4-2006

Budgeted Money in Staff Development and Technology Integration

Chad Frerichs
Western Michigan University

BUDGETED MONEY IN STAFF DEVELOPMENT AND TECHNOLOGY INTEGRATION

by

Chad Frerichs

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Educational Studies

Western Michigan University
Kalamazoo, Michigan
April 2006

BUDGETED MONEY IN STAFF DEVELOPMENT AND TECHNOLOGY INTEGRATION

Chad Frerichs, M.A.

Western Michigan University, 2006

Many studies have been done on the different styles of professional staff development for teachers and administrators in the area of technology and its integration into the classroom. One element has been consistently ignored in recent studies, the amount of money being spent on staff development.

This research attempted to uncover the relationship between expenditures on staff development activities for educational technology and the extent of technology integration occurring in K-12 schools. With shrinking budgets throughout the education system in this country, an answer is needed. As Butler says in her review of the research, "Further studies of this type are needed to support what is generally believed to be true: staff development can and does have impact on student performance." (2001)

ACKNOWLEDGMENTS

I would like to thank Dr. Tracy DuBay for her help and support throughout my studies in pursuit of this degree. I would also like to thank Dr. Martha Peet from the Texas Center for Educational Technology at the University of North Texas for her fantastic effort in setting up and maintaining the online survey instrument.

I would also like to thank my wife and new daughter for the great patience they have shown during this endeavor.

Chad Frerichs

TABLE OF CONTENTS

Table of Contents - Continued

LIST OF TABLES

CHAPTER I

NATURE AND SIGNIFICANCE OF THE PROBLEM

Introduction

The following text details a study that looks at how the amount of money spent on technology related staff development impacts the amount of technology that is integrated into the curriculum. The study contends that while other factors may indeed affect that amount of integration, the amount spent on training teachers both how to use technology themselves and how to use it in their classrooms is the paramount factor.

Purpose of the Study

The purpose of this study was to examine the impact of educational technology staff development funding on the actual level of technology integration in the K-12 classroom setting. School budgets seem to be ever shrinking. With those cuts, also come more expectations. Money does not come easily to most school districts and knowing how to spend the money that does come in appropriately is a huge concern. This study attempts to lend guidance to schools when trying to decide how to spend their limited technology dollars.

Hypothesis

This study addressed the following research hypothesis:

Schools that spend more money on staff development in the area of technology will have higher rates of technology integration in their curriculum than those schools that spend less money on educational technology staff development.

Variables of the Study

The amount of money spent on technology-related staff development is the independent variable in this study. The dependent variable of this research is the level of technology integration as measured by an instrument from Insight. Other variables such as age and gender of the teacher, socioeconomic status of the school district, school and class size, and access to computer support and equipment were also to be considered.

Limitations of the Study

Studies such as this one are absolutely dependent on the amount of people that are willing to participate and fill out the survey. When those numbers are low it

becomes difficult to draw any conclusions that are any more than suggestions for further study. The number of respondents to this study's survey instrument was low and therefore any conclusions drawn by the researcher need to be considered with that in mind.

Organization of Remaining Chapters

The remaining chapters of this book will outline all activities and results pertaining to this research study. Specifically, the second chapter presents an in-depth review of the literature relative to this research study. Chapter three looks at the methods of research this study followed including the sampling method, how data was collected a description of the instrument used, and how that data was to be analyzed. The last chapter describes the data collected in a detailed analysis, the conclusions drawn by the researcher, and the limitations of this study and the need for further study.

CHAPTER II

REVIEW OF RELATED LITERATURE

Literature Review

Literature investigating the amount of technology integration in the classroom is abundant. Below is a review of what some of those studies suggest may be factors contributing to the amount of integration. Several studies suggest that the amount of training may have an affect on the amount of integration, but also say that this relationship has not been adequately examined. More studies have looked at other contributing factors such as age of the teacher, access to technical support, and the type of staff development.

The U.S. Congress Office of Technology Assessment (1995) suggest 30% of a school's technology budget be spent on staff development. Based on that assessment Christensen (2002, Research Rationale section) writes, "…current spending is inadequate." Another study goes further to say that money for technical support should be a separate budget item all together. (Barnett& Harvey, 2001)

Some studies indicate that the amount of money spent on technology staff development determines the amount of integration (levels of integration are measured by

several different instruments in the studies reviewed; This study uses a combination of two of these, Insights's "Technology Use Questionnaire" and ISTE's "STaR Chart") that takes place. (Vincent & Kaberon, 2000; Christensen, 2002; Swain & Pearson, 2002) While Williams and Kingham (2003, Conclusions section) tell us, "Staff development must take priority if the financial investment in technology is ever to pay off." Dawson and Rakes (2003) agree with them and add that principals are a key component to technology integration and should also be trained in its use and integration. In Butler's (2001) literature review she says that there is an indication "that staff development programs can have positive effect on student performance." However, there has been little "careful" research done to support this statement. Butler is also of the same opinion that staff development is a strong contributor to technology integration.

Dawson and Rakes (2003) also discuss that because of the lack of support and training, technology is not being "... fully integrated into the fabric of teaching and learning." Other factors affecting the level of integration have also been identified including: teacher confidence, levels of classroom connectivity, computer expertise, constructivist pedagogy, high frequency of informal contacts with other teachers, involvement in professional leadership activities, teacher age, and

subject being taught. (Christensen, 2002; Becker, 1999; Malqueen, 2001)

Atkins and Vasu (2000, Number of Hours of Technology Training Section) agree with some of these factors, such as lack of support and adequate access to technology, but disagree in the area of staff development. They report, "Attending many hours of technology training does not completely ensure acquisition of computer knowledge or use of technology in the classroom." Swan et al (2002), citing several other sources, agree when they write that traditional technology-based staff development has been shown to have little or no effect on the amount of technology integrated into the curriculum.

Elementary administrators seem to agree as well when in a study by Johnson, Livingston, Schwartz, and Slater (2000) they ranked staff development as sixth out of thirteen domains used to describe effective schools. However, Williams and Kingham (2003) suggest that access does not equal integration, but proper training and follow-up support would better serve teachers in the use of technology. Jenson, Lewis and Savage (2002) also suggest that alternative methods of staff support are needed to achieve the "elusive goal" of technology integration.

Many researchers are of the common opinion that schools must create comprehensive technology plans and

that staff development should be directly linked to that plan. They also say that new models of staff development are needed that better link to those technology plans. (Barnett & Harvey, 2001; Hunter, 2001; Swan et al, 2002, Sherry, 1997) Sherry (1997) talks of alternative methods including better training for pre-service teachers, while Hunter (2001) says that simply using the "brainpower" of teachers, parents, and even students can lead to real integration of technology into the curriculum. Atkins and Vasu (2000) add that having technology specialists may add to technology integration Adding time for peer communication and sharing of ideas, summer workshops, and online tutorials have also been cited as improving teacher use of technology. (Malqueen, 2001)

The research differs in its ideas about the amount of staff development and its effects on technology integration. Many of the studies say that proper staff development does increase integration, but new models and methods are needed. Other variables are also shown to greatly affect the level of technology integration into the curriculum. This research attempted to offer valuable information about the effects that technology related staff development has on technology integration in the classroom.

Theoretical Framework

The theoretical basis for this study is outlined in a study done by Atkins and Vasu (2000) entitled "Measuring Knowledge of Technology Usage and Stages of Concern about Computing: A Study of Middle School Teachers." In this study the authors suggest that attending more staff development does not necessarily ensure that teachers will use technology in their classrooms. They go on to say that many other factors contribute to the integration, or lack thereof, of technology into the curriculum. These factors are identified as including but not limited to "technical support, administrative support, adequate budget, and adequate access to hardware and software" (p. 279)

Research Question

Hypothesis: Schools that spend more money on staff development in the area of technology will have higher rates of technology integration in their curriculums than those schools that spend less.

Null Hypothesis: Schools that spend more money on staff development in the area of technology will have equal or lesser rates of technology integration in their curriculums than those schools that spend less.

CHAPTER III

METHOD

Sampling

The sampling frame included each school district in Iowa where the superintendent has an email address. The sample included administrators and teachers from those districts whom agreed to participate in the study in order to get as complete a data set as possible.

Data Collection

An Internet survey instrument was used to collect the data. The survey was hosted on a secure site and results have been stored in a secure database. Participants had access to the anonymous survey for a three-month period after which time the web site was taken offline. A hard copy of the anonymous results of the survey is kept in Dr. Tracy DuBay's office at Western Michigan University. A secure digital copy is kept on the servers at South-Central RTEC Instrument Library and Data Repository at the University of North Texas in Denton, Texas.

Superintendents from every school in Iowa whom had a listed email address were emailed a request to participate in the study. An additional email was sent to

those who did not respond after the initial email. In each of these emails a link to the superintendents' survey and the teachers' survey was included. Superintendents were asked to forward the email to a representative sample (at least one teacher per grade level, per building) of teachers at each grade level asking them to complete the teachers' survey.

Description of Instrument

The instrument was based on the Technology Use Questionnaire (Insights 2003). Items regarding school data and demographics were added to the beginning of the survey. The instrument consisted of 51 questions organized into two main sections, Demographics and Questionnaire. The Demographics section was broken into four subsections. All questions in the Demographics section required specific responses. Superintendents were asked to pass on information regarding such things as: school size, percentage of students on free and reduced lunches, exact amounts of funds allocated for technology training, etc. to the teachers. Teachers were asked for information on such things as: level(s) taught, class size, number of times per week technology is used in their classrooms, etc. Items in the Questionnaire section were answered using a scale from "Strongly Agree" to

"Strongly Disagree," and dealt with technology related matters. A copy of the instrument is located in the Appendix.

Data Analysis Procedures

The responding schools were to be grouped into subgroups based on the number of students in the district and then by the amount spent on staff development. The level of technology integration was then to be measured against the amount of money spent on staff development as well as several other variables including: mean age of teachers, grade level, average class size, access to technology, etc. Due to the low number of respondents and the fact that none of the schools had a budget for technology related staff development, this procedure was not followed. Instead all those responding were put into one group and a broad analysis of each question area was done.

CHAPTER IV

RESULTS

Analysis

The respondents participating in this study were from schools ranging in size from 309 students to 2029.2 students with an average class size of 18. All schools responding were from similar socio-economic status based on the percentage of students receiving free or reduced lunches which ranged from 26% to 28.71%.

Fifty percent of those responding to the survey were elementary teachers, grades K-6, 36% were junior high and high school teachers, grades 6-12, and the remainder were district level personnel. The average age of those answering the survey was 45.72.

One hundred percent of the people responding had access to computers in their rooms at school. Furthermore, all those submitting the survey had technical support personnel available to them, with most (nearly 82%) receiving assistance in less than 8 hours. Only 27% of the schools did not have some sort of technology coach available to assist and train teachers and other personnel in technology related areas.

The participants reported that their schools spent zero or less than 1% of the schools' budgets on

technology related staff development. The only money spent on technology and technology related staff development was from other sources, i.e. grants, state initiatives, etc. Despite this lack of district provided staff development, respondents reported spending well over 100 hours of their own time last year using and learning technology. When asked if they needed further training to assist in the integration of technology into their classrooms, half of the teachers were unsure. However, not one indicated it was easy for him or her to design student-centered, integrated curriculum units that use the classroom computers. The majority agreed or strongly agreed that computers were an important part of classroom instruction, and they are motivated to find ways to use computers in the classroom.

The following table depicts the results of the survey items pertaining to the teachers' use of technology.

Table 1: Teacher Use

Teacher Use									
I alter my instructional use of the classroom computer(s) as I gain new knowledge of software applications and research on teaching and learning.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
1	9.09%	4	36.36%	5	45.45%	0	0.00%	1	9.09%
Using the classroom computer(s) is a priority for me this school year.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
1	9.09%	3	27.27%	5	45.45%	2	18.18%	0	0.00%
I have enough time to use the classroom computer(s).									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
1	9.09%	3	27.27%	2	18.18%	5	45.45%	0	0.00%
I use my classroom computer(s) primarily to track grades and/or answer email.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
3	27.27%	0	0.00%	0	0.00%	5	45.45%	2	18.18%
I rely on others (student assistant, parent volunteer, close friend) to do my computer-related tasks for me in my classroom.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
0	0.00%	0	0.00%	0	0.00%	5	45.45%	4	36.36%
I access the Internet quite frequently.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
5	45.45%	3	27.27%	0	0.00%	2	18.18%	0	0.00%

Table 1 - continued

I am proficient with basic software applications (word processing, Internet applications, CD ROMs, Games).

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
5	45.45%	6	54.55%	0	0.00%	0	0.00%	0	0.00%

I am proficient with at least one multimedia authoring tool (such as HyperStudio, PowerPoint, KidPix, or AppleWorks).

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
3	27.27%	4	36.36%	0	0.00%	2	18.18%	2	18.18%

I am very comfortable using a computer.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
3	27.27%	6	54.55%	1	9.09%	1	9.09%	0	0.00%

In the "teacher use" section of the survey, 81.81% of those responding said they were comfortable using a computer and all said they were proficient using basic computer software such as word processors and Internet applications. Only 18.18% said that they did not use the Internet quite frequently, and none indicated they had others do their computer related tasks. Only 36.36% said they had time enough to use the computer in the classroom, and it was a priority this year for them to use computers in the classroom. However, only 27.27% said they use their classroom computer(s) primarily for doing grades and answer email.

The following table describes data gathered regarding how teachers use technology in their lesson

development activities.

Table 2: Lesson Development

Lesson Development									
I prefer to use existing curriculum units that integrate the classroom computer(s) with authentic assessment and student relevancy rather than building my own units from scratch.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	6	54.55%	2	18.18%	2	18.18%	0	0.00%
I use my students' interests, experiences, and desires to solve authentic problems when planning computer-related activities in my classroom.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	4	36.36%	4	36.36%	2	18.18%	0	0.00%
Using available technology and computers, I have expanded the horizons of instructional computing in my classroom.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	4	36.36%	4	36.36%	1	9.09%	1	9.09%
I use integrated curriculum units that place heavy emphasis on complex thinking skills, computer use, and student relevancy to the real world.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	3	27.27%	3	27.27%	3	27.27%	1	9.09%
I integrate the most current research on teaching and learning when using the classroom computers.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	4	36.36%	4	36.36%	2	18.18%	1	9.09%

The above table detailed the results of the survey items related to lesson development. 54.55% of those responding said they prefer to use existing units when they integrate computers into their teaching, but only 27.27% said those units placed a heavy emphasis on

complex thinking skills and were relevant to the real world. 36.36% said they use their students' experiences to solve authentic problems and to expand the horizons of instructional computing in their classrooms. That same percentage said they use the most current research on teaching and learning when using the classroom computers.

The table following relates the responses given to statements regarding computer activities related to students.

Table 3: Computer Related Activities

Computer Related Activities									
I assign daily or weekly computer-related tasks that support my curriculum (analyzing data from a survey, creating multimedia presentations that showcase students' understanding of important content, researching information via CDs or the Internet).									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
2	18.18%	2	18.18%	2	18.18%	3	27.27%	2	18.18%
I provide short-term (daily or weekly) assignments using the classroom computer(s) that emphasize the use of different software applications (such as spreadsheets, databases, Internet use, and multimedia).									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
2	18.18%	1	9.09%	4	36.36%	2	18.18%	2	18.18%
I find computers to be an important part of classroom instruction.									
Strongly Agree		**Agree**		**Neither Disagree or Agree**		**Disagree**		**Strongly Disagree**	
3	27.27%	5	45.45%	3	27.27%	0	0.00%	0	0.00%

Table 3 - continued

I allocate time for students to practice their computer skills on the classroom computer(s).

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	1	9.09%	7	63.64%	1	9.09%	1	9.09%

I need more and/or more current computers in order to use technology with my classroom instruction.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
2	18.18%	3	27.27%	5	45.45%	1	9.09%	0	0.00%

My students use the Internet for collaboration with others, including joint publishing, communicating, and researching to solve authentic problems.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	3	27.27%	2	18.18%	2	18.18%	3	27.27%

I seek out activities that promote increased problem-solving and critical thinking using the classroom computer(s).

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	5	45.45 %	1	9.09%	1	9.09%	2	18.18%

I plan computer-related activities in my classroom that will improve my student's basic skills (e.g., reading, writing, math computation).

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	3	27.27 %	2	18.18 %	3	27.27 %	1	9.09%

In my classroom, students use technology-based computer and Internet resources beyond the school (NASA, other government agencies, private sector) to solve authentic problems.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	2	18.18 %	2	18.18 %	2	18.18 %	3	27.27%

Using available technology and computers, I have expanded the horizons of instructional computing in my classroom.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	4	36.36 %	4	36.36 %	1	9.09%	1	9.09%

Computer related activities involving students can be a great indicator of the amount of technology integration in the classroom. Few of the teachers responding (36.36%) said they had daily or weekly assignments using the classroom computers, and even fewer (27.27%) said they gave short term assignments focusing on computer software applications in the classroom. Fewer still (18.18%) said they allocate time for students to practice their computer skills in the classroom. However 72.72% said that they think computers are an important part of classroom instruction, and 54.54% said they seek out activities that promote increased problem-solving and critical thinking using the classroom computer(s). Only 27.27% of those responding said their students used computer related resources beyond the school. 36.36% agree that they use available technology and computers to expand the horizons of instructional computing in their classrooms, and only 45.45% said they need more current computers to use in order to better implement technology into their lessons.

Survey items dealing with student access to technology are depicted in the table below.

Table 4 - Student Access

Student Access									
My students have access to all forms of technology and computers at any time during the instructional day.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
3	27.27%	4	36.36%	3	27.27%	1	9.09%	0	0.00%
One of my technology goals is for students to be able to use the classroom computer as another tool for learning.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
2	18.18%	4	36.36%	3	27.27%	2	18.18%	0	0.00%
My students eagerly pursue the use of the classroom computers.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
3	27.27%	2	18.18%	5	45.45%	1	9.09%	0	0.00%
I have enough time to use the classroom computer(s).									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	3	27.27%	2	18.18%	5	45.45%	0	0.00%
I find the use of computers to be practical for my students.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
2	18.18%	7	63.64%	2	18.18%	0	0.00%	0	0.00%

Without adequate access to computers and technology it may prove much harder to integrate computers and technology into the curriculum. When presented with the statement "My students have access to all forms of technology and computers at any time during the

instructional day," 63.63% of the respondents agreed, and 81.81% said it was practical for their students to use that technology. However, just over half (54.54%) said one of their goals for technology was for students to use the classroom computer as another learning tool. 45.45% disagreed that they have enough time to use the computers in their classrooms, and the same number said their students eagerly pursue the use of the computer.

Professional development items from the survey are shown in the table below.

Table 5: Professional Development

Professional Development									
I seek professional development that maximizes the use of the computers and technology available to my students.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	5	45.45%	3	27.27%	2	18.18%	0	0.00%
I use the computer for my own continuing education.									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
4	36.36%	6	54.55%	0	0.00%	1	9.09%	0	0.00%
One of my professional goals is to learn more ways to use computers in seamless instruction (i.e., it is as easy for me as using a chalkboard.)									
Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
3	27.27%	1	9.09%	4	36.36%	2	18.18%	0	0.00%

Table 5 - continued

I have the background to show others how to merge technology with integrated, thematic curricula.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
0	0.00%	3	27.27%	5	45.45%	1	9.09%	2	18.18%

I am able to troubleshoot various software problems such as translations, compression of image files, and cross-platform issues.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
2	18.18%	2	18.18%	2	18.18%	2	18.18%	3	27.27%

I actively participate in online collaboration opportunities.

Strongly Agree		Agree		Neither Disagree or Agree		Disagree		Strongly Disagree	
1	9.09%	3	27.27%	3	27.27%	3	27.27%	1	9.09%

Professional development can make using and integrating technology much easier. Less than half of those responding agreed with the statement that they were able to troubleshoot various software problems and even fewer (27.27%) said they have the background to teach others how to merge technology into the curriculum. However, only 18.18% disagreed that they seek professional development that maximizes the use of the computers and technology available to my students, but only 36.36% said it was one of their goals to learn more ways to use computers in seamless instruction.

Conclusion

The most glaring result of this study was that, of

those responding, not one school budgeted any money for technology related staff development outside of money gained from grants and state initiatives. As stated earlier, the U.S. Congress Office of Technology Assessment (1995) suggest 30% of a school's technology budget be spent on staff development. None of these schools even came close to that number.

Therefore, it is not a surprise that so few teachers surveyed said it was a priority to use computers in the classroom. Without adequate training teachers cannot be expected to utilize technology in their classrooms. Nor can they be expected to use the latest research in designing lessons, and many of them indicated that they did not when developing computer related activities for their students.

Since the teachers do not have proper training to develop lessons, they do not assign many lessons with computer elements. This greatly furthers the lack of integration of technology into the curriculum. Although it seems the students have adequate access to computers and technology, it also seems that this technology is being greatly underutilized.

This under utilization could be due to the fact that the teachers do not feel comfortable with the technology themselves. Therefore, they cannot be expected to teach others using this technology, especially students.

Additional staff development may raise the comfort level of staff and thus elevate the level of technology integration.

Is the lack of district provided training holding back the integration of technology into these classrooms? This study was unable to determine the answer to that question, and it is the opinion of this researcher that further study is definitely needed.

Limitations and Need for Further Study

In ethical research involving human subjects, ones research is absolutely dependent upon the willingness of those being studied to participate. In the case of this study the willingness of the subjects (or more so their superiors) was extremely lacking. Therefore, the results of the study are far from adequate to thoroughly investigate this issue and too limited to do any sort of detailed analysis.

Many studies have been done on the different styles of professional staff development for teachers and administrators in the area of technology and its integration into the classroom. Several different teachers' and administrators' characteristics have been identified as possible predictors of how much one might integrate technology into the classroom including: "age,

sex, principal's years of administrative experience, school size, and grade level." (Dawson & Rakes, 2003) One element, however, has been consistently ignored in recent studies (1994 and after), and that is how much money is being spent on staff development. Researchers seem to agree that staff development is crucial to the successful integration of technology. (Swan, Holmes, Vargas, Jennings, Meier, & Rubenfeld, 2002; Williams & Kingham, 2003)Since the beginning of the technology boom in our schools, teacher training and staff development "...has simply not had the same priority as spending on hardware and software." (Becker, 1994, section 7) "In addition, most schools do not budget adequately for technology and technology training." (Swan et al., 2002)

Money is being spent for technology, but inadequate amounts are spent on corresponding staff development. "In recent years, the investment in technology for K-12 public schools in the United States has grown astronomically." (Yau, 1999, Introduction section) Teachers and staff continue to cite one of the biggest reasons for not using these vast resources more is the "lack of proper training and follow-up support" (Williams & Kingham, 2003). Administrators are also lacking in their abilities to use and promote the use of technology in their schools. (Thomas, 1999) If the administrators themselves do not know how to use the

technology it is unlikely the school environment will be conducive to the use of technology overall. However, Dawson and Rakes (2003, Conclusions section) contend that, "As principals become more adept at guiding technology integration, more efficient and effective technology use should become prevalent in schools."

Research found many studies that indicated as principals and teachers become more comfortable with technology, it will become more effectively utilized in the curriculum. Searches using the online library called Questia, Educational Resources Information Center (ERIC), and Google's beta version of their Scholar search engine using the keywords technology, staff development, and budget, produced few studies that even mentioned budgets and technology integration. There were none that I could locate that studied the effect of the amount spent on technology staff development and its effect on technology integration in the classroom.

The correlation might seem obvious at first, but when further thought and research are put towards the subject there are an abundance of factors that may contribute to the integration, or lack thereof, of technology into the classroom. Simply putting more money towards the training of administrators and staff in the area of technology may not be the solution. However, it was the goal of this study, and should be the goal of

future studies, to show that affects of these other factors proved minimal when compared with the money put towards staff development. With shrinking budgets throughout the education system in this country, an answer is needed. As Butler says in her review of the research, "Further studies of this type are needed to support what is generally believed to be true: staff development can and does have impact on student performance." (2001)

BIBLIOGRAPHY

Atkins, N. E., & Vasu, E. S. (2000). Measuring knowledge of technology usage and stages of concern about computing: a study of middle school teachers. *Journal of Technology and Teacher Education, 8*(4), 279. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Barnett & Harvey (2001) Successful K-12 technology planning: Ten essential elements. *Educational Resources Information Center (ERIC Document Reproduction Service No. ED457858).*

Becker, H.J. (1994). Analysis and trends of school use of new information technologies. Washington, DC: US Congress Office of Technology Assessment. Retrieved March 14, 2005 from http://www.gse.uci.edu/doehome/EdResource/Publications/EdTechUse/C-TBLCNT.HTM.

Becker, H.J. (1999). Internet use by teachers: Conditions of professional use and teacher-directed student use. *Teaching, Learning, and Computing, 1998 National Survey. Report #1. Educational Resources Information Center (ERIC Document Reproduction Service No. ED429564).*

Butler, J (2001). Staff development. Northwest Regional Educational Laboratory. Retrieved on March 25, 2005 from http://www.nwrel.org/scpd/sirs/6/cu12.html.

Carabine, B. (1999). Creating a collaborative learning environment in K-6 classrooms. *Technological Horizons in Education*, 26(10), 76. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Christensen, R. (2002). Effects of technology integration education on the attitudes of Teachers and Students. *Journal of Research on Technology in Education, 34*(4), 411+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Cole, K., Simkins, M., & Penuel, W. R. (2002). Learning to teach with technology: Strategies for inservice professional development. *Journal of Technology and*

Teacher Education, 10(3), 431+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Dawson, C., & Rakes, G. C. (2003). The influence of principals' technology training on the integration of technology into schools. *Journal of Research on Technology in Education, 36*(1), 29+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Dooley, L., Metcalf, T., & Martinez, A. (1999). A study of the adoption of computer technology by teachers. *Educational Technology & Society,* 2(4). Retrieved March 22, 2005 from http://ifets.ieee.org/periodical/vol_4_99/ldooley.html.

Hubbard, R. (1998). Increasing Internet usage among teachers and students for information retrieval and curricular augmentation through ongoing training and support. *Educational Resources Information Center (ERIC Document Reproduction Service No. ED429557).*

Hunter, B. (2001). Against the odds: professional development and innovation under less-than-ideal conditions. *Journal of Technology and Teacher Education, 9*(4), 473+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Insights (2003). *Technology use questionnaire*. Retrieved March 25, 2004 from http://insight.southcentralrtec.org/ilib/tuq/.

International Society for Technology in Education (2001). School Technology and Readiness (STaR) Chart. Retrieved March 25, 2005 from http://www.iste.org/inhouse/starchart/index.cfm.

Isernhagen, J. C. (1999). A major catalyst for increasing learning. *T H E Journal (Technological Horizons In Education), 27*(1), 30. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Jenson, J., Lewis, B., & Savage, R. (2002). No one way: working models for teachers' professional development. *Journal of Technology and Teacher Education, 10*(4), 481+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Johnson, J. P., Livingston, M., Schwartz, R. A., & Slate, J. R. (2000). What makes a good elementary school? A

Critical Examination. *The Journal of Educational Research, 93*(6), 339. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Mulqueen, W. E. (2001). Technology in the classroom: lessons learned through professional development. *Education, 122*(2), 248+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Sherry, L. (1997). Linking technology with promising practice to improve teaching and learning. *Educational Resources Information Center (ERIC Document Reproduction Service No. ED414277).*

Sunal, C. S., Smith, C., Sunal, D. W., & Britt, J. (1998). Using the Internet to create meaningful instruction. *Social Studies , 89*(1), 13-17.

Swain, C., & Pearson, T. (2002). Educators and technology standards: influencing the digital divide. *Journal of Research on Technology in Education, 34*(3), 326+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Swan, K., Holmes, A., Vargas, J. D., Jennings, S., Meier, E., & Rubenfeld, L. (2002). Situated professional development and technology integration: The Capital Area Technology and Inquiry in Education (CATIE) Mentoring Program. *Journal of Technology and Teacher Education, 10*(2), 169+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Thomas, W. R. (1999). Educational technology: Are school administrators ready for it? Atlanta, GA: Southern Regional Education Board. Retrieved March 14, 2005, from http://www.sreb.org/programs/EdTech/pubs/pubsindex.asp.

U.S. Congress, Office of Technology Assessment, *Teachers and Technology: Making the Connection,* OTA-EHR-616 (Washington, DC: U.S. Government Printing Office, April 1995).

Vincent, P., & Kaberon, R. (2000). Sustaining educational technology: Funding challenges and opportunities for policymakers. *Policy Issues, 4. Educational Resources Information Center (ERIC Document Reproduction Service No. ED443152).*

Williams, H. S., & Kingham, M. (2003). Infusion of technology into the curriculum. *Journal of Instructional Psychology, 30*(3), 178+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Wolosoff, R. (1998). Technology in the classroom: A local survey in New York. *T H E Journal (Technological Horizons In Education), 25*(9), 51+. Retrieved March 26, 2005, from Questia database, http://www.questia.com.

Yau, R (1999). Technology in K-12 public schools: What are the equity issues? Retrieved March 16, 2005, from http://www.maec.org/techrev.html.

APPENDIX A
HSIRB APPROVAL LETTER

Human Subjects Institutional Review Board

Date: October 18, 2005

To: Tracy DuBay, Principal Investigator
Chad Frerich, Student Investigator

From: Mary Lagerwey, Ph.D., Chair Mary Lagerwey

Re: HSIRB Project Number 05-09-18

This letter will serve as confirmation that your research project entitled "Budgeted Money in Staff Development and Technology Integration" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 18, 2006

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

APPENDIX B
SURVEY INSTRUMENT

SURVEY INSTRUMENT

The following survey is based on the Technology Use Questionnaire (Insights 2003). Additional items were included to gather demographic data and other information needed to complete the study.

Demographics

School District Information

1. What is the student population of the district?
2. What is the student population of your building?
3. What is the average class size?
4. What percentage of students in your district receives free or reduced lunches?
5. What percentage of the district's yearly budget is spent on technology related staff development?
6. What amount of money was spent on technology related staff development from other sources, i.e. grants, state initiatives, etc.?

Teacher Information

1. What grade level do you teach?
2. What subject do you teach (if elementary please indicate)?

Access To Computer Support

1. Does your school have a dedicated computer support technician?

Yes

No

2. What is the average response time for your computer questions and/or problems?

Immediate

3. How many hours did you spend last year outside of school time using and learning technology?

4. How old are you?

Less than 1 hour

1 to 8 hours

Days to Weeks

3. Does your building have a 'technology coach' that is able to assist you with computer issues?

Yes

No

Computer Access

1. Do you have computer access at school?

Yes

No

2. Do you have computer in your classroom?

Yes

No

Questionnaire

Please indicate how strongly you agree or disagree with each statement. (The following statements were rated with the following scale: Strongly Agree, Disagree, Neither Disagree nor Agree, Agree, Strongly Agree.)

1. I am motivated to find ways to use the computer(s) in my classroom.

2. I assign daily or weekly computer-related tasks that support my curriculum (analyzing data from a survey, creating multimedia presentations that showcase students' understanding of important content, researching information via CDs or the Internet).

3. My students have access to all forms of technology and computers at any time during the instructional day.

4. I provide short-term (daily or weekly) assignments using the classroom computer(s) that emphasize the use of different software applications (such as spreadsheets, databases, Internet use, and multimedia).

5. I alter my instructional use of the classroom computer(s) as I gain new knowledge of software applications and research on teaching and learning.

6. One of my technology goals is for students to be

able to use the classroom computer as another tool for learning.

7. I find computers to be an important part of classroom instruction.

8. I seek professional development that maximizes the use of the computers and technology available to my students.

9. I allocate time for students to practice their computer skills on the classroom computer(s).

10. My students eagerly pursue the use of the classroom computers.

11. Using the classroom computer(s) is a priority for me this school year.

12. I use the computer for my own continuing education.

13. I have enough time to use the classroom computer(s).

14. I need more and/or more current computers in order to use technology with my classroom instruction.

15. I have an immediate need for more professional development in order to design student-centered, integrated curriculum units that use the classroom computer(s) in a seamless fashion.

16. My students use the Internet for collaboration with others, including joint publishing, communicating, and researching to solve authentic problems.

17. I seek out activities that promote increased problem-solving and critical thinking using the classroom computer(s).

18. I plan computer-related activities in my classroom that will improve my student's basic skills (e.g., reading, writing, math computation).

19. In my classroom, students use technology-based computer and Internet resources beyond the school (NASA, other government agencies, private sector) to solve authentic problems.

20. One of my professional goals is to learn more ways to use computers in seamless instruction (i.e., it is as easy for me as using a chalkboard.)

21. It is easy for me to design student-centered, integrated curriculum units that use the classroom computer(s) in a seamless fashion.

22. I prefer to use existing curriculum units that integrate the classroom computer(s) with authentic assessment and student relevancy rather than building my own units from scratch.

23. I use my students' interests, experiences, and desires to solve authentic problems when planning computer-related activities in my classroom.

24. Using available technology and computers, I have expanded the horizons of instructional computing in my classroom.

25. I use integrated curriculum units that place heavy emphasis on complex thinking skills, computer use, and student relevancy to the real world.

26. I use my classroom computer(s) primarily to track grades and/or answer email.

27. I rely on others (student assistant, parent volunteer, close friend) to do my computer-related tasks for me in my classroom.

28. I access the Internet quite frequently.

29. I am proficient with basic software applications (word processing, Internet applications, CD ROMs, Games).

30. I am proficient with at least one multimedia authoring tool (such as HyperStudio, PowerPoint, KidPix, or AppleWorks).

31. I integrate the most current research on teaching and learning when using the classroom computers.

32. I have the background to show others how to merge technology with integrated, thematic curricula.

33. I am very comfortable using a computer.

34. I find the use of computers to be practical for my students.

35. I am able to troubleshoot various software problems such as translations, compression of image files, and cross-platform issues.

36. I actively participate in online collaboration opportunities.

APPENDIX C
INFORMED CONSENT

INFORMED CONSENT

College of Education

EXCELLENCE IN ACTION

WESTERN MICHIGAN UNIVERSITY

Informed Consent

You are invited to participate in a research project entitled "Budgeted Money In Staff Development and Technology Integration." This study has been designed to analyze the relationship between technology-related staff development expenditures and the amount of technology integration in the classroom.

The study is being conducted by Dr. Tracy DuBay and Chad Frerichs from Western Michigan University, Department of Educational Technology. This research is being conducted as part of the thesis requirements for Chad Frerichs. It is hoped that with a better understanding of this relationship school districts will better be able to budget money and plan technology related staff development.

You are being invited to complete an online survey instrument. This survey is comprised of 51 questions covering areas of demographics and technology use. Your replies will be completely anonymous and stored on a secure server accessible only by authorized individuals including Dr. Dubay and Chad Frerichs from WMU ,and Dr. Peet, Dr. Whitworth and Bryce Benton (from The University of North Texas). You may choose to not answer any question and simply leave it blank. You may exit the survey at any time without submitting any information by simply closing the browser window. If you choose to not participate in this survey simply exit this browser window. Submitting the survey indicates your consent for use of the answers you supply. Findings from this survey will be reported in an aggregate form from which individuals cannot be identified by their responses. If you have any questions, you may contact Dr. Tracy DuBay at dubay@wmich.edu, Chad Frerichs at 712-320-2287 or chad.m.frerichs@wmich.edu, the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

APPENDIX D
LETTER TO SUPERINTENDENTS

LETTER TO SUPERINTENDENTS

College of Education
EXCELLENCE IN ACTION
WESTERN MICHIGAN UNIVERSITY

You and your staff are invited to participate in a research project entitled "Budgeted Money In Staff Development and Technology Integration" designed to analyze the relationship between the amount of money spent on technology related staff development and the amount of technology integration in the classroom. The study is being conducted by Dr. Tracy DuBay and Chad Frerichs from Western Michigan University, Department of Educational Technology. This research is being conducted as part of the thesis requirements for Chad Frerichs.

In order for your staff to be able to complete the survey accurately we ask that you forward the information required to answer the following questions to them in them using the attached form either through email of hard copy. In addition to the information we ask that you invite their participation. The survey is composed of 51 questions and should take no more than 30 minutes of your staff's valuable time. The survey is entirely online and will be hosted at The South Central RTEC Instrument Library and Data Repository at the following URL. (URL to be inserted after finalization of instrument)

To complete the survey, your staff will need information sufficient to answer these questions:

1. What is the student population of the district?

2. What is the student population of your building?

3. What is the average class size?

4. What percentage of students in your district receives free or reduced lunches?

5. What percentage of the district's yearly budget is spent on technology related staff development?

6. What amount of money was spent on technology related staff development from other sources, i.e. grants, state initiatives, etc.?

We appreciate you considering participation in this important study and look forward to receiving results from your district.

Sincerely,

Dr. Tracy DuBay and Chad Frerichs

APPENDIX E
SUBJECT RECRUITMENT SCRIPT

SUBJECT RECRUITMENT SCRIPT

Our staff has been invited to participate in a research project entitled "Budgeted Money In Staff Development and Technology Integration" designed to analyze the relationship between the amount of money spent on technology related staff development and the amount of technology integration in the classroom. The study is being conducted by Dr. Tracy DuBay and Chad Frerichs from Western Michigan University, Department of Educational Technology. This research is being conducted as part of the thesis requirements for Chad Frerichs.

In order to properly complete the survey, if you choose to do so, you will need the information provided to answer the following questions.

1. What is the student population of the district? **Answer:**<insert answer>

2. What is the student population of your building? **Answer:**<<insert answer>

3. What is the average class size? **Answer:**<<insert answer>

4. What percentage of students in your district receives free or reduced lunches? **Answer:**<<insert answer>

5. What percentage of the district's yearly budget is spent on technology related staff development? **Answer:**<<insert answer>

6. What amount of money was spent on technology related staff development from other sources, i.e. grants, state initiatives, etc.? **Answer:**<<insert answer>

Feel free to participate in this survey at http://insight.southcentralrtec.org/ilib/frerichs/demo.php.

Sincerely,

APPENDINX F
RAW THESIS DATA

urvey Data											
uestions											
hool Information											
:hat is the student population of the district?	413	413	413	413	305	305	305	305	2029 2	305	2029 2
:hat is the student population of your building?	413	256	Elem MS 256 HS 157	K-8 256 HS 157	130	175	130	175	315	390	315
:hat is the average class size?	15	15	15	15	21	13	21	13	24 5	22	24 5
:hat percentage of students in your district eives free or reduced lunches?	27	27	27%	27%	25	25	25	25	28 71%	25	28 7
:hat percentage of the district's yearly budget spent on technology related staff development?	0	0	0	0	1%	<1	1	Less than 1%	less than 1%	less than 1%	Less Than 1%
:hat amount of money was spent on technology ated staff development from other sources i e nts state initiatives etc ?	4000	4 000	54 000	4 000 00	10 000	10 000	510 000	510 000	511 000 E2T2 Consortium	10 000	511 000 E2T2 Consortium
acher Information											
:hat grade level do you teach?	district le at	5	5-12	Admin	K-5	5-12	2	6-12	first	K 12	6th
:hat subject do you teach (if elementary please icate)?	central office	Elem all subjects	Band	HA	elem	agriculture	Elementary	Social Studies	elementary	half time first grade half time librarian k-12	Elementary
ow many hours did you spend last year outside school time using and learning technology?	100	150	2a	HA	200	H A alot	about 400	0	approx 10	20	30 Hours
How old are you?	38	56	57	42	55	34	53	28	47	51	42
ccess To Computer Support											
Does your school have a dedicated computer pport technician?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
:hat is the average response time for your mputer questions and or problems?	Immeadiate	Less than an hour	1 to 8 hours	Less than an hour	1 to 8 hours	1 to 8 hours	1 to 8 hours	Days to Weeks	1 to 8 hours	Days to Weeks	Less than an hour
Does your building have a "technology coach" t is able to assist you with computer issues?	Yes	Yes	Yes	Yes	Yes	No	Yes	no	Yes	no	Yes
mputer Access											
you have computer access at school?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
you have computer access in your classroom?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Survey Data Continued

Questionnaire											
I am motivated to find ways to use the computer(s) in my classroom	Strongly Agree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Strongly Agree	Agree	Agree	Agree	Neither Disagree or Agree	Disagree	Agree
I assign daily or weekly computer-related tasks that support my curriculum (analyzing data from a survey, creating multimedia presentations that showcase students' understanding of important content, researching information via CD's or the Internet)	Neither Disagree or Agree	Strongly Agree	Strongly Disagree	Neither Disagree or Agree	Strongly Agree	Disagree	Agree	Agree	Strongly Disagree	Disagree	Disagree
My students have access to all forms of technology and computers at any time during the instructional day	Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree	Neither Disagree or Agree	Agree	Disagree	Neither Disagree or Agree	Neither Disagree or Agree
I provide short-term (daily or weekly) assignments using the classroom computer(s) that emphasize the use of different software applications (such as spreadsheets, databases, Internet use, multimedia)	Neither Disagree or Agree	Strongly Agree	Strongly Disagree	Neither Disagree or Agree	Strongly Agree	Neither Disagree or Agree	Disagree	Agree	Strongly Disagree	Disagree	Neither Disagree or Agree
I alter my instructional use of the classroom computer(s) as I gain new knowledge of software applications and research on teaching and learning	Neither Disagree or Agree	Neither Disagree or Agree	Strongly Disagree	Neither Disagree or Agree	Strongly Agree	Neither Disagree or Agree	Agree	Agree	Neither Disagree or Agree	Agree	Agree
One of my technology goals is for students to be able to use the classroom computer as another tool for learning	Neither Disagree or Agree	Neither Disagree or Agree	Disagree	Neither Disagree or Agree	Strongly Agree	Agree	Agree	Agree	Disagree	Agree	Strongly Agree
I find computers to be an important part of classroom instruction	Strongly Agree	Neither Disagree or Agree	Agree	Agree	Strongly Agree	Agree	Agree	Neither Disagree or Agree	Neither Disagree or Agree	Strongly Agree	Agree
I seek professional development that maximizes the use of the computers and technology available to my students	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Agree	Strongly Agree	Agree	Agree	Disagree	Disagree	Agree	Neither Disagree or Agree
I allocate time for students to practice their computer skills on the classroom computer(s)	Neither Disagree or Agree	Neither Disagree or Agree	Neither Disagree or Agree	Neither Disagree or Agree	Strongly Agree	Neither Disagree or Agree	Disagree	Neither Disagree or Agree	Strongly Disagree	Agree	Neither Disagree or Agree
My students eagerly pursue the use of the classroom computers	Neither Disagree or Agree	Agree	Strongly Agree	Neither Disagree or Agree	Strongly Agree	Neither Disagree or Agree	Strongly Agree	Disagree	Neither Disagree or Agree	Agree	Neither Disagree or Agree
Using the classroom computer(s) is a priority for me this school year	Neither Disagree or Agree	Agree	Neither Disagree or Agree	Neither Disagree or Agree	Strongly Agree	Disagree	Agree	Disagree	Neither Disagree or Agree	Neither Disagree or Agree	Agree
I use the computer for my own continuing education	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Agree	Agree	Agree	Disagree	Strongly Agree	Strongly Agree
I have enough time to use the classroom computer(s)	Neither Disagree or Agree	Disagree	Agree	Neither Disagree or Agree	Strongly Agree	Disagree	Disagree	Agree	Disagree	Disagree	Agree
I need more and or more current computers in order to use technology within my classroom instruction	Neither Disagree or Agree	Strongly Agree	Strongly Agree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Disagree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Agree
I have an immediate need for more professional development in order to design student-centered integrated curriculum units that use the classroom computer(s) in a seamless fashion	Neither Disagree or Agree	Strongly Agree	Neither Disagree or Agree	NULL	Neither Disagree or Agree	Neither Disagree or Agree	Disagree	Neither Disagree or Agree	Agree	Disagree	Disagree
My students use the Internet for collaboration with others, including joint publishing, communicating, and researching to solve authentic problems	Neither Disagree or Agree	Strongly Disagree	Agree	NULL	Agree	Disagree	Disagree	Agree	Strongly Disagree	Strongly Disagree	Neither Disagree or Agree

Survey Data Continued

I seek out activities that promote increased problem-solving and critical thinking using the classroom computer(s)	Neither Disagree or Agree	Strongly Disagree	Agree	NULL	Strongly Agree	Agree	Agree	Agree	Strongly Disagree	Agree	Disagree
I plan computer-related activities in my classroom that will improve my student's basic skills (e.g. reading, writing, math computation)	Neither Disagree or Agree	Disagree	Strongly Disagree	NULL	Strongly Agree	Agree	Agree	Agree	Disagree	Neither Disagree or Agree	Disagree
In my classroom, students use technology-based computer and Internet resources beyond the school (NASA, other government agencies, private sector) to solve authentic problems	Neither Disagree or Agree	Strongly Disagree	Agree	NULL	Strongly Agree	Neither Disagree or Agree	Strongly Disagree	Agree	Strongly Disagree	Disagree	Disagree
One of my professional goals is to learn more ways to use computers in seamless instruction so it is as easy for me as using a chalkboard.	Neither Disagree or Agree	Agree	Strongly Agree	NULL	Strongly Agree	Neither Disagree or Agree	Neither Disagree or Agree	Neither Disagree or Agree	Disagree	Strongly Agree	Disagree
It is easy for me to design student-centered integrated curriculum units that use the classroom computer(s) in a seamless fashion	Neither Disagree or Agree	Strongly Disagree	Disagree	NULL	Strongly Agree	Neither Disagree or Agree	Strongly Disagree	Neither Disagree or Agree	Strongly Disagree	Neither Disagree or Agree	Disagree
I prefer to use existing curriculum units that integrate the classroom computer(s) with authentic assessment and student relevancy, rather than building my own units from scratch	Neither Disagree or Agree	Agree	Agree	NULL	Agree	Disagree	Agree	Agree	Neither Disagree or Agree	Agree	Disagree
I use my students' interests, experiences, and desires to solve authentic problems when planning computer-related activities in my classroom.	Neither Disagree or Agree	Neither Disagree or Agree	Neither Disagree or Agree	NULL	Agree	Neither Disagree or Agree	Agree	Agree	Disagree	Agree	Disagree
Using available technology and computers I have expanded the horizons of instructional computing in my classroom.	Neither Disagree or Agree	Disagree	Neither Disagree or Agree	NULL	Agree	Neither Disagree or Agree	Agree	Neither Disagree or Agree	Strongly Disagree	Agree	Agree
I use integrated curriculum units that place heavy emphasis on complex thinking skills, computer use, and student relevancy to the real world.	Neither Disagree or Agree	Strongly Disagree	Disagree	NULL	Agree	Agree	Disagree	Disagree	Neither Disagree or Agree	Agree	Neither Disagree or Agree
I use my classroom computer(s) primarily to track grades and/or answer email.	Strongly Disagree	Strongly Agree	Strongly Agree	NULL	Strongly Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Strongly Agree
I rely on others (student assistant, parent volunteer, close friend) to do my computer-related tasks for me in my classroom.	Strongly Disagree	Disagree	Disagree	NULL	Strongly Disagree	Disagree	Strongly Disagree	Disagree	Strongly Disagree	Disagree	NULL
I access the Internet quite frequently.	Strongly Agree	Agree	Disagree	NULL	Strongly Agree	Agree	Strongly Agree	Agree	Disagree	Strongly Agree	Strongly Agree
I am proficient with basic software applications (word processing, Internet applications, CD-ROMs, Games).	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree
I am proficient with at least one multimedia authoring tool (such as HyperStudio, PowerPoint, KidPix, or AppleWorks).	Strongly Agree	Strongly Disagree	Strongly Disagree	Disagree	Agree	Agree	Strongly Agree	Agree	Disagree	Agree	Strongly Agree
I integrate the most current research on teaching and learning when using the classroom computers.	Neither Disagree or Agree	Disagree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Agree	Agree	Neither Disagree or Agree	Disagree	Agree	Strongly Disagree
I have the background to show others how to merge technology with integrated thematic curricula.	Neither Disagree or Agree	Strongly Disagree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Neither Disagree or Agree	Agree	Agree	Strongly Disagree	Neither Disagree or Agree	Disagree
I am very comfortable using a computer.	Strongly Agree	Disagree	Agree	Agree	Strongly Agree	Agree	Agree	Agree	Neither Disagree or Agree	Agree	Strongly Agree
I find the use of computers to be practical for my students.	Neither Disagree or Agree	Agree	Agree	Agree	Strongly Agree	Agree	Agree	Neither Disagree or Agree	Agree	Agree	Strongly Agree
I am able to troubleshoot various software problems such as translations, compression of image files, and cross-platform issues.	Strongly Agree	Strongly Disagree	Neither Disagree or Agree	Disagree	Strongly Agree	Neither Disagree or Agree	Agree	Agree	Strongly Disagree	Strongly Disagree	Disagree
I actively participate in online collaboration opportunities.	Strongly Agree	Disagree	Neither Disagree or Agree	Neither Disagree or Agree	Agree	Disagree	Agree	Neither Disagree or Agree	Strongly Disagree	Agree	Disagree