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The Digital Divide Effects Teachers Too

Longina Burroughs

Chapman University

Abstract

This paper describes the lack of professional development, lack of training in teacher preparation programs, and lack of competency when dealing with technology. A brief description of each of these topics is given, along with research to back up the findings. Along with the problems being identified, solutions and positive outcomes are given as to how to solve the problem of bridging the digital divide amongst teachers.

Introduction

Education is headed in a technology driven direction due to the trends in society. However, a divide is occurring with teachers. There are three main issues that are creating this divide: lack of professional development, lack of training in teacher preparation programs, and lack of competency. Teachers are not receiving enough professional development in technology to incorporate it into the classrooms. There is a lack of technology in teacher preparation programs to ensure that new teachers know how to use technology. Teachers are also not being held accountable and therefore their competency has a negative light. What is being done to close the gap between technology and teachers? Several pieces of literature are in support of bridging this ever widening gap. Some criticize that this is not possible because of barriers while others give suggestions or examples of how it is working. Teachers need to feel successful in using technology in the classroom or the digital divide will continue resulting in students not being equipped to enter the workforce.

Professional Development

One of the issues creating the divide is the lack of professional development that teachers are receiving. It is said that fewer than five hours of professional development is for technology (McKenzie, 2000). This is quite disturbing as a lot of money has been invested in equipping schools with technology. In a teacher survey on technology 93% of teachers reported that independent learning equipped them to use technology, 88% of teachers reported that professional development equipped them, and 87% reported that colleagues equipped them (Cronen & Smerdon, 2000). This was supported by Ringstaff

and Kelley (2002) when they reported that teachers learn on their own because they want to make themselves better teachers.

Several barriers came up when doing research about professional development. Some of these barriers included: time, administrative support, no follow up, money in the budget, and getting trained in wrong areas (Kelley & Ringstaff, 2002; OTA Publications, 1995). First, teachers do not feel that they are given enough time to receive professional development when it comes to technology. Student achievement will increase if teachers are given appropriate training (Kelley & Ringstaff, 2002). Next, administrative support is crucial to ensure that teachers are on board. Most important is the lack of funds that are set aside for professional development. Most teachers receive less than nine hours of training in technology. Less than 10% of most districts budget is spent on technology training (Kelley & Ringstaff, 2002). With all the research about the lack of professional development changes are still not occurring. In a 2005 report by CDW, there was no increase from 2004 to 2005 in technology professional development. A teacher stated, "It's hard to compete with the technology that is outside the classroom; at some point we have to bring the technology students have in the outside world into the classroom in order for students to learn." (CDW, 2005, p. 4).

Outcomes

If barriers can be broken down then outcomes are sure to follow. Teachers will feel more successful if given the proper training. Technology will be used more in instruction therefore increasing test scores. When using technology, students can use higher-order thinking skills which teachers will require after being trained (Kelley & Ringstaff, 2002). Teachers are requiring more of students which in turn will result in

students scoring higher and improving on high stakes tests. Two acts were put in place to help solve this problem. The Technology for Education Act whose focus is on a providing a strong role in technology related to teacher development and the Educate America Act which said that an Office of Educational Technology was needed within the Department of Education (OTA Publications, 1995). Having these two acts would put a spotlight on technology. This would help to guarantee that programs were set up and research was looked at to improve technology. Also it would provide teacher development, access, equity, and educational applications (OTA Publications, 1995).

Cons

There are some teachers who say even with professional development they still do not want to use technology. Some say that professional development is geared towards learning basic software and tools and not enough on integration into the curriculum (McKenzie, 2001). The 1999 Fast Response Survey System reported that 96% of professional development was on the use of computers and basic computer training (Cronen & Smerdon, 2000) Another fear is that if teachers are trained on just the basics then they will lose sight of content (Kelley & Ringstaff, 2002). The students will then miss out on what they are supposed to be learning.

Teacher Competency

If teachers are not given proper professional development training then how are they supposed to be held accountable? This is another problem that is keeping the gap from closing. Several states have measures that are taken to ensure that their teachers are competent in technology. Some of these are adoption of standards, measurement of competence, requirements tied to licensure and recertification, ongoing professional

development, and incentives (Bausell & Klemick, 2007). Only some states require that teachers show any form of competency. Bausell and Klemick (2007), reported that only 45 states had standards to measure competency, 9 states had requirements tied to licensure and recertification, 39 states offered online courses for professional development and only 9 require teachers to demonstrate competency. If states are not requiring teachers to be competent in technology than the gap will continue to grow. States need to encourage that teachers use technology and need to be held accountable.

Several barriers come to mind when dealing with teacher competency. These barriers include copyright laws, negatively effect test scores, and lack of professional development (OTA Publications, 1995) First, teachers are afraid that the use of technology will result in issues related to copyright and privacy (OTA Publications, 1995). Second, if teachers are asked to use technology but are also still required to improve test scores they want no part in technology. “The current assessment system, if it relies heavily on standardized achievement tests, can also be a barrier to experimentations with new technologies because teachers are not sure whether the results they are seeking will be reflected in improved student test scores.” (OTA Publications, 1995, p. 18) Lack of professional development has become relevant based on the research from the above section.

Solutions

A solution to encourage teachers to use technology and develop those skills is by giving them incentives. Such incentives include certification, additional resources, paid expenses, stipends, and release time (Cronen & Smerdon, 2000). Such incentives might help to get teachers to want to use technology and better themselves as teachers.

While the research suggests that it is important that teachers show competency in technology they do not offer a lot of suggestions as to how this can be done. Sure they suggest giving incentives but they do not offer any suggestions as to where the funding would come from or if the incentives do in fact work.

Teacher Preparation Programs

Teacher preparation programs do not necessarily foster to the use of technology in education. OTA finds that overall education programs do not prepare teachers to teach technology. Only half are prepared to use technology for drill and practice (OTA Publications, 1995). A trend seems to be happening in the area of teacher preparation in that educators see the lack of technology and several programs are trying to improve their teacher preparation program to incorporate technology. There are three programs showing improvement in the integration of technology that came up in the research. These three were the University of Florida Teaching and Technology Initiative, California State University Sacramento and Roseville City School District, and OTA Publications findings. These three are great examples of how technology can and should be integrated into teacher preparation programs.

The University of Florida program called for content-specific technology courses, technology based field experiences, requirements in student teaching, and standards related to technology integration (Dawson & Johnson & Ring & Swain, 2004). The mission of the program was, "...to use technology as a tool to improve teaching practices and student learning opportunities." (Dawson, et al., 2004, p.483) The key component to ensuring that this program was going to be successful was providing professional development for current faculty members. Also, they were aware that students in the

program would need time to implement instruction in classrooms that were technology enhanced (Dawson, et al., 2004) This would have to happen with help from local school districts. A big part of the program was electronic portfolios that would need to be completed by preservice teachers. This was a way for the University to test the competency in the area of technology. So far, the program is working but it still has a ways to go (Dawson, et al., 2004).

Another program similar to that of University of Florida is California State University of Sacramento. CSUS partnered with a local school district, Roseville City School District, to collaborate in the integration of technology. The objectives were to implement a model to utilize technology in curriculum, get faculty to integrate technology into their classrooms, and ensure that all student teachers work in a technology friendly classroom (Franklin & Sessoms, 2006). Preservice teachers were also asked to show competency upon completion of coursework much like that of the University of Florida. Preservice teachers developed lesson plans to implement in K-8 settings. Along with help from faculty, teachers at the local school district, and preservice teachers lessons were developed and analyzed to better the curriculum when matched up to standards (Franklin & Sessoms, 2006). There were several outcomes: increased technology skills, interest in technology integration into curriculum, and the development of relationships (Franklin & Sessoms, 2006). This was definitely a collaboration effort. While several outcomes came out of this collaboration program, it is still developing and changing to meet the needs of preservice teachers.

OTA Publications also offered a suggestion as to how to incorporate technology into teacher education programs. “States and professional organizations are increasingly

recommending or requiring that all new teachers be competent in the uses of technology.” (OTA Publications, 1995). OTA suggests that three stages are needed discussion/demonstration, technology practice, and professional practice. Each is crucial to ensure that the student learns. The first is that the professor shows whole class the use of technology. Next is the hands-on approach where students learn for themselves. Finally, field work is necessary to see that technology can be used in a real classroom (OTA Publications, 1995). OTA also stresses the importance of student teaching in a technology friendly classroom like the above mentioned programs.

Barriers

Along with these great programs come barriers. A few of these are time, limited resources, faculty comfort level, and lack of time for student use (OTA Publications, 1995 and Cronen & Smerdon, 2000). Most education classes have little technology to use. OTA reports that teachers view technology as a separate curriculum that could be integrated but they are not comfortable doing so. If faculty is not comfortable using technology then it will not be successful in the classroom. A lot of college professors are against the use of technology into teacher preparation programs because they are not comfortable teaching using technology. This could be eliminated with an increasing amount of support.

Technology Can Work

There are and will always be barriers when it comes to technology. But a lot of the above mentioned research has showed that technology can work. One other piece of research that showed that technology can work is the Co-NECT schools. This was a study done by Teaching, Learning, and Computing about Co-NECT schools program of

whole-school technology reform (Baker & Ravitz & Wang, 1999). The study showed that schools with technology support and funding were more likely to use it and require students to use it. Overall, Co-NECT schools have more computer technology present, use computer software, have objectives for computer use, and a huge student involvement (Baker, Ravitz & Wang, 1999).

According to CDW 55% of teachers say that computer technology has changed how they teach. This is very positive in the fact that some teachers were very hesitant to incorporate technology. Over half of teachers also report that they are in favor of 1:1 computers for students (CDW, 2006).

Conclusion

There is definitely a lot of research out there to support the hypothesis of the gap continuing to grow. There is definitely a lack of professional development which was obvious by the amount of research found. This will continue to grow if budgets are not adjusted to reflect professional development. Also, teachers need to be motivated to attend technology trainings and benefit their interests. A lot of teachers are incompetent when it comes to using technology. Can we blame them? States need to hold teachers more accountable in the use of technology. This can be done by offering teachers incentives. The last issue was the lack of technology in teacher preparation programs. This was definitely relevant when doing research. However, several examples were shown as to how technology can be integrated into teacher preparation programs and how effective it can be. The key is to make sure the faculty is on board with the implementation or else the program will not be successful.

Overall, there are a lot of problems when it comes to technology. There will always be barriers to overcome and there will always be hesitant teachers. Research suggests possible solutions and positive outcomes when it comes to dealing with technology. There is definitely an ever widening gap however steps are being taken to close the gap.

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