for, this high degree of enthusiasm was unexpected.

It became apparent from the outset that the plan to train experienced classroom teachers was a very good choice. Those practitioners with enthusiasm for teaching should serve as excellent models for their peers. It is anticipated that they will be able to transfer their learning and excitement for technology to other teachers in the building.

It will certainly be a part of the researcher's plan to continue to monitor the progress of the TLT program. The most significant results will be gained in the 1999 - 2000 school year, when the TLTs will begin conducting classes. The intent of the program has been to develop a cadre of experienced teacher who would be able to serve as leaders in technology integration. The full impact of the program will be felt when these teachers return to their schools and take on that role.

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Appendices

- A. Stafford County Public School's Technology Lead Teacher Program description
- B. Memo to principals describing the TLT program and eliciting participant selection
- C. Criteria for participant selection
- D. SUPTs Memo. No. 2 April 17, 1998 - Technology Standards for Instructional Personnel
- E. Technology Lead Teacher Program course descriptions
- F. Schedule of Courses
- G. TLT Cohort Composition
- H. TLT Information Sheet
- I. Technology Needs Self-Assessment
- J. TLT Application Form

A.

Stafford County Public School's Technology Lead Teacher Program description

Stafford County Public Schools

Technology Lead Teacher Program

**Meeting the Training and Technology Certification Needs
of Licensed Professional Staff**

December 1998

Stafford County Public Schools Technology Lead Teacher Program

Recent guidelines from the Virginia Department of Education emphasize technology competencies for all instructional personnel. Supts. Memo. No. 2 , Technology Standards for Instructional Personnel, 8 VAC 20-25-30 (April 17, 1998, attached) , set a goal that, "all instructional personnel meet the [technology] standards prior to the 2002-2003 school year." The requirement that all instructional personnel are to meet these eight standards places responsibility for training on the school division. In order to address the training needs of over 1,400 licensed instructional personnel, Stafford County Public Schools is instituting the Technology Lead Teacher (TLT) program. The goal of this program is to provide a cadre of Technology Lead Teachers with training from Mary Washington College and that those teachers will return to their schools and provide training to meet the technology standards.

Once the Technology Lead Teachers have completed their training, they will be required to provide technology training at their school site. This prescribed training will emphasize meeting the technology standards set forth by the Department of Education. Each Technology Lead Teacher will be required to provide ten hours of technology training per semester in the 1999-2000 and 2000-2001 school years. This training will be the primary means by which Stafford County instructional personnel will meet the technology standards. As the teachers attain the technology standards, the Technology Lead Teacher will communicate this to the Professional Growth Coordinator who, in turn, will notify the principal. The attainment of these standards will be noted in the teacher's annual evaluation. As stated in the recently revised SCPS Technology Plan, our goal is for all instructional personnel to meet the technology standards prior to the beginning of the 2002-2003 school year.

The implementation of the Technology Lead Teacher Program will proceed through the following phases:

1. Identification of teachers
2. Contracting and adapting Mary Washington College courses
3. Creation and scheduling of cohorts
4. Development of training curriculum
5. Providing training at school sites
6. Certification of teachers

1. Identification of Participants

Based on the available funding and the expense of contracting for the MWC courses, it was determined that training would be provided for 70 teachers within the county. Since the number of trainers needed at a school site is determined by the size of the staff, the number of participants was tied to the number of students within each building. A breakdown of the

number of Technology Lead Teachers from each site is attached.

Experience with training for teachers has shown that requiring participation significantly lowers motivation to succeed and builds resentment. For this reason, it was strongly recommended to principals that the participants from each building be volunteers. Those teachers who have an interest in participating were asked to complete an application form and submit it to the principal. While it was left to the principal to make the final determination as to who would participate in the program, the Coordinators of Instructional Technology and the Professional Growth Coordinator suggested that the teachers be:

- Voluntary participants;
- On continuing contract in good standing;
- Broadly endorsed;
- Committed to technology lead teacher model;
- Willing to satisfactorily complete six, one-credit college courses offered approximately one weekend per month during the school year and also during the summer months;
- Willing to teach ten hours per semester of Technology Integration and Competency Training for four semesters beginning in the fall 1999;
- Willing to be a contributing evaluator of peers with regard to VDOE required assessments Instructionally skilled, effective teachers;
- Innovative/open to new teaching methods;
- Knowledgeable of curriculum and methodologies;
- Able to relate well with fellow teachers and the administrative staff;
- Strong instructional educators;
- Founded in instructional content and pedagogy.

The philosophy behind these criteria is that the Technology Lead Teachers are to serve in their buildings as models of excellent teachers integrating technology. These teachers, by virtue of their standing within their buildings as outstanding teachers would provide the best model for the instructional use of technology. Hence the emphasis on participants being outstanding teachers rather than technologically competent.

2. Contracting and adapting Mary Washington College courses

For several years Mary Washington College has offered a Technology Certification program for teachers. This program is designed to provide training for in-service teachers in order to meet the Commonwealth's requirement for technology competency. To complete this program, participants must complete five of the six courses offered (four are required, participants must choose one of the two remaining electives).

By virtue of its proximity to Stafford County, and the basic design of its Technology Certification program, SCPS has contracted with MWC to provide its program on-site for the

Technology Lead Teacher program.

It was determined that, in order to provide for the specific training needs of SCPS staff and the requirements and responsibilities of the Technology Lead Teachers, certain modifications would need to be made to the MWC program. Specifically, since the Technology Lead Teachers would be providing a significant amount of training at their schools, an adult education component was added. Also, instruction in the evaluation of teacher's technology competencies will be provided to prepare the Technology Lead Teachers to effectively provide training in those competencies and evaluate their student's (teachers within their buildings) mastery of those competencies.

It was determined that the most efficient manner in which to train the Technology Lead Teachers would be to offer a series of six courses, all of which would be required for certification by the college. A description of the six classes to be offered is attached.

3. Creation and Scheduling of Cohorts

Four cohorts will be created from the 70 participants in the program. Each cohort will attend all six classes as a group. The four cohorts will be comprised of teachers from elementary (cohorts 1 and 2); middle (cohort 3); and high school (cohort 4). Participants from the Central Office, Rowser Instructional Center, Instructional Annex, Head Start, and Alternative Education will be placed in appropriate cohorts.

In order for the Technology Lead Teachers to receive training using software and hardware appropriate to their level, the cohorts will meet in two locations. The elementary cohorts will meet at Stafford Elementary and the Middle and High cohorts will meet at Brooke Point High School. (note: because of the difficulties in moving and storing the equipment required for the Assistive Technology course, all of its classes will meet at Stafford Elementary).

Since the classes offered are to meet on Friday evenings (4:00 pm - 10:00 pm) and all day Saturday (9:00 am - 4:00 pm) it was necessary to stagger the scheduling of each class. An attempt was made to offer classes approximately every 3 - 4 weeks for each cohort. This provides the opportunity for the Technology Lead Teachers to return to their classrooms and practice skills learned in each course prior to the next course.

The makeup of each cohort, the number of participants in each, and a schedule of classes is attached.

4. Development of Training Curriculum

The goal of the Technology Lead Teacher program is to create a cadre of teachers who will be responsible for providing training at each site in the county. The Technology Lead Teachers will be providing training opportunities for teachers to meet the technology standards.

Thus, the curriculum for the hours of training that the Technology Lead Teachers provide will be created prior to the completion of the Technology Lead Teacher training. This curriculum will be designed to adequately meet the training needs of the school site and provide sufficient opportunities for teachers to receive training in the technology standards.

To insure that the training that is provided by the TLTs is meaningful, the program of instruction will be designed to promote mastery of all skill areas and develop proficiency in utilizing instructional technology. Effective use of the hours of training provided by the Technology Lead Teacher may involve classes which are more extensive and are extended. The key to the instruction and success in the training is the enhancement of instruction through technology, and not technology skills for their own sake. It is anticipated that meetings will be held between the Coordinators of Instructional Technology, Professional Growth Coordinator, and Director of Curriculum and Staff Development will be held prior to the beginning of the 1999-2000 school year to review the training curriculum.

5. Providing Training at School Sites

The Technology Lead Teacher, in concert with the Coordinators of Instructional Technology, will provide their required hours of training in their buildings. The training will be advertised to the staffs and care will be taken to insure that all technology standards are addressed.

Once the teachers have mastered a particular standard the Technology Lead Teacher will communicate this to the Professional Growth Coordinator. She will then make it known to the building principal. At the teacher's annual evaluation conference, the principal will review the teacher's progress towards attaining all of the technology standards. Once all eight of the standards are met, the teacher will receive a certificate to that effect and will be exempted from participating in additional training for certification.

6. Certification of Teachers

Teachers must participate in the training sessions offered by the Technology Lead Teachers in order to meet the technology standards. These are the only building level sessions which will provide that opportunity. If a teacher believes that he/she can meet the standard without participating in the classes, they will have the opportunity to 'test out' of that particular class. As teachers demonstrate that they have mastered the standards, records of that completion will be sent to the Professional Growth Coordinator and the building principal. This will provide the means by which the division can certify to the Department of Education that the teachers have met, or are in the process of meeting the technology standards.

The Technology Lead Teachers will provide the division with the personnel qualified to

teach and evaluate the skills mandated by the Commonwealth. Through the training they provide to their schools all staff members should have the opportunity to learn and master the skills needed to become successful integrators of technology.

B.

Memo to principals describing the TLT program and eliciting participant selection

November 23, 1998

MEMORANDUM

MEMO # 185

TO: Principals

FROM: Andrea L. Bengier, Assistant Superintendent for Instruction
Peter J. Vernimb, Director of Curriculum & Staff Development

RE: Instructional Technology Training Initiative

ENCL: Technology Standards, 8 VAC 20-25-30

Recent guidelines from the Virginia Department of Education emphasize technology competencies for all instructional personnel. Per VDOE Technology Standards for Instructional Personnel, 8 VAC 20-25-30, guidelines, instructional personnel are to meet the stated standards prior to the 2002-2003 school year. We are rewriting our technology plan to reflect the guidelines with emphasis directed toward accomplishment of this deadline. Our technology plan will include a Technology Lead Teacher component as licensed staff must be trained per VDOE requirements. Therefore, Stafford County Public Schools is contracting with Mary Washington College for six graduate, instructional technology courses to include specific supervision and adult training components.

Based on school staff population, each school site will select w teachers to complete these MWC courses with the goal that this trained cadre of teachers will return to their respective buildings and provide a minimum of ten hours per semester of Technology Integration and Competency Training for four semesters beginning in the fall 1999. They will be paid at the PDS hourly rate for providing this on-site training. They may also be contributing evaluators with regard to the assessment component of the VDOE technology regulations. Stafford County Public Schools will pay for all tuition for these courses which will be offered at specified schools within the division. Upon completion of the six courses, the Technology Lead Teachers will have fulfilled the requirements of the VDOE Technology Standards for Instructional Personnel and will receive the Computer Technology for Educators Certificate from Mary Washington College.

Your expertise is needed to accomplish the selection of the volunteer Technology Lead Teacher cadre. Our aim is to assemble a highly motivated, highly credible Technology Lead Teacher cadre who are already acknowledged instructional mentors. The key is the integration of technology into instruction. Prospective participants do not need to be currently using technology as part of their instruction; those skills will be provided as part of this program. We are looking for master teachers willing to assist others. Included with this memo is a criteria

sheet citing important qualifications in the selection of Technology Lead Teachers. Also, remember that these Technology Lead Teachers could be contributors to the evaluation of other teachers for the mandated assessment component of the VDOE technology regulations. Teachers from all programs such as art, music, special education, health and physical education, and vocational education should be considered. Please use your knowledge of your staff and the listed criteria for final selection of Technology Lead Teachers for your school.

In a faculty meeting, please discuss this opportunity including the criteria sheet. Instructional Technology Coordinators will be available to speak to your teachers at your faculty meeting. As soon as possible, please call Bill Warrick or Mike Ballard at 659-3141 to apprise the coordinators of your faculty meeting schedule. We would appreciate if you could provide the names of your Technology Lead Teachers to the Office of Professional Growth (attention: Celia White) no later than December 15, 1998.

Thank you for your time and cooperation with this effort. Should you have questions, please do not hesitate to call us.

CSW/cja
Enclosure

C.

Criteria for participant selection

Criteria For Technology Lead Teacher Selection

- Voluntary participation via application
- On continuing contract in good standing
- Broad endorsement package desirable
- Committed to technology lead teacher model
- Willing to satisfactorily complete six, one-credit college courses offered on approximately one weekend per month during the school year and also during the summer months. Each course offered will be held over two days, usually on Friday afternoons and all day Saturday. Courses will be paid by Stafford County Public Schools and will be located in specified schools in our division. The six courses will satisfy the VDOE technology standards assessment requirement and 180 points for license renewal regardless of content area. The Technology Lead Teacher will also receive the Computer Technology for Educators Certificate from Mary Washington College.
- Willing to teach ten hours per semester of Technology Integration and Competency Training for four semesters beginning in the fall 1999 (paid at the PDS hourly rate).
- Willing to be a contributing evaluator of peers with regard to VDOE required assessments (training will be provided in regard to evaluation).
- Instructionally skilled, effective teachers
- Innovative/open to new teaching methods
- Thorough knowledge of curriculum and methodologies
- Relates well with fellow teachers and the administrative staff
- No basic technology competence required. (All program participants will complete the basic skills course included in the series of six classes.)
- Strong instructional educators

D.

SUPTs Memo. No. 2 April 17, 1998 - Technology Standards for Instructional Personnel

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF EDUCATION
P. O. BOX 2120
RICHMOND, VIRGINIA 23218-2120

SUPTS. MEMO. NO. 2

April 17, 1998

REGULATORY

TO: Division Superintendents

FROM: Paul D. Stapleton
Superintendent of Public Instruction

SUBJECT: Licensure Regulations for School Personnel (8 VAC 20-21-10) and Technology Standards for Instructional Personnel (8 VAC 20-25-10)

TECHNOLOGY STANDARDS FOR INSTRUCTIONAL PERSONNEL
(8VAC 20-25-10)

Instructional personnel are ultimately responsible for the use of technology in the classroom. As a result of the availability of technology and the requirement that students in Virginia must master technology standards, instructional personnel will be required to meet the Technology Standards for Instructional Personnel. These technology standards set forth those competencies required of instructional personnel in Virginia. Individuals completing approved preparation programs will also be required to demonstrate competency in technology as a requirement of program completion.

School divisions must incorporate the technology standards into their local technology plans and develop strategies to implement the standards by December 1998. The goal is that all instructional personnel meet the standards prior to the 2002-2003 school year. The local technology plan must include a time line and strategies to meet this goal. School divisions must also ensure that newly-hired instructional personnel demonstrate proficiency in the technology standards during the three-year probationary period of employment. Even though this requirement is applicable to all school personnel required to hold a license issued by the Virginia Board of Education, it is not a requirement for continued licensure or license renewal. Please note, however, that instructional personnel without a master's degree may complete a course in educational technology in lieu of a content course for one renewal cycle.

School divisions must include strategies to implement and assess the standards in the local technology plans. The standards are intended to be entry level; therefore, school divisions will need to establish provisions for instructional personnel who have already acquired higher levels of knowledge and skills to test out of the entry-level requirements.

Institutions of higher education must incorporate technology standards in their approved programs and assess students' proficiency of the standards by December 1998. Institutions will verify that students have met the technology standards on form DA 035, College Verification Form, now used to recommend students for licensure. The form will be revised by the Department of Education and distributed directly to colleges and universities with approved programs prior to the beginning of the 1998 fall semester. Institutions will need to establish provisions by which students who have already acquired higher levels of knowledge and skills may test out of the standards which are intended to be entry level.

By the fall of the year 2000, institutions must align their teacher education programs with the licensure regulations. The newly-developed programs will be reviewed on a five-year cycle to verify both alignment with the licensure competencies and incorporation of the technology standards. Institutions will not be required to submit written documentation of the incorporation of the technology standards into their approved programs prior to the adoption of revised accreditation and program approval standards now being developed. The revised standards and procedures will establish the schedule for the reinstatement of the five-year review cycle. Institutions that are scheduled for national accreditation or technical assistance reviews prior to the fall of 2000 will be expected to demonstrate incorporation of the technology standards into their programs and strategies for assessing student competency in the use of technology at the time of their on-site review.

Please do not hesitate to contact Dr. Thomas A. Elliott, Assistant Superintendent for Compliance, at (804) 371-2522; Mr. Lan W. Neugent, Assistant Superintendent for Technology, at (804) 786-2260; or Mrs. Patty S. Pitts, Associate Director for Licensure, at (804) 225 - 2022 if you have any questions regarding the licensure regulations or the technology standards.

PDS:psp

Enclosure

c: Deans/Chairs, Schools/Departments of Education Directors of Human Resources
Licensure Contact Persons

8 VAC 20-25-10 et seq.
TECHNOLOGY STANDARDS FOR INSTRUCTIONAL PERSONNEL

Statutory Authority: 22.1%-16 of the Code of Virginia

Effective Date: March 4, 1998

8 VAC 20-25-10.

Definitions.

The following words and terms, when used in this regulation, shall have the following meaning unless the context clearly indicates otherwise:

Demonstrated proficiency means a demonstrated level of competence of the technology standards as determined by school administrators.

Electronic technologies means electronic devices and systems to access and exchange information.

Instructional personnel means all school personnel required to hold a license issued by the Virginia Board of Education for instructional purposes.

Productivity tools means computer software tools to enhance student learning and job performance.

8 VAC 20-25-20.

Administration of technology standards.

- A. School divisions and institutions of higher education shall incorporate the technology standards for instructional personnel into their division-wide technology plans and approved teacher education programs, respectively, by December 1998.
- B. School divisions and institutions of higher education shall develop implementation plans for preservice and in-service training for instructional personnel. The implementation plan shall provide the requirements for demonstrated proficiency of the technology standards.
- C. Waivers shall be considered on a case-by-case basis of the 18-hour professional studies cap placed on teacher preparation programs for institutions requesting additional instruction in educational technology.
- D. School divisions shall ensure that newly-hired instructional personnel from out of state demonstrate proficiency in the technology standards during the three-year probation period of employment.
- E. Course work in technology shall satisfy the content requirement for licensure renewal for license holders who do not have a master's degree.
- F. School divisions shall incorporate the technology standards into their local technology plans and develop strategies to implement the standards by December 1998.
- G. Institutions of higher education shall incorporate technology standards in their approved program requirements and assess students' demonstrated proficiency of the standards by December 1998.

8 VAC 20-25-30.

Technology Standards for Instructional Personnel

- A. Instructional personnel shall be able to demonstrate effective use of a computer system and utilize computer software.
- B. Instructional personnel shall be able to apply knowledge of terms associated with educational computing and technology.
- C. Instructional personnel shall be able to apply computer productivity tools for professional use.
- D. Instructional personnel shall be able to use electronic technologies to access and exchange information.
- E. Instructional personnel shall be able to identify, locate, evaluate, and use appropriate instructional hardware and software to support Virginia's Standards of Learning and other instructional objectives.
- F. Instructional personnel shall be able to use educational technologies for data collection, information management, problem solving, decision making, communication, and presentation within the curriculum.
- G. Instructional personnel shall be able to plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings.
- H. Instructional personnel shall demonstrate knowledge of ethical and legal issues relating to the use of technology.

E.

Technology Lead Teacher Program course descriptions

MWC - Certificate in Computer Technology for Educators Program
Stafford County Specific Course Descriptions

0900 - Basic Skills

Participants will be given basic skills for using Instructional Technology. These will include operation of hardware, basic software use, the use of peripherals, file management techniques, and productivity tools - word processing, spreadsheet, database.

0901 - Implementing the Technology Standards

In addition to a basic understanding of computer technology standards required for all students by the end of Grade 5, Grade 8, and for graduation, participants will receive instruction on meeting the technology competencies for professional personnel.

Participants will gain an understanding of the philosophy and purposes behind the integration of technology in Stafford County Public Schools. Additionally, participants will be provided with instruction in the issues and methods of adult education.

0902 - Introduction to the Internet for Educators

An overview of the Internet and its resource and communications capabilities. participants will use the Internet to research and gather resources for use in meeting content area and technology SOLs. Participants will also use the Internet's communication capabilities to collaborate with other classes/students. Participants will create web pages to be used as classroom/school resources.

0903 - Introduction to Desktop Publishing and Multimedia for Educators

An overview of specific applications using Desktop Publishing and Multimedia software and associated hardware. Participants will have hands-on experience with using various software and hardware devices available in SCPS.

0906 - Implementing Technology into Instructional Programs

Provides participants with a basic understanding of the instructional applications of modern technology. Participants will gain an understanding of the philosophy and purposes behind instructional technology as well as strategies for its integration into the classroom.

0907 - Introduction to Assistive Technology

This course will provide participants with a comprehensive overview of assistive technology solutions for students with special needs. Topics covered will include, consideration planning, demonstrations and practical application using selected assistive hardware and software, Internet-based solutions, curriculum integration strategies, inclusion strategies, current law and IEP considerations.

F.

Schedule of Courses

Schedule of Classes

0900 Basic Skills

0901 Implementing the Technology Standards

0902 Introduction to the Internet for Educators

0903 Introduction to Desktop Publishing and Multimedia for Educators

0906 Implementing Technology into Instructional Programs

0907 Introduction to Assistive Technology

G.

TLT Cohort Composition

Technology Lead Teacher

Cohort Composition

Cohort 1

Elementary

16 Elementary

Cohort 2

Elementary

9 Elementary

1 Head Start

6 Rowser/Annex

Cohort 3

Middle

13 Middle School

3 Rowser/Annex

1 Turning Point

Cohort 4

High

21 High School

H.

TLT Information Sheet

Cohort_____

**Technology Lead Teacher
Information Sheet**

Name_____

School_____ Years Teaching Experience_____

Current grade level taught_____ Current subjects Taught_____

E-mail address_____

Phone_____

Do you have a computer at home? _____ yes _____ no

If yes, what kind? _____
(Macintosh; Windows 3.1; Windows 95/98)

Do you have access to e-mail at home? _____ yes _____ no

I.

Technology Needs Assessment

J.

TLT Application Form