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Exploring the Factors that Facilitate or Limit A PDS Graduate's Ability to Integrate Technology Into Instruction During the First Year of Teaching

PDS Inquiry 2007

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INQUIRY ABSTRACT

As interns in the PDS we are exposed to, and received training in, numerous educational technologies, including the use of an iBook as part of a one-to-one technology initiative through PSU and Apple. During fall methods classes it was incumbent upon us to use technology in completing assignments. We were also encouraged to integrate technology into classroom instruction where applicable and possible. As our responsibility for the day-to-day planning of instruction increased, we began to wonder about how we could integrate technology into instruction in our own classrooms next year. Our hope is that the technology-rich experiences of our teacher training will carry over into our practice. Yet, we question to what extent the graduates of the PDS integrate technology into instruction during their first year of teaching. Thus we came to wonder: *What factors limit or facilitate the use of technology in teaching, especially for first-year teachers*?

Data were gathered between February 1st and March 30th using two survey instruments and one focus group discussion. The instruments addressed the factors that facilitate or limit a first-year teacher's use of technology. The response rate was 100 percent. The findings indicate that factors such as time, availability of technology resources and equipment, availability of proven resources and collaboration among teachers, and self-efficacy play a significant role in whether or not a teacher integrates technology.

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DESCRIPTION OF TEACHING CONTEXT

We are both Professional Development School (PDS) interns in the State College Area School District (SCASD) through a partnership with the Pennsylvania State University (PSU). Through this program, we have each had the benefit of a yearlong placement in a classroom. Our experiences include: classroom observations, instructional planning, teaching, attendance at staff and faculty meetings, student goal-setting conferences, IEP and IST meetings. We have also attended district training sessions in language and literacy, and technology.

State College is situated in central Pennsylvania. State College Area School District draws 7233 students from a surrounding community that is both sub-urban and rural. The district prides itself on its ability to "capitalize on local strengths and history, a rich curriculum, a community service orientation, leadership in technology applications, and local environmental consciousness (SCASD Website, 2007, About the District)."

The E.D.U.C.A.T.E. Initiative

The Pennsylvania State University Professional Development School Website states the following:

> Beginning with the 2005-2006 school year, Penn State's College of Education and Apple Computing have established a three-year partnership, which allows us to equip each elementary PDS intern with an Apple iBook to use throughout the internship year. Our hope is that this 1-1 or ubiquitous computing initiative will eventually result in significant

changes in the education and development of pre-service teachers, veteran teachers, teacher educators, and most importantly children.

District Technology

During the 1999-2000 school year the State College Area School District began the integration of computer skills into the K-10 curriculum. The overall goal is to develop students into "competent and comfortable users of technology (SCASD Website, 2007, Technology Competencies)." SCASD has initiated the Technology Competency Integration Project (TCIP) including "developmentally appropriate skills, in the areas of word processing and page layout, database, spreadsheets, e-mail, drawing and painting, computer operations, World Wide Web, keyboarding and multimedia presentations (SCASD Website, 2007, Technology Competencies)." Students learn technology skills through lessons taught by the classroom teacher instead of separating technology courses. These courses are within the context of the curriculum. Students learn to use the computer to do the work for the content area (SCASD Website, 2007, Technology Competencies).

RATIONALE

"Technology is very strongly used in all facets of society, and elementary schools should not lag behind in what is stressed in the societal arenas (Ediger, 1996)." Therefore, it is not only practical, but of the utmost importance, to introduce students to technology during their primary years. Without question technology skills have become a necessary and powerful addition to a student's toolbox. Moreover, technology and teaching with technology are tremendously engaging to students. As a consequence, teachers must possess a repertoire of technology skills in order to teach with technology and teach students to use technology.

However, as Lavarre and Spiegel (2002) argue, equipping teachers with technology skills does not ensure that teachers will use educational technologies in instruction. As other researchers suggest (see Franklin, 2005; Goos, 2005; Hernandez-Ramos, 2005; Zorfass & Keefe Rivero, 2005; Cuban, Kirkpatrick, & Peck, 2001), technology must be available and accessible, a system of support must be present, and the time to integrate technology into instruction must be made available.

As interns in the PDS we are exposed to, and received training in, numerous educational technologies, including the use of an iBook as part of a one-to-one technology initiative through PSU and Apple. During fall methods classes it was incumbent upon us to use technology to complete assignments. Furthermore we were encouraged to integrate technology into classroom instruction where applicable and possible. As our responsibility for the day-to-day planning of instruction increased, we began to wonder about how we could integrate technology into

instruction in our own classrooms next year. Our hope is that the technology-rich experiences of our teacher training will carry over into our practice. Yet, it seemed obvious to ask to what extent the graduates of the PDS integrate technology into instruction during their first year of teaching? Thus we came to wonder: *What factors limit or facilitate the use of technology in teaching, especially for first-year teachers?*

WONDERINGS AND SUB-WONDERINGS

The purpose for this inquiry is to see what lies ahead with regard to technology use in the classroom as beginning teachers. Hence, we developed the following wonderings and questions:

Wonderings

What factors facilitate the use of technology in classroom instruction by graduates of the PDS in their first year of teaching?

What factors limit the use of technology in classroom instruction by graduates of the PDS in their first year of teaching?

How are our experiences with technology as PDS interns similar to those of the first-year teachers during their PDS internship?

How are our experiences with technology as PDS interns different from those of the first-year teachers during their PDS internship?

Sub-wonderings

What impact does the availability of technology resources within the classroom have on how technology is used?

What impact does the accessibility of technology resources within the classroom have on how technology is used?

How does the availability of wireless Internet impact the use of technology in classrooms?

How does built-in technology affect the use/integration of technology in instruction?

What impact does the grade level have on how technology is used?

What impact does the content of the unit have on how technology is used?

How much of the technology is attributable to the teacher's involvement in the PDS?

VOCABULARY

For the purpose of this inquiry, we operationalized key terms as follows:

Accessibility – The degree to which technology is physically accessible

Availability – The degree to which the technology is physically located in the building

First-year teacher – A former PDS intern in the first year of teaching

Former intern – A former PDS intern in the first year of teaching

Integration of technology into teaching – The use of technology as a dynamic learning tool as opposed to another means by which to deliver the curriculum

Self-efficacy – Teacher confidence with regard to what they are teaching (i.e. the curriculum)

WHY IS THIS TEACHER INQUIRY?

The Oxford English Dictionary defines inquiry as "the action of seeking…for truth, knowledge, or information concerning something; search, research, investigation, examination (Simpson & Murray (Eds.))." Teacher inquiry, as explained by Dana and Yendol-Silva, is the act of formally and systematically reflecting upon one's practice in order to "better understand, inform, reshape, and reform" classroom methods (2003). The inquiry process begins with an unanswered wondering or the need to explore a problem within the context one's own practice.

Our wondering, *what factors facilitate or limit the use of technology in classroom instruction for first year teachers,* stems from the incongruence between our technology-rich pre-service training and the marginal integration of technology we experienced during our student teaching. We want to understand what factors limit technology integration for ourselves as well as for first-year teachers who are graduates of the same teacher education program. The concept map (Figure 1) represents the interplay of contextual factors that facilitate or limit the use of technology such as availability, accessibility, curriculum, and grade level. In addition, the information and insights shared by the first-year teachers will inform our future practice with regard to the integration of technology in our classrooms.

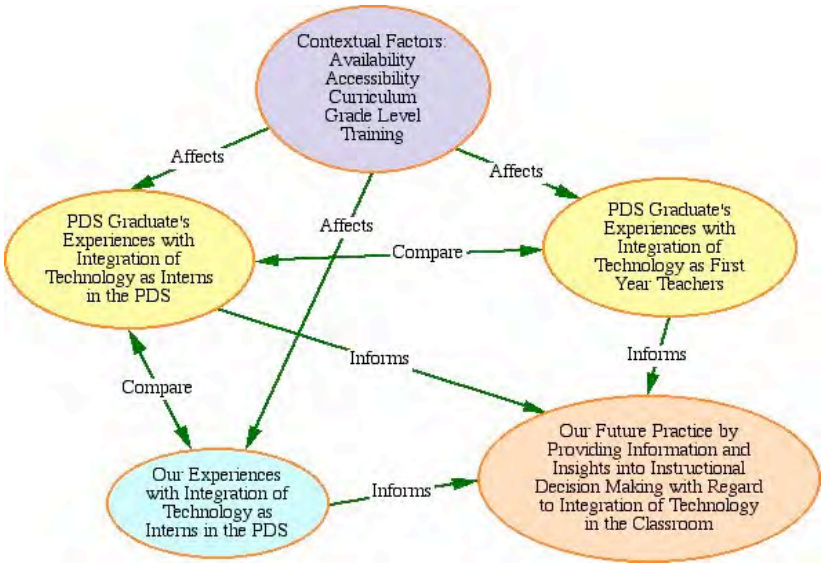

Figure 1

INQUIRY PLAN DESCRIPTION

The primary methods of data collection were surveys and a focus group discussion with five first-year teachers, all former PDS interns. The teachers completed a preliminary survey prior to the focus group. The survey included contextual, background, usage questions in various formats such as, semantic differential, Likert Scale, and open-ended questions. The focus group discussion was co-conducted in late February. We completed initial data analysis between March 2 and March 15. A follow-up survey was completed between March 16 and March 31 (see Appendix A). For purposes of comparison, each of the researchers completed a survey. The survey questions were the same as those asked of the other participants regarding their experiences with technology during the PDS internship (see Appendix B, Questions #1-11).

DATA COLLECTION

Respondents

Elizabeth S. Cullin – "As a PDS intern, I was placed in a self-contained, 1st/2nd multi-age classroom at Park Forest Elementary School (PFE). PFE currently enrolls 460 students in grades kindergarten through fifth grade. Recently rebuilt, PFE celebrated its re-opening in 2006. A unique feature of PFE is its built-in computer/video projection systems in each classroom, which puts technology at the fingertips of every teacher."

Jennifer L. Cody – "As a PDS intern, I was placed in a self-contained, fifth grade classroom at Houserville Elementary School. Houserville currently enrolls 202 students in third through fifth grades. Built in 1958, Houserville has the same computer/video projection equipment that is available at PFE, but in a mobile version. Although the equipment is available in my school, two carts are shared between nine classrooms."

PDS alumni/first year teachers - We surveyed and interviewed five first-year teachers (Richard, Kate, Dana, Beth, and Wendy) for the purpose of providing information regarding their technology integration experiences during their internship and their first year of teaching. All five of the first-year teachers are graduates of the Professional Development School through a partnership with the Pennsylvania State University and State College Area School District (SCASD). During their internships they received laptops as part of the E.D.U.C.A.T.E initiative and received specific training to facilitate the use of educational technology in their classrooms. Each teacher is currently employed in a school district with similar technology initiatives and

resources to that of SCASD. The grade levels, in which they teach, range from first to third grade. Three of the five teachers (Richard, Kate, and Wendy) work in buildings with classroom projection systems. Dana has access to mobile projection equipment, shared among classrooms, and Beth does not. However, like the others teachers, Beth does have access to a computer lab and classroom computers.

Method

Survey #1 - In early February 2007, we began developing the initial draft of a survey to be taken by the five first-year teachers. The first 14-page draft elicited the following response, "My immediate impression is that the survey is far too long. I'm not certain who will complete it given the time it will take (B. Badiali, personal communication, February, 25, 2007)." Based on several additional comments similar in nature, we began the process of shortening the survey. As we progressed, we not only shortened the survey, but also developed a set of open-ended questions based on the questions that were eliminated from Survey #1. We used these questions for the focus group discussion.

We mailed the revised surveys (see Appendix C), consisting of semantic differential, Likert Scale, and contextual questions to the first-year teachers on February 22, 2007. We requested that the survey be completed by February 29th. The survey response rate was 100 percent. Prior to the focus-group discussion on March 6th, we compiled the data from the survey. Based on the information collected, we adjusted the open-ended questions for the focus-group discussion.

Survey #2 - As a means to compare our PDS experiences with those of the first-year teachers' PDS experiences, we also completed survey questions #1-11 from survey #1 (see Appendix B) during the week of February 29th.

Focus-Group Discussion - The focus-group discussion took place on Tuesday, March 6th. Seven people were in attendance including the five first-year teachers and the two of us as co-interviewers. We digitally recorded the semi-structured discussion. During the session, we asked the teachers to discuss a series of questions in order to facilitate a candid conversation with the expectation of collecting additional data (See Appendix).

Survey #3 - We constructed and emailed a follow-up survey (see Appendix D) based on the results of the focus-group discussion. As we analyzed the focus group discussion data, we realized that, for many of the questions, only one or two of the teachers provided elaborate responses while others would generally agree or disagree. Therefore, the survey, sent March 29, 2007, consisted of six open-ended questions composed in order to further clarify questions presented during the focus group discussion (see Appendix E). The survey response rate was 100 percent.

ANALYSIS: MAKING SENSE OF OUR DATA

The first step in the data analysis was to sort the survey data according to our inquiry questions. We then compiled results of the three surveys into tables (see Figure 2). Next, we sorted the data tables according to the inquiry question each specifically addressed, and then, we created a bulletin board to enable us to see all of the data side-by-side for the purpose of making comparisons and searching for patterns (see Figure 3).

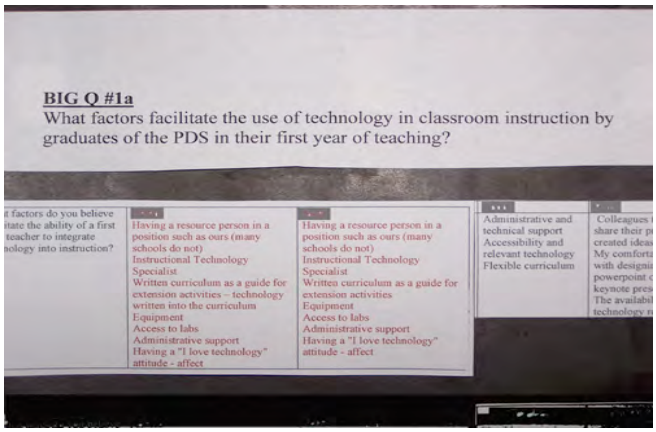

Figure 2

Survey questions 1-11, which addressed PDS experiences as they relate to technology use, allowed us to compare and contrast our experiences in the PDS to that of our respondents. Seven of the eleven questions were semantic differential; therefore, we developed a method of analyzing the results that involved assigning a value to all of the answers and averaging the scores. This provided a method by which to compare and contrast the sets of data. For example, in response to the question, "How would you rate your pre-PDS level of computer expertise?" the first-year teachers averaged a score of 1.6, whereas, we averaged a 2.5 on a scale of 0-3.

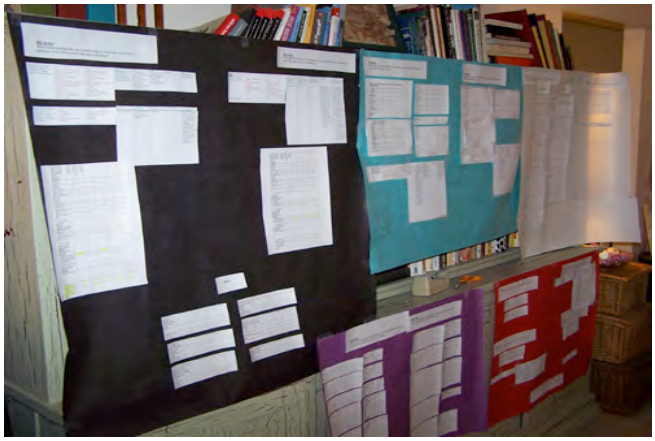

Figure 3

This allowed us to evaluate the differences between our pre-PDS levels of computer expertise.

The focus-group discussion provided approximately one hour of audio recordings. We transcribed the recordings relevant to our inquiry questions, and compiled the transcriptions into tables similar to those used for the survey results. We added these data to the chart, as noted in Figure 3, in order to look for similarities and patterns in responses from all data sources. Although the focus-group format allowed for additional free discussion about the topic of technology, we noted that much of the discussion did not directly relate to our inquiry questions. In many instances, one person provided an elaborate response while others merely stated their agreement or disagreement with no elaboration. Two of the teachers responded more often than the other three participants.

On April 3rd we met with Bill Benson to work on further data reduction, discuss preliminary data analysis results, and to flesh out emerging themes. Our discussion centered on the development of two initial claims. It also helped us to use the data to develop additional claims, as opposed to using the data to justify preconceived claims. Thus, we discovered other claims by changing the way we viewed and sorted through our data.

On April 11th, we met with Bernard Badiali to discuss the presentation of data in the paper, evidence of claims, and the development of additional claims. We eliminated more irrelevant data, and thereby, further clarified our claims. During this meeting, Bernard introduced us to the concept of “levels of use” of technology for consideration during our data analysis.

Satisfied with our claims and the evidence with which to support them, we revisited the evidence. We listened to the focus group discussion to ensure that we accurately portrayed the

interaction and that there was consistency between the interaction and the survey data. Once consistency was established, we revisited the literature for additional evidence with which we could substantiate our claims.

CLAIMS AND EVIDENCE

We make six claims about our inquiry based on the data analysis. While there is evidence to support the claims, our inquiry did not necessarily consider all contextual factors that may facilitate or limit the use of technology by the first year teachers. Our claims are based on the data and evidence collected for this particular inquiry.

Claim #1: Equipment availability within the classroom is the key factor that facilitates the use of technology in instruction by graduates of the PDS in their first year of teaching.
In response to the open ended-question survey, five out of five respondents stated that the availability of technology equipment and resources within the classroom facilitates the integration of technology in instruction. It does not seem to be enough to merely have access to the technology somewhere in the building. Of the five respondents, three reported that they have built-in LDC projectors in their classroom; and one of these three uses a built-in Smartboard on a regular basis. Both the focus group interview and open-ended survey questions provide ample evidence for this claim.

In response to the question, *what impact does the availability and accessibility of technology resources within the classroom have on how technology is used*, Richard, who has built-in technology in his classroom, answered, “I find that if I integrate technology, that a lot of time it is on the fly…I don’t plan ahead a lot of the time to use technology and because the technology is available and in my room, I can do it quickly…I can set up the Smartboard if I think about something in the morning and set it up in the afternoon.” To this idea, Kathy added, “I know it is

here for me to use, so when I get inspired and look ahead, I know I can plan something. [The built-in LCD] allows adaptations to lessons. For example, I did not have flags for a math lesson, but because I had a projector and screen, I was able to immediately adapt the lesson and use flags from the internet [by] projecting them on the screen."

Wendy also indicated that the reason she uses technology is because she has the technology resources at her fingertips. She explained, "I think that if I had to pull a cart in every time that I had to teach a lesson, it would make me not want to [use technology]."

The two teachers, Dana and Beth, who rely on the cart version of the projection equipment, provide additional evidence. Dana responds, "It is very difficult if I am limited to only a few computers in my classroom. I am able to incorporate [technology] more if it is readily available in my classroom. I can integrate it if it is in the building [computer lab or cart version of LCD] but I have to weigh the benefit to the time it takes to transition students in and out of the classroom." Beth seemed to agree, stating, "The availability of technology resources limits what I can do in the classroom. I can occasionally take my class to the computer lab to do lessons but it usually only ends up being once a week because of time constraints."

Claim #2: The time required in planning to use technology limits use by graduates by graduates of the PDS in their first year of teaching.

In response to the open-ended survey question, *what key factor do you believe limits the ability of a first year teacher to integrate technology into instruction*, all five teachers believed time to be the most influential factor in limiting their ability to use technology in classroom instruction.

With respect to this same issue of time being a limiting factor, Wendy agreed because of the amount of additional time necessary to plan for integrating new technology into the curriculum. She suggested that when technology is prescribed in the curriculum, such as website listings and pre-designed virtual tours, she was more likely to use technology in learning experiences since it took no additional time to plan. Adding to the dialogue, Beth stated, "…with the curriculum, there are so many things that have to get done…there's not really much time to alter them…" The other three teachers corroborated this observation, "It just takes a lot of time to [integrate technology]. Dana explained that although she doesn't use it often, when she does, it's on the fly because she doesn't have the time to plan for it. These remarks from our first-year teacher respondents are not surprising in light of the observations made by Cuban, Kirkpatrick, & Peck (2001) who state:

> Teachers told us that they did not have enough time to incorporate computers into their daily teaching. They would need hours to preview web sites; hours to locate the photos they required for the multimedia project they assigned to students; hours to scan those photos into the computers; and hours to take district or corporate courses to upgrade their skills. The issue of insufficient time was repeated often by faculty, particularly the serious users.

Claim #3: A first-year teacher's low self-efficacy related to his/her curriculum knowledge appears to limit his/her use of technology.

When asked, the five teachers agreed that the content of the curriculum subject matter did not factor into whether they were able to integrate technology. Beth suggested that some units more naturally lend themselves to the use of technology. However, she believes that it is the amount of

time spent learning the curriculum that limits a new teacher from integrating technology into a lesson. Richard's comments especially typified this. He explained, "It's everything. It's learning the curriculum. It's learning your own management styles and bringing it all together and then to think: How am I going to integrate technology? It becomes back seat to everything else."

In response to the discussion question, *to what extent does the content limit your ability to integrate technology*, Wendy responded, "All the work and stress of being a first-year teacher, I don't have the extra time nor energy to create new lessons involving technology. I think that in a few years, when we have more of the curriculum planned out…when we have it under our belt, we can go, okay, this is getting kind of old, maybe we can we change it up a little bit [with technology]…but for now it's not a priority, whatsoever." The discussion between all five teachers centered on the idea that because everything they are teaching is new, they spend most of their preparation time learning, organizing, and becoming comfortable with the district's curriculum, therefore, this limits their ability to integrate technology. Bandura (1997) explains self-efficacy as the belief in what one is capable of doing, not about one's knowledge of what to do. In this context, our respondents' remarks lead us to conclude that, a teacher's low self-efficacy, with regard to knowing the curriculum, interferes with the integration of technology and instruction.

Claim #4

Proven resources integrated into the existing curriculum and/or collaboration among teachers enhances a first year teacher's use technology in instruction.

During the time frame of this study, four of the five teachers reported that they were using the Math Investigations software to support student learning throughout the geometry unit. The math curriculum includes the use of the software during math stations. This is an example of technology integration into the curriculum that includes the use of software to enhance student learning during math stations.

In response to the open-ended survey question, *what factors limit the use of technology into instruction*, four out of five respondents suggested that having a technology integrated curriculum would enable them to use technology more often. Wendy stated that when technology is prescribed in the curriculum, such as website listings and pre-designed virtual tours, she was more likely to use technology because it took no additional time to plan. While Dana concurred that the time necessary to research websites for student use often prevented her from using the internet with students. She went on to say that just because it was listed in the curriculum, it doesn't ensure that it will be up-to-date and usable. Richard and Dana added that when teachers share their technology resources with one another, they were more likely to use the technology. In response to an open-ended survey question, Kate stated that when "colleagues that share their previously created ideas that use technology" also helps facilitate the integration of technology into instructional experiences.

Claim #5: The confluence of the incidental factors of technology use plays a significant role in whether or not a teacher will integrate technology into instruction.

There are incidental factors that merge to create what we call the “hassle factor” which includes often invisible and overlooked issues such as:

- Time required to gather equipment
- Having the equipment necessary to support the use of current technology
- Time required for set up
- Rooms that are not technology friendly, i.e. ethernet, outlets, computer, cables and screen are not located in appropriate proximity for use
- Additional time and effort required to troubleshoot when things don’t go as planned

Essentially, we view these factors as variables that can “converge” in any combination that results in a “cost/benefit analysis.” In other words, is this worth the hassle?

All five teachers provided evidence of the “hassle factor” during the focus group discussion and from open-ended survey questions. For example, Richard suggested that, “the integration of technology should be seamless and not cumbersome” for it to be part of the everyday operation of the classroom. During the focus group discussion Dana explained, “For me to use the projector, it was just easier to take the kids to the computer lab. But for me to show them a two-minute clip, I needed to line them up and take them down the hall then get them seated. For two minutes, I found it very hard to justify. Even the amount of prep time [required to set up the cart LCD]… it was hard to hook up the internet to the machine, (to) the LCD screen, and get all of wires across the room because the internet connection was at the back of the room and the screen was [at the front of the room].” Wendy and Kate agreed with Dana’s comments, adding that having the equipment in their rooms eliminates the issue of time needed to “hunt down the equipment or even sharing equipment.” Additionally, Beth described the frustration of having to

borrow a laptop in order to show an iMovie at Back-To-School Night because her MacBook requires a different connector for the projection system.

During the course of the same discussion, the topic of using portable Smartboards arose. The respondents indicated that it is far easier to use the mounted Smartboard. Because the cart version of the LCD projection equipment (used with the Smartboard) can be cumbersome and problematic. Dana spoke about how easily the equipment can become misaligned, simply by bumping into the cart or the base of the board. Richard explained, "…it's just so much easier to use the mounted one [Smartboard]…[with the portable board] you have to set up, get all of your touch-points, and you have to have the LCD projector so close that there was no where for anyone to really sit."

Sawyer and Tapia (2006) refer to what we termed "hassle factors" as articulation work. That is, "work that enables other work In the case of using technology in classroom instruction, articulation work includes the factors identified by the teachers as contributing to whether they invest the effort and incur the frustrations associated with integrating technology. Sawyer and Tapia liken this to changing the toner or adding paper to a copier in order to make copies. It is the incidental work required to meet one's end goals. "Articulation work can also be needlessly interrupting, as anyone who has had to take care of the paper jam in the copier that someone left without fixing can detail (Sawyer & Tapia, 2006, p. 2)." In the classroom, the troubleshooting required to use technology in instruction becomes a cost of using it.

Claim #6: Teacher self-efficacy plays a significant role in whether or not a first-year teacher integrates technology.

It makes sense that the PDS training and use of educational technologies would help first-year teachers feel more comfortable with regard to the use of technology and that the use of technology would be a priority in their teaching practice. Yet the interviews and surveys provided evidence to suggest that the beginning teacher's self-efficacy is not what one would expect. Self-efficacy in this context is both the perception of one's ability and as well as whether something is valuable to the user. Three of the five respondents, Richard, Kate, and Dana, rated their current comfort level with educational technologies as adequate. Wendy and Beth, however, rated their comfort level as somewhat inadequate. It was not surprising therefore that during the focus group discussion these two teachers indicated that they were uncomfortable with the technology and many of the applications. Of the respondents, only two teachers, Richard and Beth consider the integration of technology to be a high priority in their teaching. Richard and Kate rate their current level of integration as regular (two times per week). However, Beth, along with Dana and Wendy, see themselves as occasional users of technology in instruction, due to many previously discussed factors.

A 2004 study by Pedro Herdandez-Ramos finds that:

> …when it comes to technology overwhelming tendency among respondents to either agree (40 percent) or strongly agree (55 percent) with the statement that "A teacher's proficiency with computers will affect his or her willingness to integrate technology into the curriculum" (see also Christianson, 2002).

This study is consistent with our findings that teacher self-efficacy, as it pertains to a teacher's

technological skills, is a factor in a first-year teacher’s use of technology. Bandura defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura. 1997). Just as self-efficacy comes into play with knowledge of the curriculum, it is an integral factor in the decision making process of first-year teacher as to whether they will incorporate technology into their practice.

CONCLUSION

Our purpose for this inquiry is truly to see what lies ahead. At the beginning of this journey, given our training and PDS experiences using technology, we thought that integrating technology into teaching would be a “slam-dunk”. We remember thinking that, given availability of and accessibility to technology, similar to that of our PDS experience, how could we not integrate it?

Looking into the experiences with, and use of, technology by our respondent group has given us insight into how our first year of teaching might possibly look. We will likely face many of the same issues in varying degrees, such as, lack of equipment, accessibility problems, logistical issues, curriculum learning curves, and time factors. It's far better to go in with our eyes wide open than to be looking through rose-colored glasses! We have every intention to continue at our current level of use, and will strive for a higher level, but realize that there are priorities that may take precedence.

Our inquiry has shown that the integration of technology may be challenging and difficult but our PDS experience reminds us that technology can be a powerful learning and teaching tool. As teachers, we will have many demands on our time and energy. It will be necessary to run a cost analysis for every instructional experience integrated with technology as a means by which to gauge the “hassle factor.” Optimistically, the benefits of using educational technologies will outweigh the time/effort cost.

We have learned that many factors will come together to facilitate and/or limit our ability to use technology in instruction. While many factors are out of our immediate control, we realize that no matter how one considers the factors, time and availability are the foremost issues teachers will likely face as they attempt to integrate technology into instruction. If the technology is not available, one will not be able to integrate it. Yet, having the technology does not guarantee that one will have the time to develop meaningful ways to use it (Hernandez-Ramos, 2005).

From the issue of time emerges the reality of being a first-year teacher. We enter the profession facing a steep learning curve. First-year teachers must learn and become familiar with the curriculum. Until one's comfort level increases in this realm, it is likely that many beginning teachers exhibit some evidence of low self-efficacy with regard to knowing the curriculum. To overcome this problem, copious amounts of time are spent studying and preparing for that which must be taught. However, given a technology friendly curriculum and collaboration among a community of users (Zorfass & Keefe Rivero, 2005), there is hope. These two elements may provide enough support to assist a novice teacher in integration of technology during his/her first-year. We see the importance of seeking out collaborative relationships and sharing our expertise. Though we will strive to maintain our current levels of technology use, we realize it will be challenging as first-year teachers.

UNANSWERED QUESTIONS

How are our experiences with technology as PDS interns similar and different to those of the first-year teachers during their PDS internship?

Though many similarities and differences exist between our PDS experiences and those of our first-year teacher respondents, there are contextual factors that should be considered. The teacher respondents were interns during the first year of the one-to-one laptop initiative (E.D.U.C.A.T.E.), and it is likely, though unsupported, that there were differences in emphasis in the teaching of and use of certain technologies. One example is podcasts. The former interns reported that podcasts were implemented in a different way during year one, versus year two, of the laptop initiative. Although everyone completed a Podcast, the teachers described the technology as a glorified version of audio recording. Richard agreed, adding that the current version of the Podcast software is more powerful, and at the time of his PDS experience, the value of podcasting was not realized. Some of the former interns received Smartboard training but this was not done throughout PDS. This year neither of us has received formal Smartboard training, though one of us has been taught by a mentor teacher. Initial analysis seems to suggest that, although many similarities and differences exist between our experiences, when we consider contextual factors we realize there are extraneous variables that influence the data.

How does the availability of wireless internet impact the use of technology in classrooms?

It seems that wireless internet only impacts a classroom in which laptops are used. Two of the five respondents have personal laptops that they use for school related work. Kate is able to connect her personal laptop via Ethernet allowing her to use her school issued computer as a fourth student station. Beth does not have enough cables or outlets to connect her personal

laptop. The lack of wireless does have an impact for these two teachers. Since the other three teachers do not have laptops, the question of wireless internet connections is moot.

On the other hand, there are 61 classrooms with interns in the district. Each intern is in possession of a laptop for instructional purposes. During our focus group discussion, Richard states that, "If a laptop is available [with a wireless internet connection], it makes teaching and learning on-demand possible as the teacher and/or students can access resources in a variety of environments." Therefore, it seems natural to conclude that without wireless internet, a laptop is less likely to be used as a child-centered learning tool within the classroom. Obviously under such circumstances, interns are unable to use their laptops to the maximum extent of their capability.

What impact does the grade level have on how technology is used?

Our data does not provide enough evidence to ascertain the extent to which grade level impacts a teacher's use of technology. Though one of the respondents rhetorically questioned whether second graders were capable of using programs or resources such as PowerPoint or Probeware in a valuable way. None of the other respondents provided any discussion on this topic.

What impact does the content of the unit have on how technology is used?

Certainly some content lends itself to the use of technology more readily than other units. We do not feel, however, that our study provided enough information to answer this question. To us, further research into this question would certainly be beneficial itself. Ultimately, it appears that the decision to use technology falls predominantly onto the first-year teachers' shoulders for consideration during the planning of lessons. In the future it is likely that this step will occur at

the curriculum design level as units are updated.

How much of the technology is attributable to the teacher's involvement in the PDS?

Our data does not provide evidence with which to assess how much of the teachers' use of technology is directly related to their PDS training. At the time of the interviews, the majority of technology use fell within the parameters of technology as a productivity tool. The involvement of the limiting factors makes it difficult to determine to what extent these teachers will use educational technologies learned during their PDS experience.

To what extent do graduates of the PDS integrate technology into instruction during their first year of teaching?

The initial survey provided evidence that would corroborate a claim that first-year teachers predominantly use technology as a productivity tool. That is, they primarily use technology for email, general research, lesson research, and development of instructional materials. Using a four-point scale, with no neutral qualifier, respondents rated their use of technology (a lot, some, a little, not at all) in administrative teacher activities. Five out of five respondents reported using email "a lot" and four out of the five teachers report that they used technology for general research, lesson research, and development of instructional materials "a lot". Also, when asked to rate their use of technology in their teaching, three of the five teachers rated their use as "occasional" and two rated their use as "regular". However, these data are from a small sample and based solely on their recollections. Therefore, without additional data collection, it is

uncertain whether or not first-year teachers use technology primarily as a productivity tool or to what extent they integrate technology into instruction.

IMPLICATIONS FOR FUTURE PRACTICE

One of the most interesting and potential findings to emerge from our inquiry is that a community of technology users may play a significant role in facilitating the integration of technology during our first year of teaching. A community of users provides a means by which teachers collaborate in the development of proven technological resources and the use of educational technologies. Other potential ideas to promote collaboration include:

- A central web repository for teachers to post useful, proven websites and technology resources that are categorized by unit content and grade level
- A technology task force responsible for identifying priorities and needs within buildings
- New curriculum designed with integrated technology and proven resources
- In-service time for divisions to develop technology resources for current curriculum

FURTHER RESEARCH

Throughout the course of this inquiry, we have been able to answer some of our questions and have gained many insights into what the integration of technology may look like during our first year of teaching. Some of our initial questions remain unanswered, and many new wonderings have surfaced. They are as follows:

1. With regard to curriculum, to what degree does the self-efficacy of a first-year teacher impact the ability of a first-year teacher to integrate technology?

2. What factors are necessary in moving a teacher from using technology as a productivity tool to using technology in ways that are innovative, engaging, and student-centered?

3. To what extent does technology promote student learning?
    a. To what extent does technology engage the student?

4. To what extent do teachers who graduate from a traditional student-teaching experience integrate technology into their teaching?

5. To what extent does a community of technology users promote the use of technology by novice teachers?

6. To what extent does a community of technology users promote the use of technology by veteran teachers?

7. To what extend does technology need to be prescribed in a curriculum in order to facilitate the integration of technology?

8. Are teachers convinced that technology is a valuable learning tool?

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APPENDIX A

INQUIRY TIMELINE

February	
18th - 23rd	Develop questions
	Contact teachers via email and make appointments for interviews
	Survey
	Individual interviews – week of March 19th
26th	Schedule Focus Group
	Send surveys via email
March	
2nd	Collect Surveys
5th	Begin data analysis
6th	Conduct focus group: five first year teachers. (Digital Voice Recorder)
7th	Background/context, annotated bibliography, inquiry vs. project paragraph
19th – 31st	Continue data collection and analysis
	Send follow-up/clarifying questions to teachers
April	
1st – 5th	Analyze data
6th	Written parts (early to mid-April)
10th	Complete Analysis
14th	First draft due to peer reviewer
25th	Final paper due, paper copy to seminar
28th	Inquiry conference presentation

APPENDIX B

SAMPLE TEACHER SURVEY

Technology, Teachers, and Teaching Survey

Thank you for agreeing to participate in this study. We expect to report our findings to others involved with technology and teacher preparation. Please be assured that all information gathered will be handled with the utmost confidentiality and respondents will never be personally identified in research reports. There are no right or wrong answers to the questions, so please be candid in your responses. We are interested in determining both what impact the PDS has had on your classroom practice and methods of instruction, as well as what technology integration might look like for a first year teacher as a graduate of a technology rich pre-service teaching experience. Thank you for your time.

For the following section, please reflect upon your experiences as a PDS intern.

1. How would you rate your pre-PDS level of computer expertise?

Advanced Average Below Average No Expertise

2. Rate your experience with Macs prior to the PDS experience.

Little or no experience Some experience

Equally good at using Macs and PCs Extensive use of Macs

3. Rate your comfort level with using your iBook at the beginning of the PDS experience.

Very comfortable Comfortable Uncomfortable Very uncomfortable

4. At the time of your internship, which of the following technology (hardware and/or software) did you believe would be of use to you in the future?

Podcasts iMovie TaskStream Garageband Kidspiration

Inspiration Internet Probes/Sensors Digital Video Camera

Projection Equipment

5. To what extent did you use technology to support the teaching of the following subjects?	**A Lot**	**Some**	**A Little**	**Not At All**
Art				
Mathematics				
Reading				
Science				
Social Studies				
Spelling				
Writing				

6. To what extent did having a MAC or an iBook help you feel more comfortable with supporting your students in using Macs in the classroom and computer labs?

Not at all A little Somewhat A lot

7. How often did your mentor teach using technology?

Often (1+ times per week)

Sometimes (every week or two)

Occasionally (3-4 times since the first day of school)

Rarely (1-2 times since the beginning of school)

Never

8. To what extent did your mentor support YOU in teaching with technology?

She/he encouraged me to teach with technology.

She/he did not mind if I planned and taught lessons that used technology.

She/he discouraged me from teaching with technology.

Other, please explain._____

_____

9. To what extent did you support your mentor in learning about technology?	**Never**	**1-2 Times**	**3+ Times**
I introduced my mentor to new technology (e.g., iMovie, Inspiration, TalkStreet)			
I helped my mentor troubleshoot technology problems			

I co-taught a lesson with my mentor using technology.			
My mentor came to me when s/he had questions about technology.			

10. Did you witness a practicing teacher use technology in his/her classroom in a way that inspired you to do the same? No Yes, please explain._____

_____

11. How would you rate your integration of computer technology during your PDS experience?

Regular use (At least once per week) Occasional use (few times per month)

Minimal use (few times per year) Not used at All

Additional Comments:_____

_____

For the following questions, please reflect upon your current practice and teaching experiences.

Equipment Accessibility and Availability	YES	NO
12. Do you have a dedicated teacher computer?		
13. Do you have a laptop for school use?		
14. Do you have internet access in your classroom?		
15. Do you have a wireless internet connection in your classroom?		
16. Are there computers in your classroom dedicated for student use?		
17. Are the student computers connected to the internet?		
18. How many computers are desktop models?	---------	---------
19. How many computers are laptop models?	---------	---------
20. Do you have projection equipment available for classroom use?		
21. Is the projection equipment built-in?		
22. Is the projection equipment mobile?		
23. Do you have access to a Smartboard?		

24. Is the Smartboard in your classroom?		

25. Do you have access to any of the following technology resources in your school	**Yes**	**No**	**Don't know**
Digital Camera			
Digital Video Camera			
Digital Audio Recorder			
TV			
VCR/DVD			
CD/cassette player			

26. How often does the availability of computers or equipment hinder your ability to use technology?

Frequently (At least once per week)

Occasionally (few times per month)

Rarely (few times per year)

Never

Additional Comments:_____

_____

27. In your opinion, what are the current needs at your school in terms of educational technology?	**Currently Adequate**	**Improvement Needed**	**Critically Needed**
Equipment Availability			
Equipment Accessibility			
Newer Equipment			
Tech Facilities			
Additional Software			
Additional Classroom Computers			
Formal Training			
Tech Support Availability			
Prep/Development Time			

School Technology Plan			
Other:			

28. To what extent is the integration of technology a priority of the leadership in your school?

High priority Moderate priority Not a priority

29. To what extent do you feel supported in the integration of technology in your classroom?

Highly supported Somewhat supported Not supported

30. In what ways are you supported in the integration of technology?

Extra planning time

Accessibility to technology specialists

Curriculum written and designed with effective technology integration

Other, please specify:_____

31. To what extent is the integration of technology a priority in your teaching practice?

High priority Moderate priority Not a priority

32. Does your school have a dedicated computer lab? Yes No

33. How many hours per week do your students use the computer lab? _____Hours per week

34. Do you use your computer to conduct lessons? Yes No

35. How often do you use your computer for instruction? Daily Weekly Other

36. In which areas of the curriculum do you use technology for instruction?

Science Math Writing Reading Social Studies Art

Music Research Other, please specify_____

37. Have you created a technology-based lesson for use with your students during the current school year?

No Yes, please explain._____

_____

38. On average, how many times per week do you use technology in your classroom instruction?

5 days per week 4 days per week 3 days per week 2 days per week
Rarely Never

39. How many days/hours per week do students use computers in the classroom for instructional purposes?

_____Days per week _____Hours per week

40. What grade level are you teaching this year? _____ Grade

41. How many students do you teach? _____ Students

42. Which curricular units are you teaching? _____

_____

43. As a first-year teacher, which of the following technology have you found useful?

Podcasts iMovie TaskStream Garageband Kidspiration
Inspiration Internet Probes/Sensors Digital Video Camera
Projection Equipment Other_____

44. Do you currently own a MAC/iBook? Yes No

45. Rate your current comfort level using your MAC/iBook.

Very comfortable Comfortable Uncomfortable, but improving
Uncomfortable Very Uncomfortable

46. How many hours each week do you use your MAC/iBook AT SCHOOL?

Not at all < 1 hour 1-5 hours 6-10 hours More than 10 hours

47. How frequently do you use your MAC/iBook to engage in the	**Not at all**	**A little**	**Some**	**A lot**

following tasks?				
Email				
Internet (general research)				
Word processing				
TaskStream				
Digital photography				
Digital video				
Music/Podcasts				
Other:				

48. To what extent do you use your MAC/iBook to engage in the following professional activities?	**Not at all**	**A little**	**Some**	**A lot**
Online research for a lesson or unit				
Developing instructional materials				
Creating/designing lessons or activities				
Teaching				
Reflections on instructional issues				

49. To what extent are you using technology to support the teaching of the following subjects?	**Not at all**	**A little**	**Some**	**A lot**
Reading				
Writing				
Spelling				
Mathematics				
Social studies				
Science				
Art				

50. To what extent does a MAC or an iBook help you feel more comfortable with supporting your students in using Macs in the classroom and computer labs?

Not at all A little Somewhat A lot

51. Are you considering using podcasting with the children in your class?

No Not sure Yes

52. How would you rate your current level of computer expertise?

Advanced Average Below Average Little or No Expertise

53. How would you rate your current level of integration of computer technology into your classroom?

Regular Use (more than once/week) Occasional Use (few times/month)

Minimal Use (few times per year) Not Used at All

54. How comfortable are you using the available software and equipment?

More than adequate Adequate Somewhat Inadequate Totally Inadequate

55. To what extent do you credit the PDS program for your comfort level with using the available technology?

Entirely Mostly Somewhat Not at all

56. To what extent do you credit school district technology training for your comfort level with using the available technology?

Entirely Mostly Somewhat Not at all

57. How would you rate the internet connection available to you at school?

More than adequate Adequate Somewhat Inadequate Totally Inadequate

58. How often do you and/or your students use computers in each of the following curriculum areas?	**Frequently**	**Occasionally**	**Rarely**	**Never**
Art				

Music				
Research				
Science				
Social Studies				
Spelling				
Writing				
Other:				

59. How often do your students use each of the following kinds of software?	**Frequently**	**Occasionally**	**Rarely**	**Never**
Word processing				
Presentations				
Spreadsheets				
Databases				
Drawing/Art				
Topic/Unit Specific				
Email				
Internet browsing				
Encyclopedia CDs				

60. In what ways do you use computers to support special needs students? Please check all that apply.

Not applicable Dictation/transcription Text reader

Assessment/testing Remedial drill & practice

61. How do students use computers in your class? Please check all that apply.

To organize and store information

To collect data and perform measurements

To manipulate/analyze/interpret data

To communicate information as the result of investigations

To create visual display of data

To plan, draft, proofread, revise, and publish written text

To create graphics and visuals of non-data products

To create visual presentations

To perform calculations

To create models/simulations

To support individualized learning

For remediation for basic skills

To compensate for a disability or limitation

Thank you again for your participation. Please return survey to Jennifer Cody at Houserville Elementary by Monday, March 5 via inter-office mail.

APPENDIX C

Focus Group Questions

Tuesday, March 6, 2007

1. During your internship, what factors limited or facilitated your use of technology in instruction?
    a. What was the key factor?
2. Currently, what factors limited or facilitate your use of technology in instruction?
    a. What is the key factor?
3. Are there any other ways in which your school or district supports you with regard to the integration of technology into instruction? (Besides: tech specialists, curriculum)
    a. What could be improved or if you could change anything, what would help you integrate technology into instruction more often?
    b. Would you want to use technology more often?
4. What factors do you consider before you design/redesign a lesson to incorporate technology?
    a. What would enable you to do this more often?
5. What impact does the availability and accessibility of technology resources within the classroom have on how technology is used?
    a. How does built-in or cart version of the technology affect the use/integration of technology in instruction?
6. How does the availability of wireless internet impact the use of technology in classrooms?
    a. What could you do with the wireless that you can't do without it?
7. What impact does the grade level have on how technology is used?
8. What impact does the content of the unit have on how technology is used?
9. What impact does the school culture have on how technology is used?
10. How much of the technology is attributable to the teacher's involvement in the PDS?

11. Did you know how to use a MAC or any of the software prior to the PDS?

12. With regard to your practice and the use of technology in your classroom, complete this sentence: In a perfect world …….

APPENDIX D

FIRST-YEAR TEACHER FOLLOW-UP SURVEY

1. What factors do you believe facilitate the ability of a first year teacher to integrate technology into instruction?	
1.a. What is the key factor?	
2. What factors do you believe limit the ability of a first year teacher to integrate technology into instruction?	
2.a. What is the key factor?	
3. What impact does the availability and accessibility of technology resources within the classroom have on how technology is used?	
4. How does built-in or cart version of the LCD/multimedia/projector technology affect the use/integration of technology in instruction?	
5. How does the availability of wireless internet impact the use of technology in classrooms?	
6. With regard to educational technology use, availability, and/or accessibility in your classroom, finish this sentence: In a perfect world…	

APPENDIX E

FIRST-YEAR TEACHER SURVEY COMPILATION

Technology, Teachers, and Teaching Survey

Thank you for agreeing to participate in this study. We expect to report our findings to others involved with technology and teacher preparation. Please be assured that all information gathered will be handled with the utmost confidentiality and respondents will never be personally identified in research reports. There are no right or wrong answers to the questions, so please be candid in your responses. We are interested in determining both what impact the PDS has had on your classroom practice and methods of instruction, as well as what technology integration might look like for a first year teacher as a graduate of a technology rich pre-service teaching experience. Thank you for your time. For the following section, please reflect upon your experiences as a PDS intern.

(1.0) 1. How would you rate your pre-PDS level of computer expertise?

1 Advanced **3** Average **1** Below Average No Expertise

(1.0) 2. Rate your experience with Macs prior to the PDS experience.

2 Little or no experience **2** Some experience

1 Equally good at using Macs and PCs Extensive use of Macs

(1.0) 3. Rate your comfort level with using your iBook at the beginning of the PDS experience.

Very comfortable **2** Comfortable **3** Uncomfortable Very uncomfortable

(1.0) 4. At the time of your internship, which of the following technology (hardware and/or software) did you believe would be of use to you in the future?

Podcasts **5** iMovie TaskStream Garageband **1** Kidspiration

1 Inspiration **5** Internet Probes/Sensors **4** Digital Video Camera

1 Projection Equipment

(1.0) 5. To what extent did you use technology to				

support the teaching of the following subjects?	**A Lot**	**Some**	**A Little**	**Not At All**
Art			**1**	**4**
Mathematics	**2**	**2**	**1**	
Reading	**1**	**1 (lps)**	**2**	**1**
Science	**1**	**2**	**2**	
Social Studies	**1**	**3**		**1**
Spelling		**1 (lps)**		**4**
Writing	**1**	**2 (rubrics)**	**1**	**1**

(1.0) 6. To what extent did having a MAC or an iBook help you feel more comfortable with supporting your students in using Macs in the classroom and computer labs?

Not at all A little **1** Somewhat **4** A lot

(1.0) 7. How often did your mentor teach using technology?

3 Often (1+ times per week)

Sometimes (every week or two)

1 Occasionally (3-4 times since the first day of school)

1 Rarely (1-2 times since the beginning of school)

Never

(1.0) 8. To what extent did your mentor support YOU in teaching with technology?

3 She/he encouraged me to teach with technology.

2 She/he did not mind if I planned and taught lessons that used technology.

She/he discouraged me from teaching with technology.

Other, please explain.

(1.0) 9. To what extent did you support your mentor in learning about technology?	**Never**	**1-2 Times**	**3+ Times**
I introduced my mentor to new technology (e.g., iMovie, probes, TaskStream).	**1**	**3**	**1**
I helped my mentor troubleshoot a technology problem.	**1**	**2**	**2**
I co-taught a lesson with my mentor using technology.	**1**	**3**	**1**
My mentor came to me when s/he had questions about		**3**	**2**

(1.0) 10. Did you witness a practicing teacher use technology in his/her classroom in a way that inspired you to do the same? **1** No **4** Yes, please explain**.___1 – science iMovie 1 – polyvision board 1 – smart board 1 – power point**

(1.0) 11. How would you rate your integration of computer technology during your PDS experience?

3 Regular use (At least once per week) **2 (easy w/proj. in room)** Occasional use (few times per month)

Minimal use (few times per year) Not used at All

Additional Comments:__**1 – Used Kidpix for assessment**

For the following questions, please reflect upon your current practice and teaching experiences.

Equipment Accessibility and Availability	YES	NO
(2.1) 12. Do you have a dedicated teacher computer?	**4**	**1**
(2.1) 13. Do you have a laptop for school use?	**1 (mac)**	**4**
(2.1) 14. Do you have internet access in your classroom?	**5**	
(2.1) 15. Do you have a wireless internet connection in your classroom?	**2**	**3**
(2.1) 16. Are there computers in your classroom dedicated for student use?	**5**	
(2.1) 17. Are the student computers connected to the internet?	**5**	
(2.1) 18. How many computers are desktop models? **4 – 3 – 3**	---	---
(2.1) 19. How many computers are laptop models? **0 – 0 – 0**	---	---
(2.1) 20. Do you have projection equipment available for classroom use?	**4**	**1**
(2.1) 21. Is the projection equipment built-in?	**3**	**2**
(2.1) 22. Is the projection equipment mobile?		**5**
(2.1) 23. Do you have access to a Smartboard?	**4**	**1**
(2.1) 24. Is the Smartboard in your classroom?	**1**	**4**

(2.2) 25.Do you have access to any of the following technology resources in your school	**Yes**	**No**	**Don't know**
Digital Camera	**5**		

Digital Video Camera	5		
Digital Audio Recorder	1	1	3
TV	5		
VCR/DVD	5		
CD/cassette player	4	1	

(2.1) 26. How often does the availability of computers or equipment hinder your ability to use technology?

1 Frequently (At least once per week) **Scheduling in computer lab is difficult**

2 Occasionally (few times per month) **math**

1 Rarely (few times per year)

1 Never

Additional Comments:

(2.0) 27. In your opinion, what are the current needs at your school in terms of educational technology?	**Currently Adequate**	**Improvement Needed**	**Critically Needed**
Equipment Availability	2	3	
Equipment Accessibility	2	3	
Newer Equipment	3	2	
Tech Facilities	4	1	
Additional Software	2	3	
Additional Classroom Computers	1	4	
Formal Training	3	2	
Tech Support Availability	5		
Prep/Development Time	4	1	
School Technology Plan	4 ?		
Other:			

(2.3) 28. To what extent is the integration of technology a priority of the leadership in your school?

1 High priority 4 Moderate priority Not a priority

(2.4) 29. To what extent do you feel supported in the integration of technology in your classroom?

2 Highly supported **3** Somewhat supported Not supported

(2.4) 30. In what ways are you supported in the integration of technology?

2 Extra planning time **(Planning time, but not extra planning time)**

5 Accessibility to technology specialists

4 Curriculum written and designed with effective technology integration

Other, please specify:_____

(3.1) 31. To what extent is the integration of technology a priority in your teaching practice?

2 High priority **(not enough time)** **1** Moderate priority **-1-** **1** Not a priority **in between**

(2.1) 32. Does your school have a dedicated computer lab? **5** Yes No

(3.3) 33. How many hours per week do your students use the computer lab? _____Hours per week

2-3/month **1/week** **½-1/week** **1/week** **½-1/week**

(3.2) 34. Do you use your computer to conduct lessons? **5** Yes No

(3.2) 35. How often do you use your computer for instruction? Daily **2** Weekly **3** Other

1 – biweekly **1 - Every 2-3 months**

(3.2) 36. In which areas of the curriculum do you use technology for instruction?

3 Science **5** Math **2** Writing **2** Reading **(stations)** **4** Social Studies Art

Music **3** Research Other, please specify_____

(3.2) 37. Have you created a technology-based lesson for use with your students during the current school year?

No **5** Yes, please explain._**2 – powerpoint** **kidbook** **kidpix** **word processing**

(3.2) 38. On average, how many times per week do you use technology in your classroom instruction?

5 days per week **1** 4 days per week **(due to stations in language arts)** 3 days per week 2 days per week **2** Rarely Never **1 - Once per week**

***(3.3) 39. How many days/hours per week do students use computers in the classroom for instructional purposes? 1 – one day for one hour 1 – 0 1 – one day for 40 minutes**

_____Days per week _____Hours per week

(2.0) 40. What grade level are you teaching this year? _____Grade **3 2 1-2 2 2**

(2.0) 41. How many students do you teach? _____Students **22 21 21 22 19**

(2.0) 42. Which curricular units are you teaching?

(3.0) 43. As a first-year teacher, which of the following technology have you found useful?

Podcasts **2** iMovie TaskStream Garageband **1** Kidspiration Inspiration **5** Internet Probes/Sensors **3** Digital Video Camera **1** Projection Equipment **1** Other_____**Does not have inspiration 1 does not have kidspiration**_____

(3.0) 44. Do you currently own a MAC/iBook? 2 Yes **3** No

(3.0) 45. Rate your current comfort level using your MAC/iBook.

4 Very comfortable **1** Comfortable Uncomfortable, but improving Uncomfortable Very Uncomfortable **1 – N/A**

(3.2) 46. How many hours each week do you use your MAC/iBook AT SCHOOL?

1 Not at all < 1 hour **1** 1-5 hours **1** 6-10 hours **1** More than 10 hours **1 – N/A**

(3.2) 47. How frequently do you use your MAC/iBook to engage in the following tasks?	**Not at all**	**A little**	**Some**	**A lot**
Email				**5**
Internet (general research)			**1**	**4**
Word processing			**1**	**4**

TaskStream	5			
Digital photography		1	3	1
Digital video	3	1	1	
Music/Podcasts	1	3		1
Other:				1

(3.2) 48. To what extent do you use your MAC/iBook to engage in the following professional activities?	Not at all	A little	Some	A lot
Online research for a lesson or unit			1	4
Developing instructional materials			2	3
Creating/designing lessons or activities		1	1	3
Teaching	3	1	1	
Reflections on instructional issues	3	1	1	

(3.2) 49. To what extent are you using technology to support the teaching of the following subjects?	Not at all	A little	Some	A lot
Reading	1	1	2	1
Writing	1	3	1	
Spelling	3	2		
Mathematics		2	2	1
Social studies		1	4	
Science		2	2	1
Art	5			

(3.2) 50. To what extent does a MAC or an iBook help you feel more comfortable with supporting your students in using Macs in the classroom and computer labs?

Not at all 1 A little Somewhat 4 A lot

(3.2) 51. Are you considering using podcasting with the children in your class?

3 No 1 Not sure 1 Yes

(3.1) 52. How would you rate your current level of computer expertise?

1 Advanced **4** Average Below Average Little or No Expertise

(3.2) *See Survey Comp. 53. How would you rate your current level of integration of computer technology into your classroom?

2 Regular Use (more than once/week) **3** Occasional Use (few times/month)

Minimal Use (few times per year) Not Used at All

(3.1) 54. How comfortable are you using the available software and equipment?

More than adequate **3** Adequate **2** Somewhat Inadequate Totally Inadequate

(1.0) 55. To what extent do you credit the PDS program for your comfort level with using the available technology?

Entirely **2** Mostly **3** Somewhat Not at all

(2.4) 56. To what extent do you credit school district technology training for your comfort level with using the available technology?

Entirely **1** Mostly **4** Somewhat Not at all

(2.1/2.2) 57. How would you rate the internet connection available to you at school?

More than adequate **3** Adequate **1 (no wireless) 1** Somewhat Inadequate

Totally Inadequate

(3.2/3.3) 58. How often do you and/or your students use computers in each of the following curriculum areas?	**Frequently**	**Occasionally**	**Rarely**	**Never**
Art **N/A**				**3**
Music **N/A**				**3**
Research	**2 + 1 (self)**			
Science	**2 + 1 (self)**	**1**		
Social Studies	**2**	**1**		
Spelling	**1**	**1**	**2**	
Writing	**1**	**3**		

Other:		1 (assessment)		

(3.3) 59. How often do your st use each of the following kinds of software?	Frequently	Occasionally	Rarely	Never
Word processing		1	4	
Presentations		1		4
Spreadsheets				5
Databases				5
Drawing/Art	2	1	2	
Topic/Unit Specific	1	3	1	
Email				5
Internet browsing	1	2	2	
Encyclopedia CDs				5

(3.2) 60. In what ways do you use computers to support special needs students? Please check all that apply.

3 Not applicable Dictation/transcription Text reader

Assessment/testing 2 Remedial drill & practice

(3.3) 61. How do students use computers in your class? Please check all that apply.

2 To organize and store information

To collect data and perform measurements

1 To manipulate/analyze/interpret data

2 To communicate information as the result of investigations

1 To create visual display of data

To plan, draft, proofread, revise, and publish written text

1 To create graphics and visuals of non-data products

1 To create visual presentations

To perform calculations

To create models/simulations

3 To support individualized learning

3 For remediation for basic skills

To compensate for a disability or limitation

Thank you again for your participation. Please return survey to Jennifer Cody at Houserville Elementary by Monday, March 5 via inter-office mail.