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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) Copyright by Chad Frerichs 2006

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

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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 indepth 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. (Malgueen, 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 study done by Atkins and Vasu (2000) entitled а "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

instrument was based on the Technology Use The 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		
	nowledge			coom computer(s l research on t	
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 vear.	the cla	ssroom compute.	r(s) is a priom	tity for me thi	s school
	ongly gree	Agree	Neither Disagree or Agree	Disagree	Strongly Disagree
1	9.09%	3 27.27%	5 45.45%	2 18.18%	0 0.00
		time to use the	0 101100		0.00
Str	ongly		Neither Disagree	,	Strongly
Ag	jree	Agree	or Agree	Disagree	Disagree
1	9.09%	3 27.27%	2 18.18%	5 45.45%	0 0.00
	my clas: r email.	sroom computer		to track grades	and/or
	ongly gree	Agree	Neither Disagree or Agree	Disagree	Strongly Disagree
3	27.27%	0 0.00%	0 0.00%	5 45.45%	2 18.18
to do Str		ers (student au uter-related to Agree		nt volunteer, c my classroom. Disagree	lose friend) Strongly Disagree
Ac	,				
	0 0.0%		0 0 0 0 0	5 45 45%	4 36 36
0	0.00%	0 0.00%	0 0.00%	5 45.45%	4 36.36
0 I acce Str	ess the i	Internet quite	frequently. Neither Disagree		Strongly
0 I acce Str	ess the		frequently. Neither	5 45.45% Disagree 2 18.18%	1 00.00

Iamp	proficie	nt with	basic :	softwar	e applic	cations	(word p	rocess	ing,
	net appl:						. 1		5.
				Nei	ther				
Str	ongly			Disa	agree			Str	ongly
Ac	gree	Ag	jree	ori	Agree	Dis	agree	Disa	agree
5	45.45%	6	54.55%	0	0.00%	0	0.00%	0	0.00%
	proficie						-	ool (s	uch as
	proficie Studio,			dPix, c	or AppleV		-	:00l (s	uch as
Hyper	Studio,			dPix, c Nei	or AppleW .ther		-		
Hyper				dPix, c Nei	or AppleV		-	Str	ongly
Hyper: Str	Studio,	PowerPc		dPix, c Nei Disa	or AppleW .ther	Norks).	_	Str	
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Table 1 - continued

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

	Le	esson Developme	nt	
classroom co	use existing cu mputer(s) with ther than build	authentic asse ing my own uni	ssment and stud	lent
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%
	dents' interest oblems when pla	nning computer		
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%
	ble technology instructional c	omputing in my		ed the
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%
	ated curriculum king skills, co			
Strongly Agree	Agree	Disagree or Agree	Disagree	Strongly Disagree
0 0.00%	3 27.27%	3 27.27%	3 27.27%	1 9.09%
	the most curren assroom compute	rs.	teaching and le	earning when
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 a	above table d	letailed the	results of	the survey
items rel	ated to less	son developm	nent. 54.55%	of those
	ated to less said they p			

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

			Compute	D D	elated Acti		ion		
curr pres	ciculum (a sentations	naly tha	weekly con zing data t showcase	mput from stu	er-related a survey, dents' und	tas cre erst	eks that superior of the internet	imed impo	ia
St	rongly Agree		Agree	I	Neither Disagree Dr Agree)isagree	s	trongly isagree
2	18.18%	2	18.18%	2	18.18%	3	27.27%	2	18.18%
							ments using of differe		
clas appl	sroom com	pute	r(s) that	emph dshe	asize the ets, datab	use	ments using of differe , Internet	nt s	oftware
clas appl mult	sroom com ications	pute	r(s) that	emph dshe I	asize the	use ases	of differe	nt s use	oftware
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clas appl mult St 2 I fi	ssroom com ications imedia). crongly Agree 18.18%	pute (suc	r(s) that h as sprea Agree 9.09%	emph dshe I 4 mpor	asize the ets, datab Neither Disagree or Agree 36.36%	use ases I 2 of c	of differe , Internet Disagree 18.18%	nt s use S 2 nstr	oftware , and trongly isagree 18.18%

C11		oom com	puter(s)		o prac		neir	oompac		SK1	
	trongly Agree		Agree		Neit Disa or A	gree	Di	isagree	e		Strongly Disagree
1	9.09%	1	9.	09%	7	63.64%	1	9.	09%	1	9.09%
	need mor th my cl					outers.	in or	der to	use	e t	echnology
	trongly Agree	21	Agree		Neit Disa or A	gree	Di	isagre	e		Strongly Disagree
2	18.18%	3	27.	27%	5	45.45%	1	9.	09%	0	0.00%
in	student cluding thentic	joint p	ublishi			cating,					to solve
	trongly Agree		Agree		Disa or A	gree	Di	isagre	e		Strongly Disagree
0	0.00%	3	27.	27%	2	18.18%	2	18.	18%	3	27.278
	trongly Agree		ree	Ne Di	either sagree Agree)isagi				rongly sagree
1		_									
±.,	9.09%	5	45.45 %	1	. 9.0		1	9.09%	2	2	
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¥

Table 3 - continued

Computer related activities involving students can a great indicator of the amount of technology be 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.

Agree Agree or Agree Disagree I 3 27.27% 4 36.36% 3 27.27% 1 9.09% 0 One of my technology goals is for students to be able to usclassroom computer as another tool for learning. I 9.09% 0 Strongly Image: student state st	Strongly Disagree 0.00% e the Strongly Disagree 0.00%	
Strongly AgreeAgreeDisagree or AgreeDisagreeDisagree327.27%436.36%327.27%19.09%0One of my technology goals is for students to be able to use classroom computer as another tool for learning.0Neither Disagree or Agree0218.18%436.36%327.27%218.18%0My students eagerly pursue the use of the classroom computer0000	bisagree 0.00% e the bisagree 0.00%	
One of my technology goals is for students to be able to use classroom computer as another tool for learning. Strongly Agree Agree or Agree Disagree I 2 18.18% 4 36.36% 3 27.27% 2 18.18% 0 My students eagerly pursue the use of the classroom computer	e the Strongly Disagree 0.00%	
classroom computer as another tool for learning. Strongly Agree Neither Disagree or Agree Beither Disagree Strongly Disagree 2 18.18% 4 36.36% 3 27.27% 2 18.18% 0 My students eagerly pursue the use of the classroom computer Image: Classroom computer Image: Classroom computer Image: Classroom computer	Strongly Disagree 0.00%	
My students eagerly pursue the use of the classroom compute:		
	rs.	
Strongly Disagree S	Strongly Disagree	
3 27.27% 2 18.18% 5 45.45% 1 9.09% 0	0.00%	
	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 Disagree S	Strongly Disagree	
	Jisagiee	

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

			Proces	3510	nal Develop	ment			
					that maxim ble to my s			f th	e
S	trongly Agree		Agree	I	Neither Disagree or Agree)isagree		trongly isagree
1	9.09%	5	45.45%	3	27.27%	2	18.18%	0	0.00%
~	1			_					
	trongly Agree		Agree	c	Disagree or Agree)isagree	D	trongly isagree
		6	Agree 54.55%		5	1	Disagree 9.09%		isagree
4 One in s	Agree 36.36% of my pro:	fess	54.55% ional goals	0 s is	to learn m	1 ore	9.09% ways to us		0.00% mputers
4 One in s chal	Agree 36.36% of my pros	fess	54.55% ional goals	0 ; is ; , :	to learn m	1 ore sy f	9.09% ways to us	Di 0 e co sing St	0.00% mputers

	ave the ba			ula.		to m	erge techno	olog	y with				
s	StronglyNeitherAgreeAgreeStronglyAgreeAgreeOr AgreeDisagree												
0	0.00%	3	27.27%	5	45.45%	1	9.09%	2	18.18%				
				fim	us softwar age files, Neither								
s	trongly Agree		Agree	Ē)isagree or Agree	I	isagree		Strongly Disagree				
2	18.18%	2	18.18%	2	18.18%	2	18.18%	3	27.27%				
Ia	I actively participate in online collaboration opportunities.												
s	trongly Agree		Agree	I	Neither Disagree Dr Agree	I	isagree		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 technology. (Swan, integration of 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" Kingham, 2003). Administrators are also (Williams 6 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)

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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

Man Lagenne

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

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.)

 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



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



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

uestions											
hool Information											
What is the student population of the district?	413	413	413	413 .	309	399	309	309	2029 2	309	2029 2
That is the student population of your building?	413	256	Elem 1.15-256 HS 157	K-8-256 HS-157	130	179	130	175	315	390	315
"hat is the average class size?	15	15	15	15	21	13	21	13	24 0	22	24 5
What percentage of students in your district			10.0				C22 - 1				
erves free or reduced lunches?	27	27	274	27*0	25	26	26	26	28 71%	26	28.7
That percentage of the district's yearly budget											
spent on technology related staff development?	0.	0	0	0	12a -	< 1	τ	Less than 1°.	less Ihan 1º.	less than 1%	Less Than 1%
What amount of money was spent on technology											
ated staff development from other sources i e											
ints state initiatives etc ?	1000	4,000	54 000	4 000 00	10 000	10 000	\$10.000	510.000	\$11 000 E2T2 Consortium	10 000	S11 000 E2T2 Consertium
acher Information				-							
What grade level do you teach?	distinct la.el		á á-12	Adm in	Risi	6-12		2 6.12	first	K-12	6th
What subject do you teach (if elementary please										half time first grade	
icate)?	central office	Elem all subjects	Band	114	elem	agnoulture	Elementan	Social Studies	elementar;	half time librarian k-12	Elementary
-ow many hours did you spend last year outside											
school time using and learning technology?	1	09. 16	2	5 114	20	0 II 4 alot	about 400		approx 10	21	0 30 Hours
How old are you?		36	6 5	2 4	2 5:	5	34 3	2	1	12 5	t
cess To Computer Support											
Does your school have a dedicated computer											
aport technician?	Yes	1.68	Vas	Tes	Yes	Y05	Yes	Yes	Yes	Yes	Ves
What is the average response time for your											
mputer questions and or problems?	Immeadiate	Less than an hour	1 to 6 hours	Less han an hour	1 to 8 hours	1 to 3 hours	1 to 3 hours	Daus to Weeks	1 to 3 hours	Da, s 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	llo	Yes	t lo	Yes	(10	Yes
mputer Access											
you have computer access at school?	7.68	Yes	Yes	Yes	Yes	Yes	ïes	Yes	Yes	Yes	Ves
you have computer access in your classroom?	Ves	Yes	Yes	vies.	Yes	Yes.	Yes	Yes	Yes	Yes	Yes

urvey Data

RAW THESIS DATA

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