Impact of Intel Teach Essentials on Teachers' Instructional Practices and Uses of Technology

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Executive Summary

The research literature on educational technology has identified a number of important contextual factors that influence how technology is used in educational settings. For six years, the Education Development Center (EDC) has used a variety of methods to investigate the multiple ways in which the Intel Teach Essentials professional development program interacts with these contextual factors to support effective integration of technology into K–12 classroom teaching. In May of this year, EDC conducted the 2006 Instructional Practices and Classroom Use of Technology Survey with over a thousand teachers, some of whom participated in Intel Teach Essentials and some of whom did not, to investigate whether three of the key research-based factors — participation in quality professional development (specifically Intel Teach Essentials), teachers' access to technology, and their pedagogical beliefs — influenced teachers' use of technology and their instructional practices. We found that each of these factors had some impact, and that interactions among the factors, both at the individual teacher level and the district level, often had even more pronounced influences on teacher behavior. The key findings from our survey analysis are highlighted below.

All three research-based factors had an impact on teachers' use of technology to support their practice.

- Intel Teach Essentials participants in general (94.4 percent) and Master Teachers in particular (97 percent) used technology in their practice more than non-participants (86.1 percent).
- Teachers with strong constructivist beliefs (91.7 percent) used technology in their practice more than those with moderate (89.4 percent) or weak (86.3 percent) constructivist beliefs.
- Teachers were more likely to report using technology in their practice if they had access to computers in both a lab and their classrooms (91.1 percent) than if they had only lab access (86.8 percent) or only classroom access (83.2 percent).
- Teachers who reported using technology in their practice had a greater number of computers in their classrooms (mean: 2.98) than those who reported that they did not use technology in their practice (mean: 1.87).

All three research-based factors had an impact on teachers' use of technology with their students.

- Intel Teach Essentials participants in general (95.4 percent) and Master Teachers in particular (98.4 percent) used technology with their students more than non-participants did (90.7 percent).
- Teachers with strong constructivist beliefs (95.2 percent) used technology with their students more than those with moderate (94.5 percent) or weak (87.9 percent) constructivist beliefs did.
- Teachers who used technology with their students had a higher number of computers in their classrooms (mean: 3.09) than those who did not use technology with their students (mean: 1.44).

Participating in Intel Teach Essentials appeared to produce more dramatic changes in the behavior of teachers who held weak, rather than strong, constructivist beliefs.

- The difference between program participants and non-participants in the use of technology in their practice was greater for respondents with weak constructivist beliefs (11.4 percent) than for those with strong constructivist beliefs (6.7 percent).
- The difference between program participants and non-participants in the use of technology with students was also greater for respondents with weak constructivist beliefs (5.7 percent) than for those with strong constructivist beliefs (3.2 percent).

Participating in Intel Teach Essentials appeared to produce more dramatic changes in the behavior of teachers who had access to few classroom computers than those who had many classroom computers.

- The difference between program participants and non-participants in the use of technology in their practices was much greater for respondents with one classroom computer (19.6 percent) than for those with 5–7 classroom computers (4.3 percent).
- The difference between program participants and non-participants in the use of technology with their students was greater for respondents who had one classroom computer (7 percent) than for those with 5–7 classroom computers (no difference).

The research-based factors appeared to influence teachers' use of technology at the district level.

- Districts where teachers held strong constructivist beliefs saw higher levels of technology use than those where teachers held weak constructivist beliefs. One hundred percent of teachers in the district with the strongest constructivist beliefs used technology with their students, while 87.2 percent of teachers in the district with the weakest constructivist beliefs did so.
- Those districts that were ranked high on both constructivist beliefs and technology access had the highest levels of technology use.
- Intel Teach Essentials seemed to have the greatest impact in the least constructivist districts. In the district with the lowest percentage of constructivist teachers, there was an 8.6 percent difference between participants and non-participants in the use of technology with students, while there was no difference between participants and non-participants in the district with the most constructivist teachers.

Introduction

For over 25 years, researchers have been investigating the conditions necessary for the effective integration of technology into educational environments (Culp, Hawkins & Honey, 1999; Dickard, 2004; O'Dwyer, Russell & Bebell, 2004; Ravitz, Wong & Becker, 2000; SRI International, 2002; Zhao, Pugh, Shelden & Byers, 2002). This research suggests that a number of key factors influence whether and how technology is integrated into classroom teaching. Some of the most critical factors include:

- Teachers' pedagogical beliefs
- Teachers' access to adequate technology resources
- Teachers' access to quality professional development in technology
- School and/or district leadership

For six years, the Education Development Center has used a variety of methods to investigate the multiple ways in which the Intel Teach Essentials professional development program interacts with other contextual factors to support effective integration of technology into K–12 classroom teaching. There are many ways to gather evidence about a program's impact, and at different stages of program implementation, some measures are more appropriate than others. Our early formative evaluation of Intel Teach Essentials workshops documented teachers' responses to the training experience and the curriculum materials. Case studies in the second year explored how school and district policies and practices shaped local implementations of the program and how the program in turn affected the schools and districts that used it. End of Training Surveys were used to regularly monitor the quality of the trainings, and our annual End of the School Year Surveys have enabled us to understand whether program participants bring their new skills and knowledge back to the classroom. These surveys further help us understand what participants view as the challenges and benefits of technology integration.

The next step in this multiphase evaluation process is to look at whether there are important differences between teachers who participated in Intel Teach Essentials and those who did not in the ways both groups approach instruction in general and instructional technology use in particular. Comparing responses to the same set of questions across these two groups of teachers enables us to distinguish program effects from general trends in educational technology practices among the overall teaching population. This comparison also provides stronger evidence of the program's impact than data from program participants alone.

In May, EDC administered the 2006 Instructional Practices and Classroom Uses of Technology Survey (see Appendix A) via the web to a sample of participants and non-participants. This survey did not ask about the training or the specific instructional and technological practices that program participants encountered. Rather, the survey was designed to ask teachers more general questions about their instructional practices, classroom uses of technology, access to technology, and experiences with technology professional development. The goal of the survey was to understand the relationships among teachers' pedagogical beliefs, instructional practices, access to technology, and uses of technology, and to see how participating in the program influenced these other factors.

To create the 2006 Instructional Practices and Classroom Uses of Technology Survey, EDC evaluators drew upon the existing End of School Year and International Impact Surveys that have been used to evaluate the Essentials program and adapted or directly used questions from a validated teacher survey created by Michael Russell and colleagues at the Technology Assessment Study Collaborative (http://www.bc.edu/research/intasc/) for the Use, Support and Effect of Instructional Technology (USEIT) Study (Russell, O'Dwyer, Bebell, and Miranda, 2004). The USEIT Teacher Survey was administered to teachers in 22 school districts in Massachusetts and has provided valuable data on the relationship between a variety of classroom, school, and district factors and the integration of educational technology in teaching and learning.

The 2006 Instructional Practices and Classroom Uses of Technology Survey was designed to explore school and classroom level factors that research shows can influence teachers' abilities to successfully use technology in their teaching. Such factors included teachers' pedagogical beliefs as well as their access to technology. These factors served as the independent variables in the survey. The dependent variables, or outcome indicators, of the survey included items such as whether respondents used technology at all in their practice, whether they used technology with their students, how often they used technology in a variety of ways in their practices and with students, how often they used project-based instructional practices, their beliefs about the challenges and benefits of technology integration, and their beliefs about the experiences that have influenced their use of technology. The survey was not designed to explore district-level factors, although some items do provide insight into certain district choices and priorities.

In order to select the sample for the survey, EDC asked Intel Teach program staff to provide a list of districts where a substantial number of teachers have participated in the program, but also where a substantial number did not. We also requested that these districts reflect a range of demographic characteristics: urban, suburban, and rural; small and large; serving minority and non-minority students; and located across the country. We contacted educational staff in approximately 30 districts and asked them to participate in the survey. Educational staff in seven districts agreed to ask teachers in their districts to participate. Teachers from five of those seven districts completed the survey. The demographic profiles of these five districts are as follows.

- Two are urban, one is a small city, one is suburban, and one is rural.
- Two districts are large, one is medium sized, and two are small.
- Three of the districts serve high percentages of minority students.
- Two districts are located in the Northeast, one is in the Southwest, and two are in the Midwest.

District administrators (such as assistant superintendents) or school-based technology coordinators contacted the teachers via email, gave them the URL at which the survey could be accessed, and asked them to complete the survey. In all but one case, every teacher in the district was contacted. In the district where this was not the case, only K–8 teachers had participated in Intel Teach Essentials, so only K–8 teachers were asked to complete the survey. Approximately 10,000 teachers were contacted, and a total of 1180 completed the survey; the overall response rate was approximately 12 percent. While this percentage is quite small, the low response rate is due mainly to the large number of teachers in the urban districts who were contacted but chose not to complete the survey. When calculated district by district, the response rates are as follows:

- Urban district 1: 10 percent
- Urban district 2: 4 percent
- Small city district: 24 percent
- Suburban district: 48 percent
- Rural district: 77 percent

The overall findings show that, across the whole population, technology use is very common, including the use of technology with students. A large majority of the teachers had taken part in some form of technology professional development, and, for the most part, teachers who responded to the survey had positive attitudes about technology and the value of the technology-enhanced lessons they used with their students. Teachers' access to technology resources in their schools and their classrooms varied considerably, as did their pedagogical beliefs.

The survey findings supported the existing research literature by demonstrating that, indeed, teachers' pedagogical beliefs, access to technology, and participation in quality professional development (in this case, Intel Teach Essentials) do appear to influence their use of technology to support their practice and promote student learning. Regressions conducted on the survey data showed that none of these three factors accounts for more than 5 percent of the variation in teachers' responses on the key indicator items. Each of the research-based contextual factors has a moderate influence on teachers' behavior by itself; we observed the greatest variations when these factors interacted with each other.

This report first presents the overall survey findings and the relationship between program participation and the key outcome indicators. The report then examines the impact that teachers' pedagogical beliefs and technology access have on the key indicators. It further examines how program participation interacts with these other factors to influence whether and how teachers use technology in their teaching. Finally, the report explores how these key contextual factors interact with each other on the district level and how those interactions influence instructional technology use among teachers in the different districts.

Overall survey findings and the influence of program participation on key indicators

EDC evaluators first analyzed the entire survey data set descriptively to understand who the respondents were, what beliefs they held about teaching and technology, what instructional and technological practices they used, and what their experiences were with technology integration and professional development. Then for key indicators, we examined whether there were differences between those respondents who had participated in the training and those who had not. Below we provide a portrait of the whole sample of survey respondents and comparisons of participants and non-participants on relevant items.

Demographics

The survey asked respondents to provide information about themselves and their educational experiences. We found that most of the respondents were teachers, that in general they had a great deal of teaching experience, and that they were roughly comparable demographically to national averages.

Most of the survey respondents identified themselves as classroom teachers (72 percent). Nine percent were enrichment or resource teachers and 7 percent were technology coordinators. Over a third (35 percent) reported that they taught “All” subjects, or a general curriculum, and 13 percent taught Language Arts. Fewer than 10 percent taught any of the following: Math, Science, Computer Science, Social Studies/History, and Special Education. Over a third (37 percent) worked in Kindergarten to 3rd grade, 24 percent taught 4th and 5th grades, 30 percent taught 6th to 8th grades, and 22 percent taught in high school.[1] Respondents tended to have a great deal of teaching experience. A third (34 percent) had been teaching for over 20 years, and only 9 percent had been teaching for three years or less. Interestingly, 41.1 percent of Intel Teach Essentials participants reported having over twenty years of experience, while only 29.6 percent of non-participants had this much experience.

The survey sample of teachers had a higher percentage of women (80 percent) than the national average (75 percent), more Hispanic teachers, and fewer white and African-American teachers than the national average (see Table 1—National Center for Education Statistics, 2006a).

Table 1. Race/ethnicity of survey sample compared to national average (n = 1,180)

Race/ethnicity	Survey sample	National average
White	80%	83%
Hispanic	11%	6%
African American	5%	8%
Asian	2%	1%
American Indian/Alaskan Native	2%	1%

[1] Percentages total to more than 100 because respondents could check more than one grade level with which they work.

Survey respondents worked in schools in a variety of communities that serve students from different economic backgrounds. Half of the respondents worked in urban school districts (see Table 2), a higher percentage of urban teachers than is found in the national distribution of teachers (National Center for Education Statistics, 2006a). EDC evaluators obtained the free/reduced-price lunch eligibility data for each of the schools in which the survey respondents worked. These data showed that survey respondents work in more schools that serve students at the lowest and highest ends of the economic spectrum than the national average (see Table 3—National Center for Education Statistics, 2006b). A far greater percentage of non-participants taught in schools that serve low-income students.

Table 2. Percentages of survey respondents working in different types of communities (n = 1,180)

Type of community	Survey sample	National distribution
Large urban	57%	39%
Small city/suburban	35%	50%
Rural	8%	11%

Table 3. Percentages of students eligible for free/reduced-price lunches at the schools where survey respondents work, compared to national average (n = 1,180)

Percentage of students eligible for free/reduced price lunch	Survey sample	Participants (n = 374)	Non-participants (n = 806)	National average
0–25%	38.1%	52.0%	31.6%	31%
26–50%	21.3%	16.7%	23.5%	26%
51–75%	14.4%	14.4%	14.4%	21%
76–100%	26.2%	16.9%	30.5%	22%

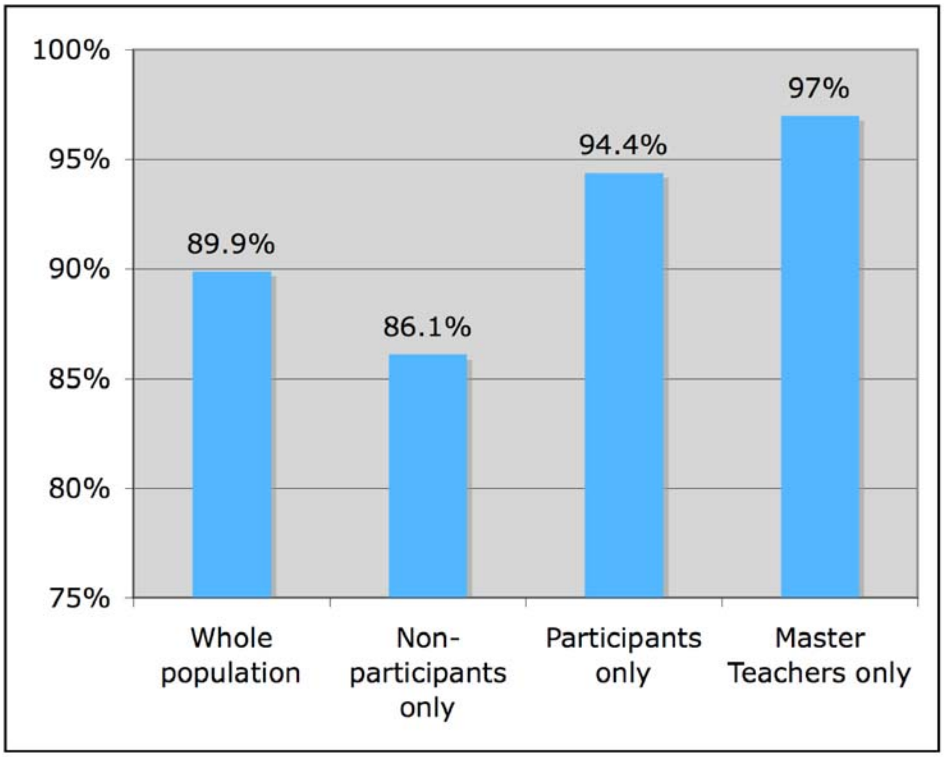
Technology professional development

Our analysis demonstrated that this population of teachers had been exposed to a wide range of technology professional development experiences. The most common form was workshops/seminars run by district personnel (78.1 percent participated in this kind of professional development), followed by district or school sponsored courses (49.7 percent participated in these) and workshops/seminars run by an outside source (44.9 percent had participated in these). Only 7.3 percent reported that they had not participated in any technology-related professional development.

Almost a third (31.7 percent) of the respondents had participated in the Intel Teach Essentials course. Of those, 19.5 percent were trained as Master Teachers. Most of the respondents who had participated in Intel Teach Essentials had participated fairly recently; 35.2 percent completed the training in 2005, and 19.2 percent completed in 2004. Half (51.4 percent) of the survey respondents reported that other teachers in their schools had participated in Intel Teach Essentials. Only small numbers of respondents reported participating in any other technology training provided by a specific business or organization named in the survey, such as Microsoft Classroom Teacher Network (5.2 percent) or PBS Teacherline (5.3 percent).

Use of technology in practice
While our analysis of the survey data indicated that most respondents were technology users, we found that more program participants than non-participants used technology. A large majority (88.9 percent) of the overall sample reported that they used technology in their teaching practice. However, when responses were broken down by program participation, 94.4 percent of participants reported using technology in their practice, while only 86.1 percent of non-participants did so. This difference is even more pronounced when Master Teachers are singled out; 97 percent of these educators report using technology in their practice (see Figure 1). These data suggest that program participants, particularly Master Teachers, are somewhat more comfortable with technology than non-participant teachers and that they are finding more ways to use technology in their day-to-day practice.

Figure 1. Percentage of respondents who use technology in their practices



Sample: ***Whole population*** *(n=948);* ***Non-participants*** *(n=627);* ***Participants only*** *(n=320);* ***Master Teachers only*** *(n=66)*

We were interested in finding out from participants not only *whether* they used technology in their practice, but also *how* they used it. The survey presented respondents with a number of items that described ways they might use technology to support their teaching and asked how many days in a 10-day period the teachers engaged in such activities (see Appendix A, Question 10). The most frequently cited uses by the whole population were:

- Emailing other teachers in their school (mean: 8.37 days)
- Grading (mean: 5.58)
- Emailing school and district administration (mean: 5.34)
- Creating handouts (mean: 5.27)

- Accessing the Internet for help developing lessons or activities (mean: 4.68)

When we examined these items based on program participation, we observed significant differences ($p < .05$) between participants' and non-participants' use of technology to support their instructional practices. The specific items on which the groups differed most significantly included:

- Accessing a CD-ROM to aid in developing lessons or activities
- Using a computer to create or support alternative assessments
- Emailing students' parents
- Presenting information to students using technology

There were also significant differences ($p < .05$) in uses of technology to support instructional practice between Masters Teachers and survey respondents who were not trained as Master Teachers, whether they participated in the program or not. Master Teachers were significantly more likely to engage in instructional practices that included:

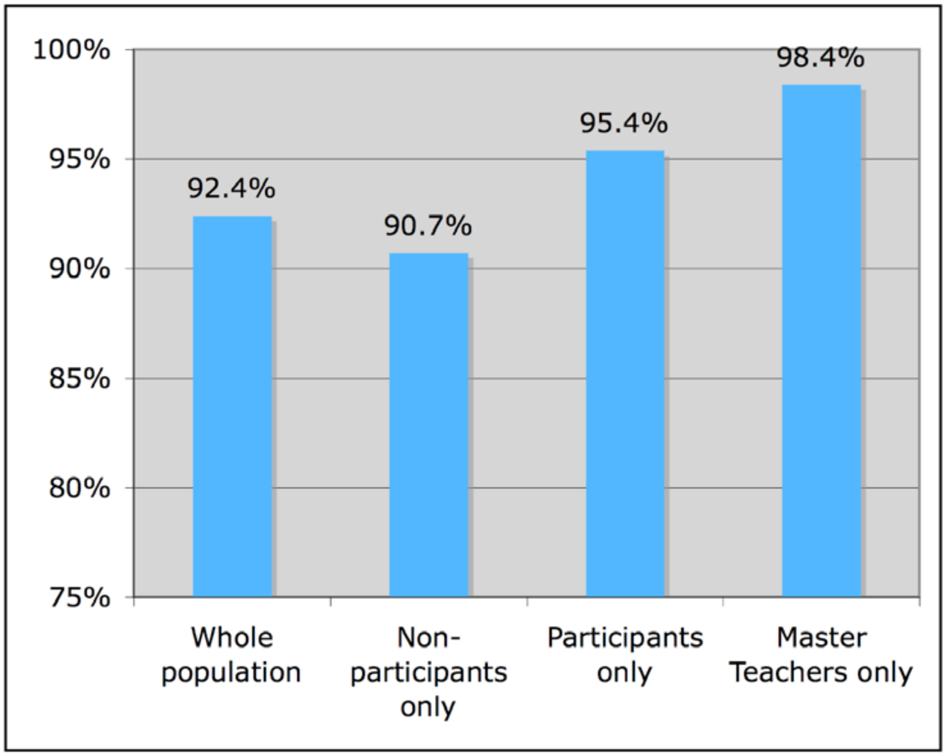
- Accessing CD-ROMs to aid in developing lessons or activities
- Using a computer to create or support alternative assessments
- Presenting information to students using computer technology
- Adapting an activity to students' individual needs using a computer
- Emailing school and district administration personnel
- Using computer technology to analyze data to inform instructional practice
- Emailing students' parents
- Using a computer to create handouts

It was not surprising to find differences between program participants (whether Master or Participant Teachers) and non-participants on at least some of these specific items. The program provides a CD-ROM that includes lessons and activities that teachers can draw upon, and the training encourages teachers to think about alternative ways to assess student learning. In addition, because the training gives participants greater confidence with technology, they may feel more comfortable presenting to students using technology.

Use of technology with students

Although using technology to support one's teaching practice is an important step in the process of educational technology integration, the primary purpose of the Intel Teach Essentials program is to help teachers use technology with their students. Therefore, the survey asked those teachers who reported using technology in their practice at all whether they used technology with their students. Nearly all of these teachers (92.4 percent) said that they did. Among this group of respondents, we saw less variation between participants and non-participants; 95.4 percent of participants, 90.7 percent of non-participants, and 98.4 percent of Master Teachers reported that they used technology with their students (see Figure 2).

Figure 2. Percentage of respondents who use technology with their students



*Sample: **Whole population** (n=845); **Non-participants** (n=540); **Participants only** (n=305); **Master Teachers only** (n=64)*

Teachers who used technology with their students were presented with a variety of technology-related activities or practices and asked how often they used these with their students (see Appendix A, Question 13). The activities/practices they used most often included:

- Having students work on assignments using a computer outside of class time (2.02 times in a 10-day period)
- Discussing ethical or safety issues related to technology (1.99 times in a 10-day period)
- Discussing digital literacy issues with students (1.53 times in a 10-day period)

Teachers who used technology with their students were also asked about the kinds of work they have their students create using technology. This question asked teachers to report how many times since January (the survey was administered in May) they had their students produce a variety of different technology-based products (see Appendix A, Question 16). The findings show that the products teachers have students work on most often are:

- Web pages/websites (5.92 times since January)
- Videos or movies (4.76 times since January)
- Reports or papers (4.38 times since January)
- Stories or books (4.05 times since January)

There were no significant differences between participants and non-participants in the kinds of technology-related activities teachers did with their students or the technology-based work products they asked students to produce.

Project-based instructional practices

Because the Intel Teach Essentials course focuses not only on the integration of technology, but also on the use of project-based instructional practices, the survey included a section that asked respondents how many days in a 10-day period they integrated certain strategies, many of which could be described as project-based, in their teaching (see Appendix A, Question 7). The strategies used most often by the general survey population included:

- Having students work in collaborative groups (mean: 5.40 days in a 10-day period)
- Having students engage in a lesson structured around an open-ended question (mean: 4.65)
- Having students engage in a lesson from a textbook (mean: 4.39)

The standard deviations for these items range from 2.3 to 3.6 on an 11-point scale (0–10 days). Though responses were spread across the scale, on most questions the majority selected 0–4 days. There were no significant differences between participants and non-participants, or between Master Teachers and the rest of the survey population, in the use of project-based instructional practices.

A third set of items asked respondents how often they used different kinds of assessments in their teaching (see Appendix A, Question 8). Responses indicated that this sample of teachers tended to use constructivist assessment approaches more often than other forms of assessment, such as tests. The most commonly used assessment strategies among survey respondents were student portfolios (mean: 2.86 times in a 10-day period) and teacher-made rubrics (mean: 2.85 times in a 10-day period). Again, there were no significant differences between participants and non-participants, or between Master Teachers and the rest of the population, in how often respondents used different kinds of assessments.

Beliefs about technology use

The survey asked respondents who had used technology with their students why they chose to use technology and what they believed was the impact of technology on their students. Teachers were presented with a number of rationales for using technology with their students and asked whether they agreed or disagreed that these were reasons they used technology (see Appendix A, Question 15). The majority of respondents agreed with all of the reasons. However, the items that more respondents agree with “strongly” included:

- Using technology to increase student computer skills (57 percent)
- Using technology to prepare students for future jobs (51.9 percent)
- Using technology to improve student proficiency in research (43.8 percent)
- Using technology to improve teachers’ own productivity and efficiency (43.6 percent)

There were some interesting differences between the reasons participants agreed with "strongly" and those that non-participants agreed with "strongly." The items that at least 5 percent more participants agreed with "strongly" were:

- Using technology to improve student proficiency in research (49.3 percent for participants; 40.6 percent for non-participants)
- Using technology to increase student proficiency in presenting to an audience (31.3 percent for participants; 25.8 percent for non-participants)
- Using technology to prepare students for future jobs (55 percent for participants; 50.1 percent for non-participants)

There was only one item with which 5 percent more non-participants than participants agreed "strongly":

- Using technology to support student remediation in basic skills, such as math and reading (34 percent for participants; 39.3 percent for non-participants)

Teachers were then asked to think about a specific technology-based lesson they had used with their students and describe the impact that lesson had on their students compared to a similar lesson that did not involve technology (see Appendix A, Question 20). Teachers believed technology-based lessons had a greater impact on students than other lessons by:

- Getting students more actively involved in the lesson (66.3 percent marked "agree" or "strongly agree")
- Accommodating students with different learning styles (53.5 percent marked "agree" or "strongly agree")
- Enabling students to communicate their ideas and opinions with greater confidence (51.4 percent marked "agree" or "strongly agree")
- Enabling students to produce more creative work (51.1 percent marked "agree" or "strongly agree")

There were no significant differences in participant and non-participant responses on this set of questions.

Teacher perceptions of what has influenced their use of technology

The survey also asked teachers about the experiences and people that they believed had given them ideas about how to use computers in their classroom teaching. Among the overall population of teachers surveyed, the largest percentage (52 percent) of teachers reported that they were greatly influenced by conducting their own research, suggesting that these teachers taught themselves how to use technology. The next source identified was other teachers. Slightly more than a third (37.7 percent) were greatly influenced by seeing how other teachers used computers in the classroom. Slightly less than a third (32.8 percent) were greatly influenced by participating in professional development programs, the third most common source. These results, however, are noticeably different when the program participants are separated out. Program participants (44.5 percent) were much more likely than non-participants (25.5 percent) to say that professional development experiences were a "great influence" on the way they used technology.

Interestingly, participants (31.8 percent) were also nearly twice as likely as non-participants (17.9 percent) to report working with their colleagues to design technology-based lessons.

Most teachers believed that their schools were supportive of their efforts to use technology in their practices. Only a minority marked “agree” or “strongly agree” when asked if they lacked adequate administrative support (10.5 percent), adequate technical support (22.4 percent), or adequate instructional support (15.7 percent) for technology integration. Intel Teach Essentials participants were significantly less likely than non-participants to say that they lacked instructional support (12.1 percent of participants marked “agree” or “strongly agree” while 17.9 percent of non-participants marked “agree” or “strongly agree”).

Sustained impact among participants

We found evidence to suggest that the program’s impact on participants is sustained over time. For example, while participants’ reported use of technology in their practices varied based on the year they completed the training, the pattern does not show a consistent decrease or increase (see Table 4). The data for participants’ use of technology with their students actually show a slight decline among those more recently trained (see Table 5). This pattern suggests that technology use becomes more integral to instruction over time.

Table 4. Percentage of program participants who use technology in their teaching, by year they completed the program (n = 325)

Year training completed	Percent who use technology in their practices
2000 (n = 12)	80.0%
2001 (n = 17)	92.9%
2002 (n = 14)	100.0%
2003 (n = 41)	97.1%
2004 (n = 71)	89.8%
2005 (n = 130)	97.4%
2006 (n = 40)	93.8%

Table 5. Percentage of program participants who use technology with their students, by year they completed the program (n = 310)

Year training completed	Percent who use technology with their students
2000 (n = 12)	100.0%
2001 (n = 17)	100.0%
2002 (n = 14)	100.0%
2003 (n = 41)	97.0%
2004 (n = 71)	96.2%
2005 (n = 130)	93.9%
2006 (n = 40)	93.5%

The time since participants completed the program did not correlate to any other significant differences in responses to the survey’s other important indicators, such as instructional practices, how often they use of technology in a variety of ways to support practices, or how often teachers engage their students in technology-enhanced activities.

Having a Master Teacher on staff

In addition to directly training teachers, the Intel Teach Essentials course is designed to support district efforts to promote technology integration and project-based teaching in a number of ways. In particular, by training Master Teachers within districts, Intel Teach Essentials is designed to build school and district-level capacity for providing training and on-going support for all teachers in the use of technology, even those teachers who did not take part in the training. The survey data indicate that, in fact, teachers' responses differ on critical indicators of impact somewhat it they have Master Teachers working in their schools. For example, a higher percentage of teachers who had Master Teachers in their schools reported using technology in their practices (93.4 percent) and with their students (94.9 percent) than those who did not have a Master Teacher in their building (86.9 percent and 91.2 percent, respectively). Having a Master Teacher also appears to impact collaborative activities among teachers. Respondents with Master Teachers in their schools were more likely to report that seeing what other teachers did in their classrooms had a great influence on their own use of technology (43.9 percent) than teachers who did not have Master Teachers in their school (34.8 percent). They were also more likely to report that working with their colleagues on technology-integrated lessons had a great influence on them (29.3 percent) than respondents without Master Teachers (20.3 percent). In addition, respondents who had a Master Teacher in their school were significantly *less* likely than those who did not to say that they lacked administrative, technical, and instructional support in their school.

Impact of pedagogical beliefs on instructional practices and use of technology

The literature on effective technology integration cited above indicates that teachers' pedagogical beliefs impact their educational technology practices (Culp, Hawkins & Honey, 1999; Dickard, 2004; SRI International, 2002; Zhao, Pugh, Shelden & Byers, 2002). In particular, teachers who hold constructivist, student-centered pedagogical beliefs tend to value technology integration more than those whose approaches to teaching are more teacher-directed (O'Dwyer, Russell & Bebell, 2004; Ravitz, Wong &Becker, 2000). Our findings confirm this research and are consistent with previous EDC reports on both the U.S. and the international Intel Teach Essentials program. Those reports found that teachers who were familiar with the pedagogical strategies presented in the training were more likely to implement technology-integrated lessons with their students than teachers who were not.

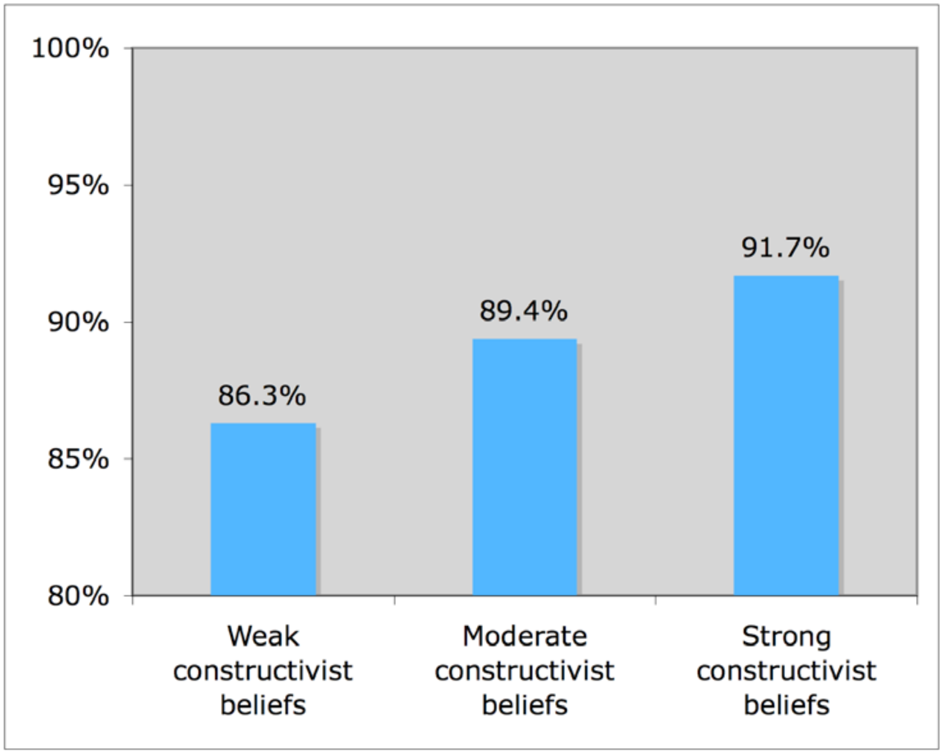
The survey included a set of items designed to assess where survey respondents fell on a continuum of strong-to-weak constructivist pedagogical beliefs. The questions were taken from the USEIT Teacher Survey, discussed above (Russell *et al*, 2004). These items presented the survey respondents with a pair of statements, one of which reflected a constructivist approach to instruction and another that reflected a more teacher-directed approach to instruction. Respondents were asked to select which statement they "agreed" or "strongly agreed" with on a 5-point scale (see Appendix A, Question 6).

We calculated the means for these responses and found that on all but one pair of statements, the survey respondents' pedagogical beliefs in general tended to be moderate to high on the constructivism continuum. The two statement pairs on which teachers' views were most strongly constructivist (mean: 3.47, where 1 is the least constructivist and 5 the most constructivist belief) concerned a) believing that developing student interest in academic work is a more important part of instruction than concentrating on the particular subject matter being taught and b) believing that it is useful to have different activities going on in the classroom at the same time rather than having whole class instruction. The one statement pair on which teachers' views were on the weaker end of the continuum (mean: 2.69) asked whether students need to learn basic skills before moving on to complex content or whether they can learn basic skills while they master complex content. The standard deviations for these items range from 1.14 to 1.28, which, on a 5-point scale, indicates that, though respondents' beliefs covered the entire continuum, most "agreed" rather than "strongly agreed" with any given statement.

EDC evaluators used the data from this set of questions to cluster respondents into three groups: teachers with strong constructivist beliefs (SCB), moderate constructivist beliefs (MCB), and weak constructivist beliefs (WCB). These groupings were then used to determine if there was a relationship between teachers' pedagogical beliefs and their responses to other survey questions.

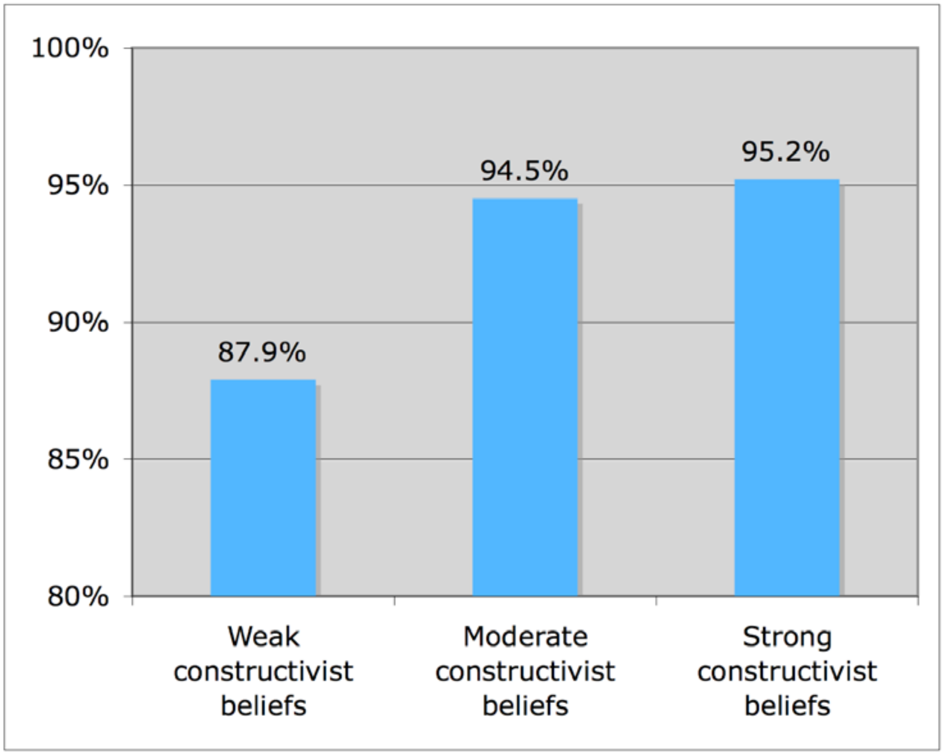
The findings from this analysis show that teachers with strong constructivist beliefs about teaching are more likely to use technology in their practices (see Figure 3) and more likely to use technology with their students (see Figure 4) than those with weak constructivist beliefs.

Figure 3. Percentage of respondents who use technology in their practice, by pedagogical beliefs



*Sample: **Weak constructivist beliefs** (n=313); **Moderate constructivist beliefs** (n=426); **Strong constructivist beliefs** (n=206)*

Figure 4. Percentage of teachers who use technology with their students, by pedagogical beliefs



*Sample: **Weak constructivist beliefs** (n=272); **Moderate constructivist beliefs** (n=381); **Strong constructivist beliefs** (n=189)*

Teachers who held strong constructivist beliefs also used project-based instructional strategies more often in their teaching than teachers who held weak constructivist beliefs. There were statistically significant differences ($p < .05$) between the number of times in a 10-day period SCB teachers used a variety of different instructional strategies and the number of times WCB teachers did so. The most dramatic differences between the two groups are illustrated in Table 6.

Table 6. How often teachers engage in project-based instructional practice, by pedagogical beliefs

	SCB teachers (n ~ 200)	WSB teachers (n ~ 250)
Having students engage in lessons structured around open-ended questions	5.44	4.09
Having students work in collaborative groups	6.27	4.67
Having students conduct research during class time	3.82	2.30
Having students choose their own topics for research	2.73	1.62

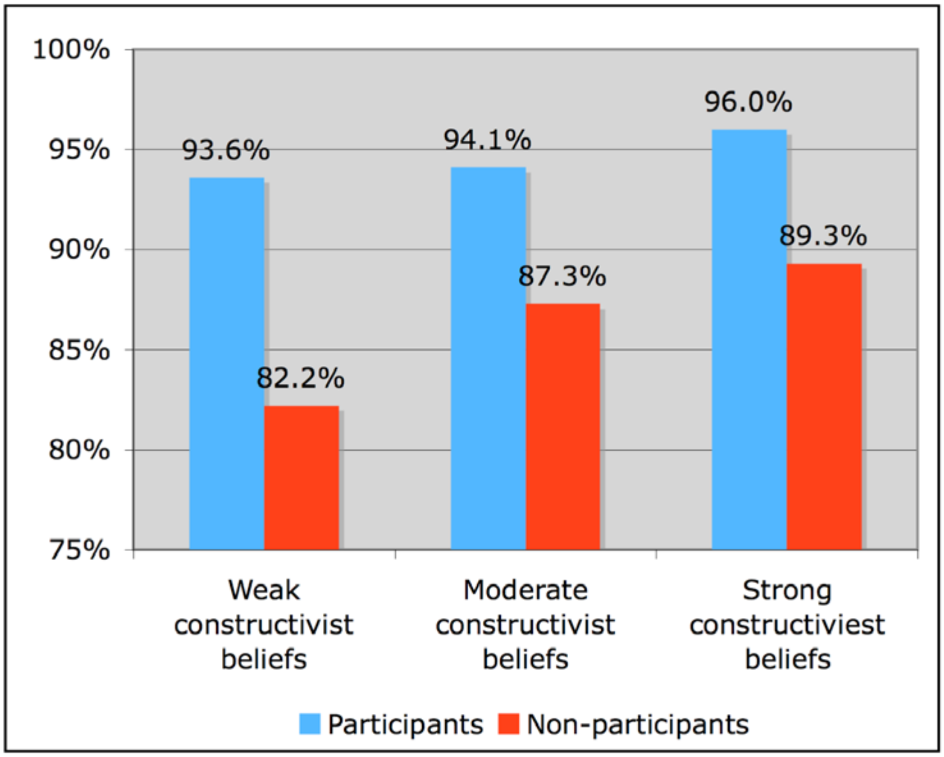
SCB teachers were also significantly ($p < .05$) more likely to use technology in a variety of ways to support their own practices than were WCB teachers. In particular, they used the Internet more often to develop lessons and activities for their classes, used the computer more often to create alternative assessments, and used the computer more often to adapt a lesson to meet an individual student's needs. SCB teachers also spent more instructional periods on technology-based lessons than WCB teachers (mean: 5.08 days in a 10-day period as compared to 3.70 days for WCB teachers) and worked with their students in the computer lab more often (mean: 2.84 days in a 10-day period as opposed to 1.94 days).

Relationship between pedagogical beliefs and program participation

There were no significant differences between the pedagogical beliefs of participants and non-participants. This fact indicates that the program is reaching a wide range of teachers, rather than attracting only those with the most constructivist beliefs. It also suggests that the program does not necessarily lead directly to a change in teachers' pedagogical beliefs. This is not surprising, since changing a person's beliefs is a complicated process. What is interesting, however, is the interaction between program participation, pedagogical beliefs, and certain key indicators that illustrate what teachers actually do in their practice and with their students. The data suggest that program participation has a more dramatic influence on teachers with weaker constructivist beliefs than on those with stronger constructivist beliefs across a range of indicators.

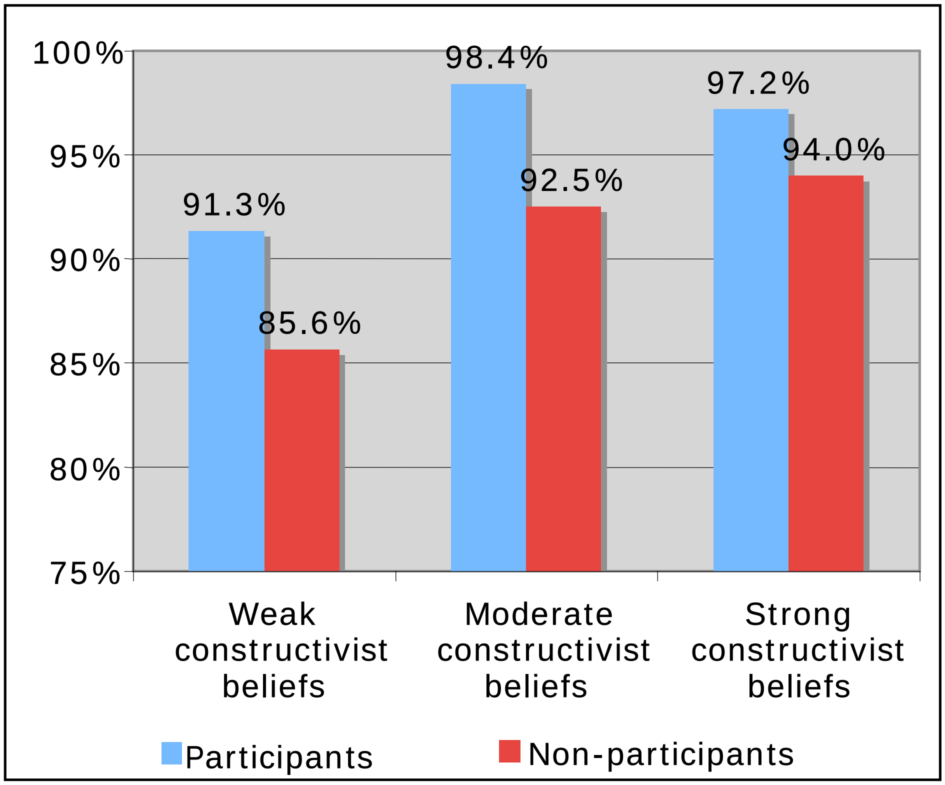
For example, a comparison between the percentage of participants and non-participants who use technology at all in their teaching practice, broken down by pedagogical beliefs, shows greater differences in the behavior of the two groups as they become less and less constructivist (see Figure 5). The same is true when we examine the differences between participants and non-participants in their uses of technology with their students (see Figure 6).

Figure 5. Percentage of participants and non-participants who use technology in their practices, by pedagogical beliefs



Sample: ***Weak constructivist beliefs:*** *Participants (n= 110) and Non-participants (n= 203);* ***Moderate constructivist beliefs:*** *Participants (n=135) and non-Participants (n=291);* ***Strong constructivist beliefs:*** *Participants (n=75) and Non-participants (n=131)*

Figure 6. Percentage of participants and non-participants who use technology with their students, by pedagogical beliefs



*Sample: **Weak constructivist beliefs:** Participants (n=104) and Non-participants (n=168); **Moderate constructivist beliefs:** Participants (n=128) and Non-participants (n=253); **Strong constructivist beliefs:** Participants (n=72) and Non-participants (n=117)*

Our analysis also compared the frequency with which participants and non-participants used certain project-based teaching practices and their uses of technology in different ways to support their teaching practice. The findings suggest that pedagogical beliefs account for greater differences in teacher practices among non-participants than among participants. In other words, program participation serves as a sort of leveler of differences in teacher behavior based on pedagogical beliefs. Among non-participants, there were significant differences ($p < .05$) on 7 out of the 9 project-based teaching strategies in the survey; these differences depended on how constructivist respondents' beliefs were. Among participants, there were significant differences ($p < .05$) on only 3 of the 9 project-based teaching strategies, likewise depending on respondents' pedagogical beliefs. There were also significant differences on 5 of the 14 uses of technology to support teaching practices between strongly and weakly constructivist non-participants. There were no significant differences in the uses of technology to support teaching practices among participants based on their pedagogical beliefs.

As mentioned above, it is difficult for a single program to immediately transform participants' belief systems. However, a program like Intel Teach Essentials can provide participants with concrete tools, resources, and strategies that they can implement in the classroom, perhaps leading teachers to try instructional practices they might not otherwise have used. These analyses suggest that the program may be facilitating a moderate but real process of change toward more technology-rich, project-based instruction, especially among those teachers whose existing pedagogical beliefs make them least inclined to use technology or project-based teaching strategies.

Impact of technology access on instructional practice and use of technology

The research literature cited in the introduction states that teachers' access to adequate technology in their schools and classrooms is a key factor that influences their ability to use technology to support instruction (Culp, Hawkins & Honey, 1999; Dickard, 2004; O'Dwyer, Russell & Bebell, 2004; Ravitz, Wong & Becker, 2000; SRI International, 2002; Zhao, Pugh, Shelden & Byers, 2002). The more classroom computers teachers have, the more likely they are to use technology in their teaching. Our International Impact survey research has also shown that those teachers who have access to both lab and classroom computers are more likely to use technology than those who have only classroom or only lab access. Our findings from this survey confirm this research to some extent.

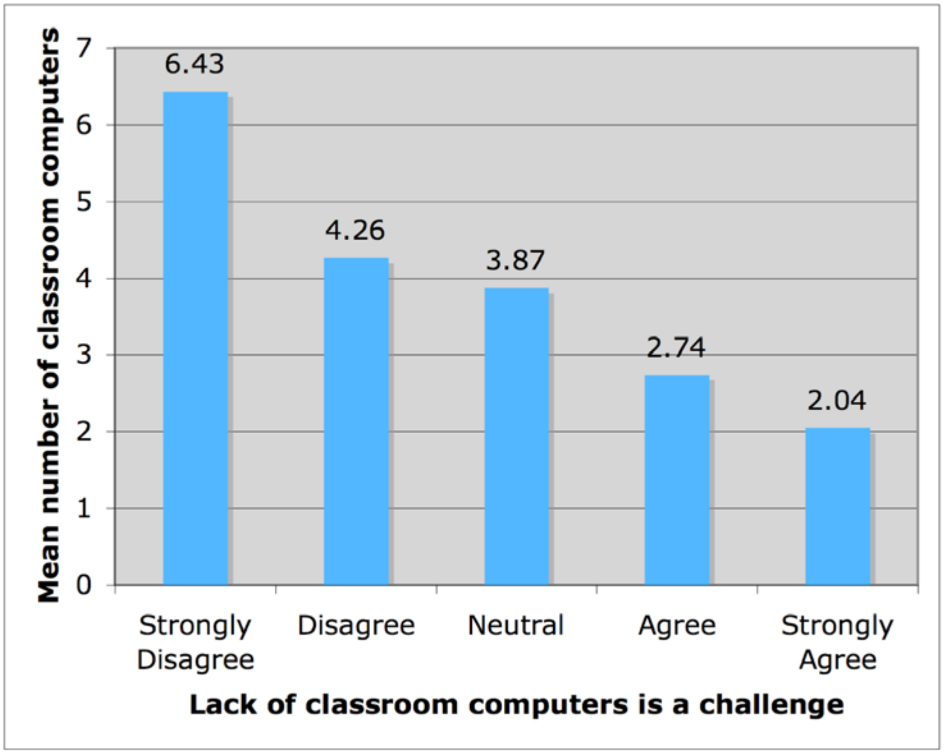
The survey asked respondents about their access to computers and a variety of other technologies. Two-thirds (67.9 percent) of the sample reported having access to both classroom and lab computers. On average, teachers had fewer than three computers per classroom (mean: 2.86). It is interesting to note that, among those teachers who did not use technology with their students, the greatest obstacle to technology integration they reported was the lack of computers in the classroom (54.9 percent said this was a "major obstacle"). Even among those who did use technology with their students, the most commonly cited challenge to integration was the lack of classroom computers (69.7 percent marked "agree" or "strongly agree" when asked if this was a challenge).

Respondents were also asked about other technologies to which they had access. Majorities of respondents had access to the following:

- Internet in the classroom (95.2 percent)
- Internet in computer labs (77.9 percent)
- TV with a VCR for the classroom (74.8 percent)
- Classroom printer (69.5 percent)
- Digital cameras (51.4 percent)

We examined the relationship between technology access and instructional use of technology using two measures of access — where teachers had access to computers (in their classrooms only, in the labs only, or in their classrooms and the labs) and the number of computers in their classrooms. Our analysis found that teachers were more likely to report using technology in their practice if they had access to computers in both a lab and their classroom (91.1 percent) than if they had only lab access (86.8 percent) or only classroom access (83.2 percent). Nevertheless, the location of teachers' access to computers had no significant impact on whether they used technology with their students. Teachers who reported using technology in their practice had a greater number of computers in their classrooms (mean: 2.98) than those who reported that they did not use technology in their practice (mean: 1.87). In addition, teachers who used technology with their students had a higher number of computers in their classrooms (mean: 3.09) than those who did not use technology with their students (mean: 1.44). Not surprisingly, the fewer classroom computers teachers had in their classrooms, the more likely they were to "agree" or "strongly agree" that lack of classroom computers was a challenge to technology integration (see Figure 7).

Figure 7. Relationship between number of classroom computers and teachers' belief that lack of classroom computers was a challenge to technology integration (n = 747)



There were also significant differences ($p < .05$) in the ways teachers used technology to support their practice depending on the number of computers teachers had available in their classrooms. Teachers with more classroom computers engaged in the following practices more often than those with fewer computers:

- Accessing the Internet to develop lessons or activities
- Using the computer for grading
- Using the computer to create handouts
- Using the computer to create tests, quizzes, or assignments
- Using the computer to create or support alternative assessments
- Emailing school or district administrators
- Using the computer to adapt an activity to student needs
- Creating or maintaining a website
- Presenting information to students using the computer
- Using the computer to analyze data to inform instructional practice

Classroom access to computers also had an impact on the kind of work teachers asked their students to create. The more classroom computers teachers had, the more often they had students produce the following using computers ($p < .05$):

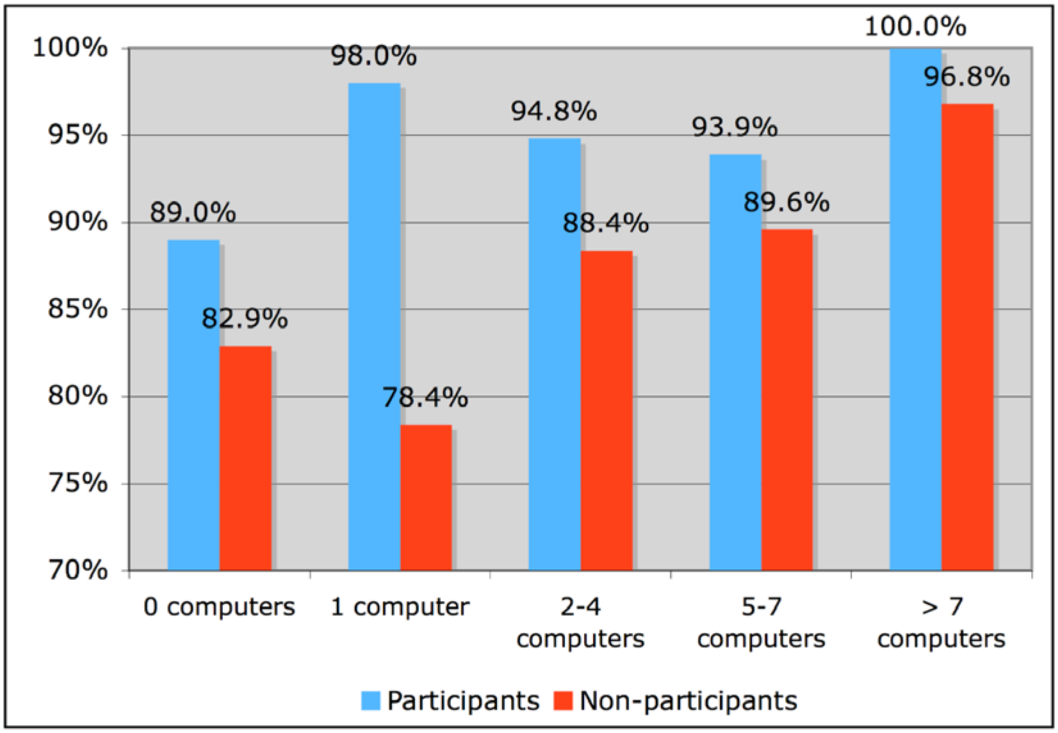
- Reports and papers
- Multimedia projects
- Web pages or websites
- Pictures or artwork
- Graphs or charts
- Videos or movies

Relationship between technology access and program participation
As we did with teachers' pedagogical beliefs, we also looked at the interactions between technology access and program participation and the impact of those interactions on certain key variables.

There were no significant differences between the number of classroom computers participants had and the number that non-participants had. However, participants were more likely to have access to computers in both their classroom and a school lab (71.5 percent for participants; 66.1 percent for non-participants) while non-participants were more likely to only have access to classroom computers (21.9 percent for non-participants and 14.1 percent for participants).

We then examined how program participation interacted with technology access to see whether the program had a different impact on teachers depending on the kind of access they had to technology. Similar to our findings regarding pedagogical beliefs, we found greater differences between program participants and non-participants who use technology in their practice if the respondents had no computers or only a small number of computers in their classrooms (see Figure 8). In particular, participating in the program seems to have made the most dramatic difference for teachers with only one computer in the classroom. Almost every participant (98 percent) with one computer used technology to support her or his practice, while only 78.4 percent of non-participants with one computer did so.

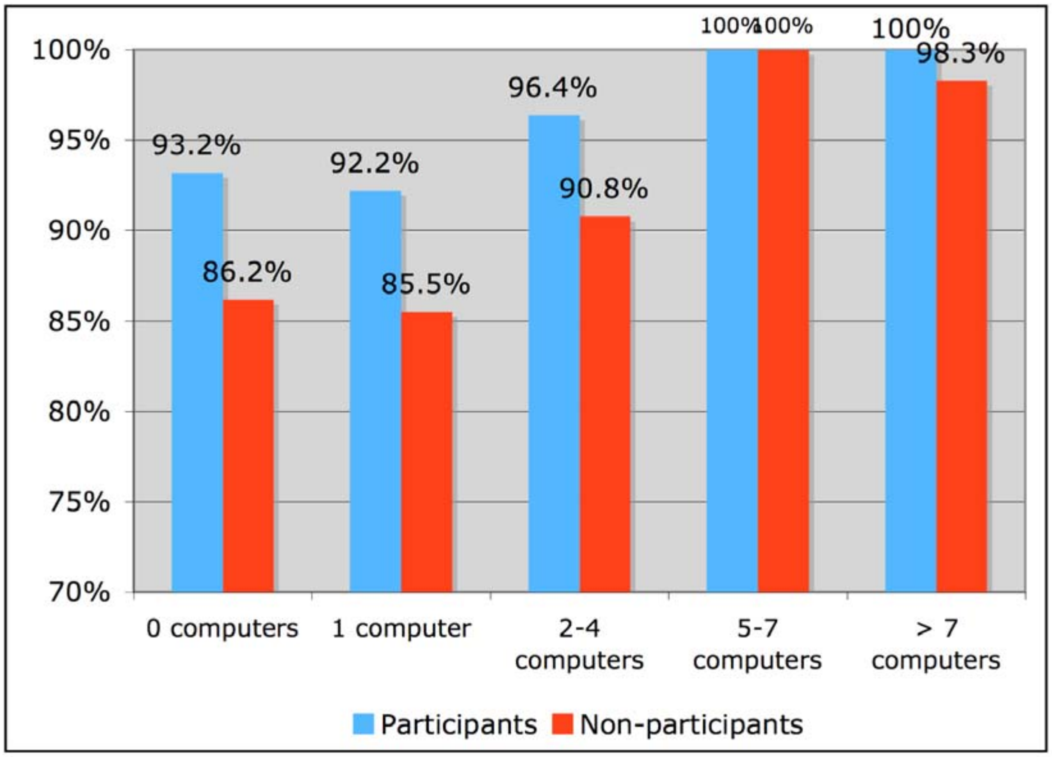
Figure 8. Percentage of participants and non-participants who used technology in their practice, by number of classroom computers



*Sample: **0 computers:** Participants (n=82) and Non-participants (n=140); **1 computer:** Participants (n=57) and Non-participants (n=88); **2-4 computers:** Participants (n=115) and Non-participants (n=259); **5-7 computers:** Participants (n=33) and Non-participants (n=48); **> 7 computers:** Participants (n=34) and Non-participants (n=62)*

The program also seemed to encourage teachers with few or no classroom computers to use technology with their students. There are greater differences in the use of technology with students between participants and non-participants with 0, 1, or 2–4 classroom computers than between those who have 5 or more classroom computers (see Figure 9). These data suggest that once teachers achieve a certain level of access (five computers), nearly all use technology with their students. However, when teachers do not work in technology-rich classrooms, a program like Intel Teach Essentials may be the catalyst some teachers need to begin integrating technology into their instruction.

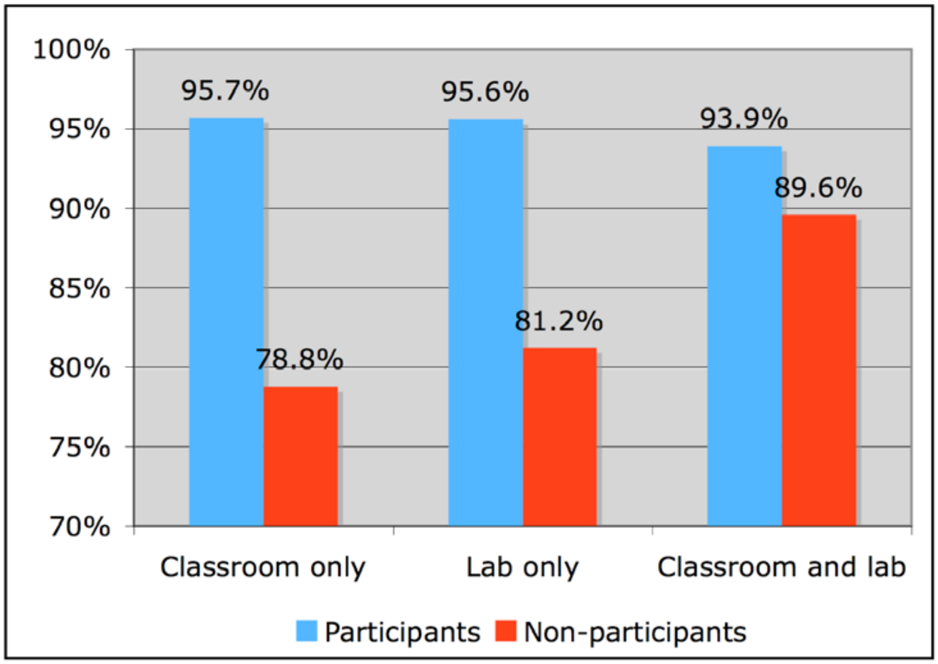
Figure 9. Percentage of participants and non-participants who used technology with their students, by number of classroom computers



*Sample: **0 computers:** Participants (n=73) and Non-participants (n=116); **1 computer:** Participants (n=51) and Non-participants (n=69); **2-4 computers:** Participants (n=110) and Non-participants (n=228); **5-7 computers:** Participants (n=31) and Non-participants (n=43); > **7 computers:** Participants (n=34) and Non-participants (n=59)*

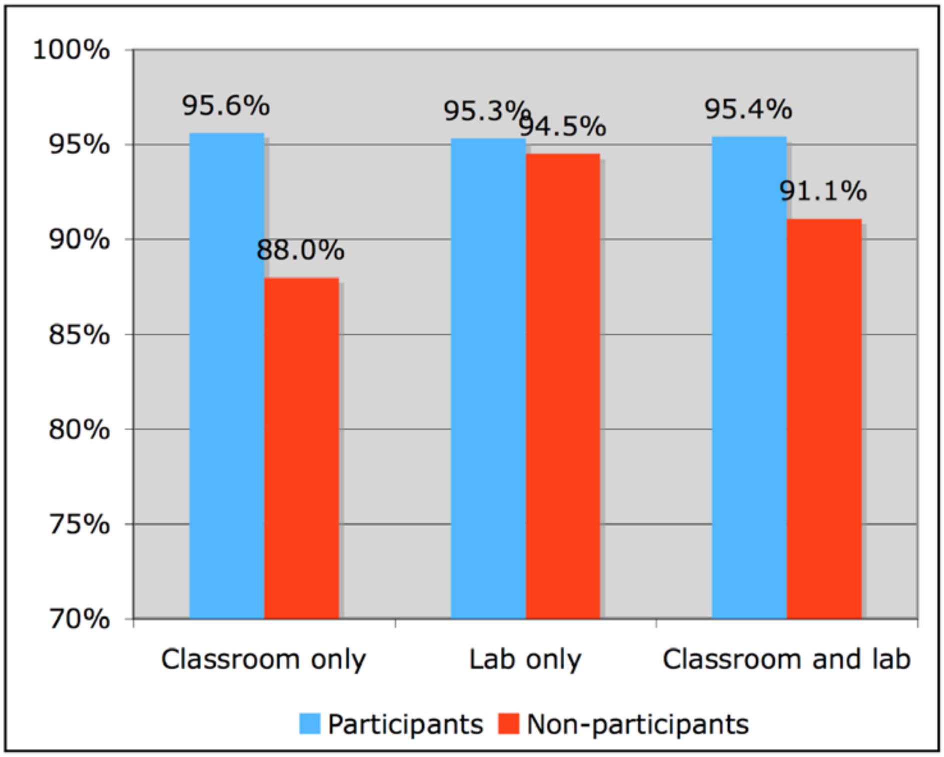
We found that the differences between program participants and non-participants based on where they had access to computers were somewhat different from the findings above. The data again show greater differences in the percentage of participants and non-participants who use technology to support their practice among teachers who have less comprehensive access to computers (see Figure 10). However, there are only substantial differences between participants and non-participants in their uses of technology with their students if they only have access to computers in their classrooms. There are only small differences between the two groups if they have only lab access or classroom and lab access (see Figure 11).

Figure 10. Percentage of participants and non-participants who used technology in their practice, by where they have access to computers



*Sample: **Classroom only:** Participants (n=47) and Non-participants (n=136); **Lab only:** Participants (n=44) and Non-participants (n=69); **Classroom and lab:** Participants (n=230) and Non-participants (n=414)*

Figure 11. Percentage of participants and non-participants who used technology with their students, by where they have access to computers



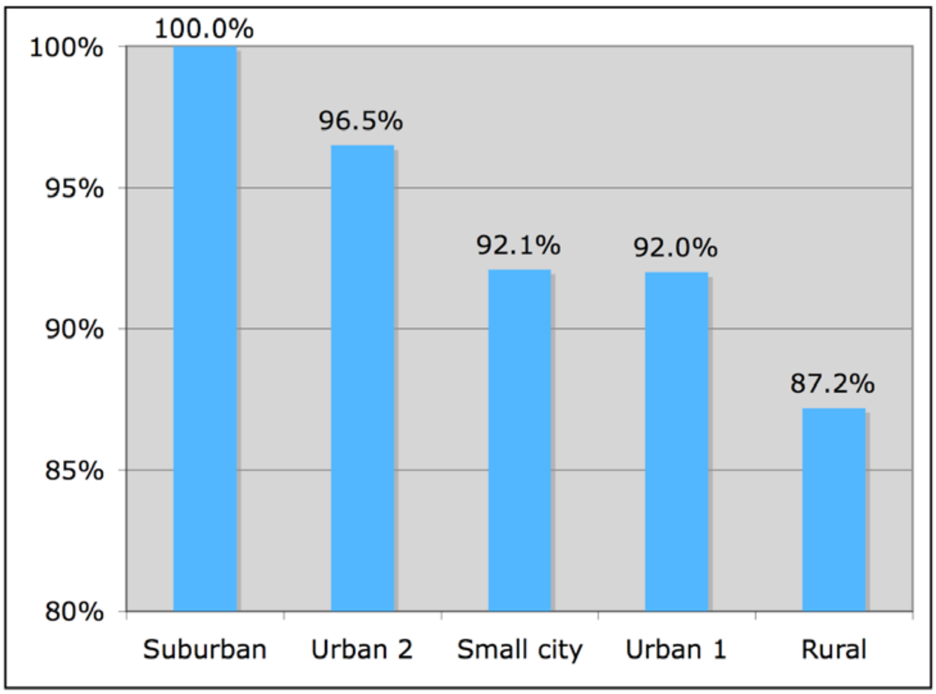
*Sample: **Classroom only:** Participants (n=45) and Non-participants (n=107); **Lab only:** Participants (n=42) and Non-participants (n=55); **Classroom and lab:** Participants (n=218) and Non-participants (n=372)*

The survey analysis of technology access indicates that this factor does, in fact, make a difference in whether and how teachers use technology in their practice. Teachers with more classroom computers use technology more often in their practice and with their students, and teachers who have access to computers in both their classroom and a school lab use technology more in their practice. In addition, this analysis demonstrates that participating in Intel Teach Essentials can have a different impact on teachers depending on the kind of technology access they have. The data suggest that teachers with the most substantial classroom computer access are likely to use technology in their practice whether they participate in the program or not, but that a program like Intel Teach Essentials provides additional support and encouragement for those teachers with fewer classroom resources. Interestingly, this analysis also suggests that the program makes a greater difference for teachers who only have access to computers in their classrooms than for teachers with only lab access or with lab and classroom access. This may be because the program offers classroom management strategies for engaging in classroom-based technology projects. These strategies may give teachers ideas for ways to use classroom computers that they had not considered before participating, and may help teachers feel more confident integrating computers into instruction without the support of a computer lab teacher.

Influence of district characteristics on instructional practice and use of technology

The analyses described above demonstrated that teachers' pedagogical beliefs and their access to technology were, indeed, factors that influenced, to some extent, certain instructional practices and uses of technology. In addition, they also suggested that teachers' participation in Intel Teach Essentials, combined with these other factors, led to important differences in their instructional practices and uses of technology. What further analysis illustrated, however, was that the factor that accounted for the greatest differences among respondents on the key survey indicators, such as use of technology with students, was the district in which respondents taught (see Figure 12). This finding led us to investigate what district membership actually meant in relation to the key factors that research suggests are important in facilitating educational technology integration.

Figure 12. Percentage of teachers who used technology with their students, by district



Sample: ***Suburban*** *(n=40);* ***Urban 2*** *(n=86);* ***Small city*** *(n=279);* ***Urban 1*** *(n=362);* ***Rural*** *(n=78)*

Our district-by-district analysis demonstrated notable differences across districts in teachers' pedagogical beliefs, where they have access to technology, and the number of computers in their classrooms. When multiple factors align within districts (for example, when one district is high on a number of these factors) the differences across districts on key indicators are compounded. When we consider other factors, such as the number of economically disadvantaged students a district serves or teachers' participation in Intel Teach Essentials, the picture becomes even more complicated.

District by district differences in pedagogical beliefs

Teachers' places on the continuum of pedagogical beliefs varied considerably according to district. The suburban district had the largest percentage of SCB teachers and the rural district had the highest percentage of WCB teachers (see Table 7).

Table 7. Percentage of teachers in the five districts at each level of the continuum of pedagogical beliefs (n = 947)

District	Strong constructivist beliefs	Moderate constructivist beliefs	Weak constructivist beliefs
Suburban	42.9%	45.2%	11.9%
Urban 2	23.7%	43.0%	33.3%
Urban 1	23.2%	47.0%	29.8%
Rural	18.1%	41.0%	41.0%
Small city	17.4%	44.2%	38.4%

Not surprisingly, there is a strong relationship between the level of constructivist beliefs and the use of project-based teaching methods by teachers within a district. Teachers in the suburban district reported using all of the project-based teaching methods listed in the survey (see Appendix A, Question 7) more frequently than teachers in any other district. In most cases, teachers in the rural district reported using these teaching strategies least often.

Consistent with the findings above, where the districts fell on the pedagogy continuum was a fairly good predictor of the percentage of teachers who reported using technology with their students (see Table 8).

Table 8. Percentage of teachers who used technology with their students, by district (n = 206 with SCB, n = 845 who use technology with students)

District	Percentage with strong constructivist beliefs	Percentage who use technology with students
Suburban	42.9%	100.0%
Urban 2	23.7%	96.5%
Small city	17.4%	92.1%
Urban 1	23.2%	92.0%
Rural	18.1%	87.2%

District by district differences in technology access

There were also significant differences across the five districts in teachers' technology access, both in the number of classroom computers teachers had and where they had access to computers (see Table 9). This illustrated the different technology infrastructure choices that districts had made.

Table 9. Technology access, by district (n ~ 950)

District	Mean number of classroom computers	Percent with classroom and lab access	Percent with access in classroom only	Percent with access in lab only
Urban 2	4.11	68.2%	27.1%	4.0%
Urban 1	3.42	47.9%	30.9%	20.2%
Small city	2.34	73.2%	12.6%	11.9%
Rural	1.81	60.7%	3.6%	36.9%
Suburban	.60	85.7%	0%	11.9%

The survey analysis suggests that easy access to classroom computers enables teachers to use computers more easily in their day-to-day work. There were significant differences among the districts in teachers' use of technology to support their practice. Teachers from the district with the highest number of classroom computers used a number of practices more frequently than teachers in other districts, such as:

- Accessing the Internet to develop lessons and activities
- Accessing CD-ROMs to develop lessons and activities
- Discussing the value of electronic resources with colleagues
- Using the computer to create handouts
- Using the computer to create tests, quizzes, or assignments
- Using the computer to support alternative assessments
- Using the computer to adapt an activity to meet an individual student's needs
- Creating or maintaining a website
- Presenting information using technology
- Using a computer to analyze data to inform instructional practice

Not surprisingly, a much higher percentage of teachers from the district with the lowest number of computers per classroom marked "strongly agree" when asked if the lack of classroom computers was a challenge to technology integration. Interestingly, however, the district with the second lowest number of classroom computers had the smallest percentage of teachers who answered "strongly agree" to the same question (see Table 10).

Table 10. Percentage of teachers who perceived a lack of computers to be a challenge, by district (n = 757)

District	Mean number of classroom computers	Percent who "strongly agree" that lack of classroom computers was a challenge
Urban 2	4.11	34.6%
Urban 1	3.42	31.1%
Small city	2.34	35.0%
Rural	1.81	29.4%
Suburban	.60	56.4%

District by district interactions between pedagogical beliefs and technology access

Our analyses illustrate that there are complex interactions in the data for teachers' district membership, their use of technology with their students, their pedagogical beliefs, the location of their access to technology, and the number of classroom computers they have. Table 11 below ranks each district on each of these factors. While there are no perfect relationships, some patterns emerge from the data that are consistent with the research and with our own findings from this survey, as well as other evaluations of the program.

Table 11. Rankings of districts on key indicators and factors
(n ~ 950)

District	Rank in teachers who use technology with students	Rank in percentage of teachers with strong constructivist beliefs	Rank in percentage of teachers with access to classroom and lab computers	Rank in number of classroom computers
Suburban	1	1	1	5
Urban 2	2	2	3	1
Small city	3	5	2	2
Urban 1	4	3	5	3
Rural	5	4	4	4

The suburban district had the highest percentage of SCB teachers, the highest percentage of teachers with both classroom and lab access, and the lowest number of computers in the classroom, as well as the highest percentage of teachers who used technology with students. These data seem to suggest that teachers' beliefs and their access to computers in the classroom and lab are stronger predictors of instructional technology use than the number of classroom computers teachers have. However, apart from the suburban district, we found an exact relationship between teachers' use of technology with their students and the number of computers in their classrooms. The urban 2 district had the second highest percentage of SCB teachers, the highest number of computers per classroom, and the third highest percentage of teachers with access to both lab and classroom computers. This district had the second highest percentage of teachers who used technology with students. Finally, the rural district, which had the lowest percentage of teachers who used technology with their students, had the highest number of WCB teachers. It also had the second lowest number of computers per classroom and second lowest percentage of teachers with both classroom and lab access. These data suggest that this combination of poor technology access and weak constructivist beliefs is not conducive to the integration of technology into education. All of these findings together suggest that these factors, working in conjunction with each other, are strongly associated with instructional technology use among teachers.

Figures 13 and 14 provide visual representations of the patterns of instructional technology use by district, as well as connections between those patterns and teachers' pedagogical beliefs and the location of their access to technology. Figure 13 shows that, within a district, the percentage of teachers with strong constructivist beliefs and the percentage of teachers with access to computers in both the lab and the classroom is generally in line with the percentage of teachers who use technology with their students. Figure 14 shows how each district's rank on these two key factors (pedagogical beliefs and location of technology access) is related to its rank on the key indicator (teachers' use of technology with students).

Figure 13. Percentage of teachers with strong constructivist beliefs and access to technology in labs and classrooms and the connection between these factors and teachers' use of technology with students (n ~ 950)

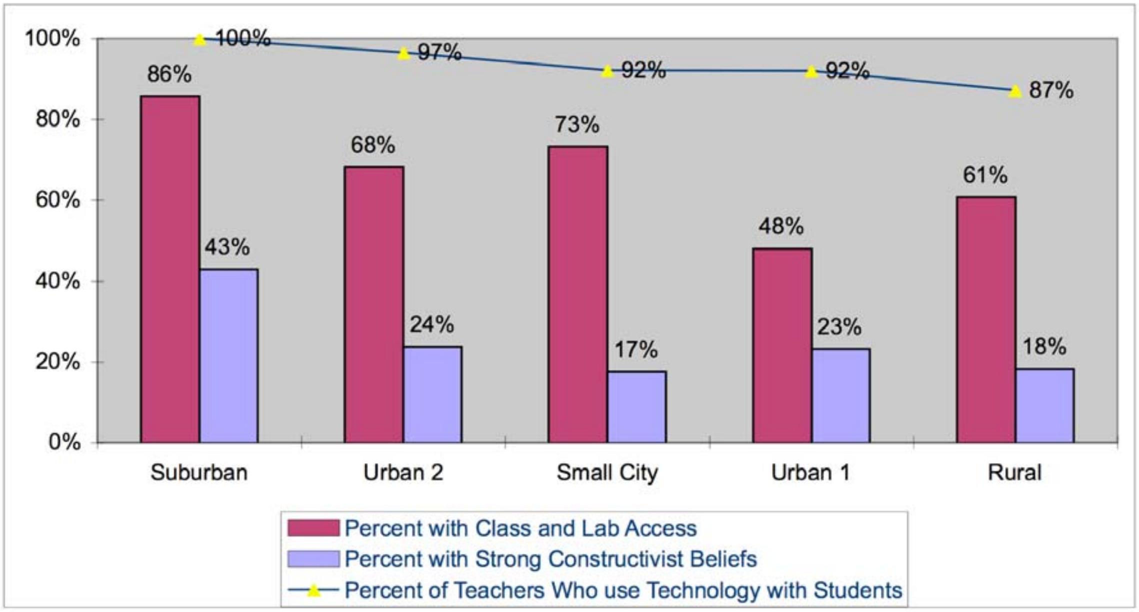
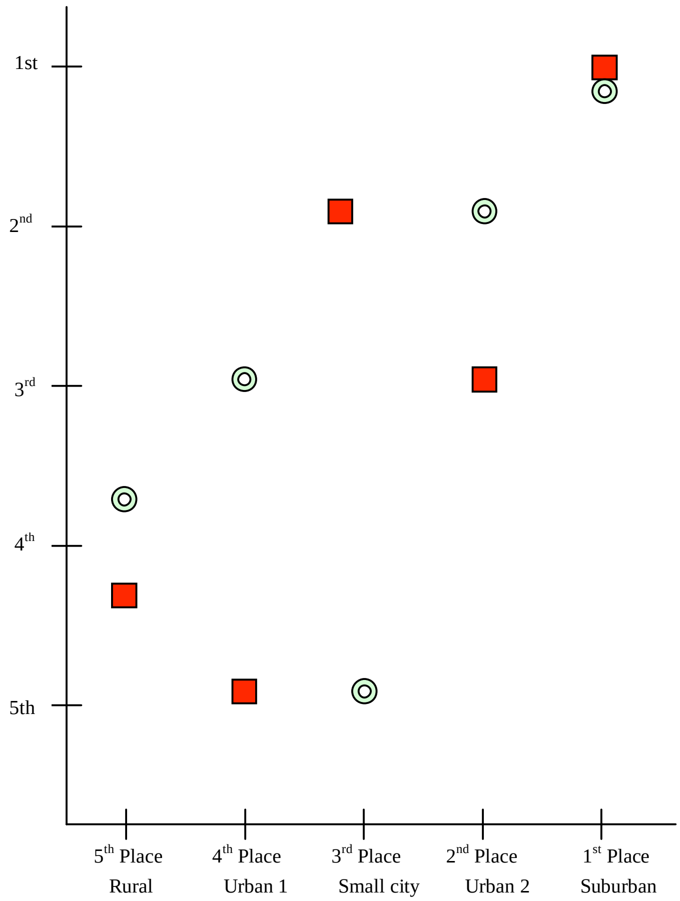


Figure 14. Relationship between district rank in teachers' use of technology with students and rank on key factors (percentage of teachers with strong constructivist beliefs and percentage of teachers with lab and classroom access to technology) (n ~ 950)



District Rank on Percentage of Teachers Who Use Technology with Students

◎ Rank of district on percentage of teachers with strong constructivist beliefs

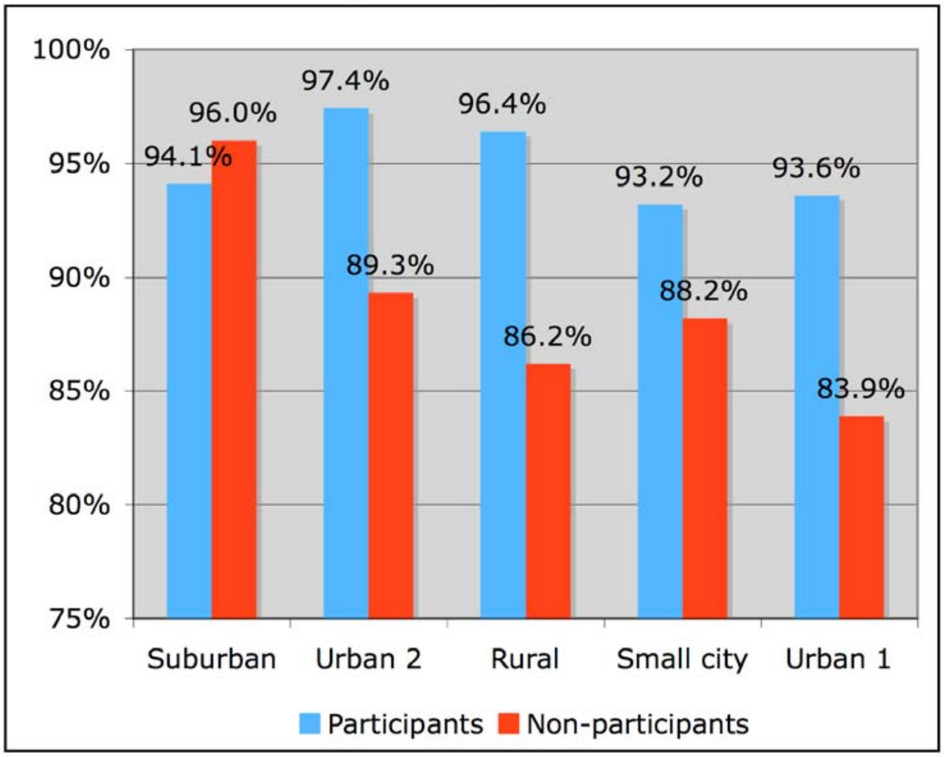
■ Rank of district on percentage of teachers with access to computers in the classroom and lab

Interaction between program participation and district

Just as we analyzed the relationship between program participation and pedagogical beliefs and technology access, we examined whether the program appeared to have a different kind of impact in different districts.

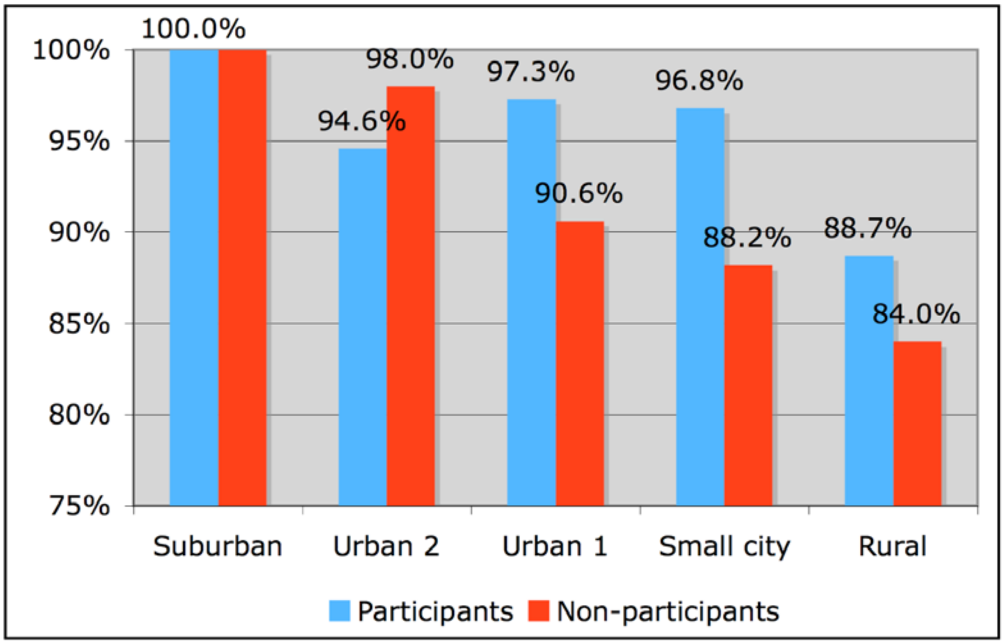
The analysis indicated that, in all districts except the suburban one (which had the highest percentage of SCB teachers), 5–10 percent more participants than non-participants reported using technology at all in their teaching practice (see Figure 15). In addition, the data show that in the three districts with the least constructivist teachers, 5–8 percent more participants than non-participants reported using technology with their students (see Figure 16). These findings suggest that the program may bring about greater change among teachers in those districts where constructivist pedagogy is not the norm. That is, the program may be introducing new ideas and practices to teachers in the less constructivist districts, while teachers in the more constructivist districts may already be engaging in many of the practices Intel Teach Essentials promotes.

Figure 15. Percentage of participants and non-participants who used technology in their practice, by district



*Sample: **Suburban:** Participants (n=17) and Non-participants (n=25); **Urban 2:** Participants (n=38) and Non-participants (n=56); **Rural:** Participants (n=55) and Non-participants (n=29); **Small city:** Participants (n=133) and Non-participants (n=175); **Urban 1:** Participants (n=78) and Non-participants (n=342)*

Figure 16. Percentage of participants and non-participants who used technology with their students, by district



*Sample: **Suburban:** Participants (n=16) and Non-participants (n=24); **Urban 2:** Participants (n=37) and Non-participants (n=49); **Urban 1:** Participants (n=53) and Non-participants (n=25); **Small city:** Participants (n=126) and Non-participants (n=153); **Rural:** Participants (n=73) and Non-participants (n=289)*

District choices and priorities

This survey was not designed to explicitly investigate the technology policies or vision of respondents' districts. However, not only does the research literature argue that these are key factors in determining whether technology will be effectively integrated into instruction, but certain findings from this survey also suggest that this area needs further investigation.

One interesting finding from this survey was the inverse relationship between the districts with the highest number of classroom computers and the percentage of high poverty schools in the district (see Table 12 for district by district free/reduced price lunch percentages). Nearly three quarters (70.4 percent) of the respondents from the urban 2 district work in schools where 76–100 percent of students are eligible for free/reduced price lunch, yet these teachers also have, on average, the largest number of classroom computers (4.11). Conversely, the suburban school, with .60 computers per classroom, has no teachers who report working in schools where more than 50 percent of students are eligible for free/reduced price lunch. Furthermore, 93 percent of the respondents from this district work in schools where only 0–25 percent of students are eligible. One hundred percent of the teachers from the rural district (with an average of 1.81 computers per classroom) work in schools where 0–25 percent of students are eligible for free/reduced price lunch. This finding suggests that classroom technology access is not necessarily a reflection of a district's resources, but of district priorities and choices.

Table 12. Percentage of students eligible for free/reduced price lunch in the schools where survey respondents work, by district (n = 1,180)

District	Percentage of teachers in schools with 0–25% F/RL eligible students	Percentage of teachers in schools with 26–50% F/RL eligible students	Percentage of teachers in schools with 51–75% F/RL eligible students	Percentage of teachers in schools with 76–100% F/RL eligible students
Urban 2	0%	5.2%	24.3%	70.4%
Urban 1	23.5%	25.6%	9.7%	41.2%
Small city	48.3%	28.0%	23.7%	0%
Suburban	93.0%	7.0%	0%	0%
Rural	100%	0%	0%	0%

District priorities are also evidenced in responses to the questions about professional development. The urban 2 district had the highest percentage of teachers who participate in nearly every form of professional development. This finding suggests that this district has made a wide range of technology training experiences available to teachers. In addition, urban 2 also had the highest percentage of teachers who marked “strongly disagree” when asked if they lacked technical and instructional support, and the second highest percentage that marked “strongly disagree” when asked if they lacked administrative support. Interestingly, when asked why they used technology with their students, the urban 2 teachers were the most likely to “strongly agree” with the need to satisfy district requirements. These data suggest that technology integration is a high priority for the urban 2 district. Of the five districts, urban 2 had by far the highest number of economically disadvantaged students, and yet it had the second highest percentage of teachers who reported using technology with their students. These findings suggest that district leadership and vision are essential for supporting technology integration. However, we do not have enough data to draw any solid conclusions about district leadership from the analysis of this survey. This area requires further investigation in the future.

Conclusion

The analysis of the 2006 Instructional Practices and Classroom Use of Technology Survey presents a nuanced picture of the ways certain critical components of educational environments can affect educational technology practices. Each of the research-based factors (teachers' pedagogical beliefs, teachers' access to technology, and teachers' access to quality professional development) appears to have some impact on teachers' use of technology. When these factors are combined, the impact on teacher behavior seems to be greater still. These findings suggest that promoting effective technology integration requires providing teachers with adequate infrastructure. Moreover, it requires providing training in both technology *and* the kind of constructivist pedagogy that enables teachers to use technology to its greatest potential.

Our analysis of this survey provides new insights into the kind of impact that Intel Teach Essentials has on the teachers who participate and the districts in which it is integrated. While the program had a moderate overall impact on key indicators, we observed the most dramatic differences between participants and non-participants when we compared Master Teachers to all other survey respondents and when we considered teachers on the low ends of the research-based factors (weak constructivist beliefs and poor access to technology).

In the case of Master Teachers, the differences may indicate that these educators are receiving the highest quality training, which in turn produces these most dramatic results. However, it likely that in many cases, Master Teachers were selected for this role by their districts because they were already comfortable with technology or were already educational leaders to some degree before they began the training. It is therefore difficult to determine whether program participation caused these differences for Master Teachers or whether these differences were present before they participated in the training.

Our other finding — that the program is most effective for teachers with the weakest constructivist beliefs and the poorest access to technology — is interesting because it is somewhat counter-intuitive. On the surface, the program appears to be designed teachers who are already somewhat comfortable with technology and open to project-based pedagogy, teaching them to use technology most effectively. This would lead one to expect that those teachers with the best access to technology and the most constructivist beliefs would get the most out of the program. What these findings actually suggest, however, is that constructivist teachers with substantial access to technology may already be engaging in many of the activities and practices the training promotes, whether they take the training or not. The program offers *new* ideas and strategies, however, to those teachers who are not working in the optimal conditions or whose existing beliefs do not lead them to engage in innovative practices. Because these new ideas are integrated into concrete instructional materials that teachers can make themselves and take back to the classroom, the training can actually lead to the kinds of differences in behavior that these survey results reflect.

It is important to note that over 90 percent of the survey population as a whole reports being involved in a wide range of technology professional development. This fact makes the differences between Intel Teach Essentials participants and non-participants that much more striking. If all technology professional development were the same, one would not expect differences between the two groups. This combination of findings suggests that Intel Teach Essentials is making a moderate but real difference in the lives of participants, and in particular for those participants who might not otherwise have had the opportunity or inclination to make technology an integral part of their teaching practice.

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Appendix A: 2006 Instructional Practices and Classroom Use of Technology Survey

Dear Educator:

Thank you for participating in this survey about instructional practices and classroom uses of technology, which is being conducted by the Education Development Center's Center for Children & Technology (EDC/CCT). EDC/CCT is a non-profit organization and is conducting this research under a grant from the Intel Foundation.

In recognition of the time and effort you are contributing to our work, we encourage you to enter in a drawing for a Canon Powershot Digital Camera. Just enter your email in the space provided below if you would like to enter. Your email address will not be given or sold to any other agency. The drawing will take place on May 31, 2006 and the winners will be notified at that time. **You do not have to enter your email to complete this survey.**

If you have technical problems accessing, filling out, or submitting this survey, or if you have any questions or concerns related to the content of this survey, please send an email to cct@edc.org. We will respond to your query as quickly as possible. For more information on EDC and CCT, please visit our Web site at http://www.edc.org/cct.

While the survey length varies depending on your responses, no respondent will be asked more than 40 questions, which should take approximately 10-15 minutes to complete. This survey is voluntary and confidential. **All questions are optional**. Findings from this survey will be reported only in statistical summaries and individuals will not be identified.

Thank you again for your help.

If you would like to enter the drawing for the Canon Powershot Digital Camera, please type your email address in the space below.

Email ____________________

Start Survey by clicking “Next”.

About your professional experience

1. Teachers from seven school districts in the United States are taking this survey. These districts are listed below. Please find your district and select the school in which you work.
[*District names have been removed to ensure anonymity*]

2. Which of the following best describes the professional role you play in your school district?
Classroom teacher
Enrichment or resource teacher (such as Title I, gifted education, reading specialist, computer teacher)
Technology coordinator, media specialist or librarian
Other professional staff (such as staff developer, instructional coach, curriculum coordinator)
Administrator
Other

If you answered "classroom teacher" or "enrichment teacher," you will be taken to Question 3.
If you answered "technology coordinator/media specialist/librarian," "other professional staff," "administrator" or "other," you will be taken to Question 26.

3. What is the primary subject you are teaching this year?
Check only one
All (Elementary education/General curriculum)
English/Language arts
Math
Social Studies/Geography/History
Science
Computer Science/Technology Education
Foreign Languages
Arts/Music
Health/Physical education
Special Education
Gifted Education
Other ______________________________

4. What grade level(s) are you teaching this year?
Check all that apply
Lower Elementary K-3
Middle Elementary 4-5
Middle/Junior High 6-8
High 9-12

5. How many total years of teaching experience do you have, including this year?
Less than 3
3 to 9
10 to 20
Over 20

About your teaching practice

6. Different teachers have described very different teaching philosophies to researchers. For each of the following pairs of statements, check the button within the scale that best shows how your beliefs fit with the statements presented. If you feel stronger about one statement than the other, click the button that represents your level of agreement. If you are neutral, click the middle button.

Students really won't learn a subject unless you go over the material in a structured way. It's my job to explain, to show the students how to do the work, and to assign specific projects.	I mainly see my role as a facilitator. I try to provide opportunities and resources for my students to discover or construct concepts for themselves.
The most important part of instruction is the content of the curriculum. That content is what children need to know and be able to do.	The most important part of instruction is that it encourages 'sense-making' or thinking among students. Content is secondary.
Students must learn basic skills before they can master complex content.	Students learn basic skills in the context of mastering complex content.
While student motivation is certainly useful, it should not drive what students study. It is more important that students learn history, math and language skills in their textbooks.	It is critical for students to become interested in doing academic work – interest and effort are more important than the particular subject matter they are working on.
It is more practical to give the whole class the same assignment, one that has clear directions, and one that can be done in short intervals that match student's attention spans and the daily class schedule.	It is a good idea to have all sorts of activities going on in the classroom. Some students may produce a scene from a play they read. Others may create a version of the set. It is hard to organize but the successes are so much more important than the failures.

7. Think of a typical **TWO WEEKS (10 days)** of instruction. Please report how often you used the following techniques in your teaching practice.
"Project" is used below to refer to a sustained exploration of complex questions that results in the creation of a substantive work product.

	Number of days	N/A
Have students engage in lessons from a textbook.	[Pop-up of 0-10]	
Have students engage in lessons that are structured around open-ended questions.	[Pop-up of 0-10]	
Have students choose their own topics for research projects.	[Pop-up of 0-10]	
Have students work individually on a project during class time.	[Pop-up of 0-10]	
Have students work in collaborative groups.	[Pop-up of 0-10]	
Have students conduct research during class time.	[Pop-up of 0-10]	
Have students analyze data.	[Pop-up of 0-10]	
Have students revise their own work products.	[Pop-up of 0-10]	
Have students present their work to the class.	[Pop-up of 0-10]	

8. Think of a typical **TWO WEEKS (10 days)** of instruction. How often do you assess students using the following methods?

	Number of days	N/A
Teacher-made tests or quizzes	[Pop-up of 0-10]	
Tests or quizzes included in published curriculum or textbook materials	[Pop-up of 0-10]	
Teacher-made rubrics	[Pop-up of 0-10]	
Rubrics created by teachers and students	[Pop-up of 0-10]	
Rubrics included in published curriculum or textbook materials	[Pop-up of 0-10]	
Student portfolios	[Pop-up of 0-10]	
Practice tests to prepare students for the state-mandated assessment	[Pop-up of 0-10]	

About your use of computer technology

9. Do you use computer technology *at all* in your teaching practice?

Yes

No

If you answered "Yes," you will be taken to Question 10.
If you answered "No," you will be taken to Question 22.

10. Think of a typical **TWO WEEKS (10 days)** of instruction. On how many days of that week do you do the following technology-related activities

	Number of days	N/A
Access the Internet to aid in developing lessons or activities.	[Pop-up of 0-10]	
Access CD-ROMs to aid in developing lessons or activities.	[Pop-up of 0-10]	
Discuss the value/appropriateness of electronic educational resources with colleagues	[Pop-up of 0-10]	
Use a computer for grading.	[Pop-up of 0-10]	
Use a computer to create handouts.	[Pop-up of 0-10]	
Use a computer to create a test, quiz or assignment.	[Pop-up of 0-10]	
Use a computer to create or support alternative assessments (i.e. student portfolios, performance-based assessments)	[Pop-up of 0-10]	
Email teachers in your school.	[Pop-up of 0-10]	
Email school and district administration.	[Pop-up of 0-10]	
Email a student's parents.	[Pop-up of 0-10]	
Adapt an activity to students' individual needs using a computer.	[Pop-up of 0-10]	
Create or maintain a website.	[Pop-up of 0-10]	
Present information to students using computer technology.	[Pop-up of 0-10]	
Use computer technology to analyze data to inform instructional practice.	[Pop-up of 0-10]	

11. Do you use computer technology with your students?

Yes

No

If you answered "Yes," you will be taken to Question 13.
If you answered "No," you will be taken to Question 12.

12. The following statements are obstacles that may have prevented you from using computer technology with your students. Please indicate whether any of the following were obstacles for you.

	Major obstacle 1	Small obstacle 2	Not an obstacle 3
a) There are not enough computers available in your classroom.			
b) You do not have access to adequate software or Internet in your classroom.			
c) It is too difficult to schedule time in your school's computer lab.			
d) There are not enough computers available in your school's computer lab.			
e) You do not have adequate access to software or Internet in your school's computer lab.			
f) There is too much course material to cover in a year to have time for technology use.			
g) You are not sure how to make technology relevant to your subject.			
h)You need to prepare your students for the state-mandated test and technology use does not prepare them for this test.			
i) You do not feel confident enough in your technology skills.			
j) You do not have adequate administrative support.			
k) You do not have adequate technical support.			
l) You do not have adequate instructional support.			

You will now be taken to Question 23.

13. Think of a typical **TWO WEEKS (10 days)** of instruction. Please report how often you use the following technology-integrated instructional practices in your classroom.

	Number of days	N/A
Have students use a spreadsheet/database.	[Pop-up of 0-10]	
Have students use email or the Internet to consult with experts, mentors or other professionals.	[Pop-up of 0-10]	
Have students use email or the Internet to communicate with students in other schools.	[Pop-up of 0-10]	
Have students work on assignments using a computer outside of class time.	[Pop-up of 0-10]	
Discuss digital literacy issues with your students (i.e. how to design an effective presentation).	[Pop-up of 0-10]	
Discuss how to evaluate Internet resources.	[Pop-up of 0-10]	
Discuss ethical or safety issues related to technology.	[Pop-up of 0-10]	

14. How much of an influence have each of the following been in giving you ideas about how you use computers in your classroom?

	Great Influence	Some Influence	No Influence	N/A
Other teachers have shared examples of how they use computers with their students.				
The technology coordinator/specialist in your school has demonstrated uses that you have adapted to your classroom.				
You have worked with your colleagues to design lessons that require classroom use of technology.				
Professional development experiences have demonstrated uses that you have adapted to your classroom.				
By doing research on your own (on the Internet, in professional magazines, etc.) you have found uses of technology that you have adapted to your classroom.				

15. Teachers give many different rationales for using computer technology in the classroom. Please indicate the extent to which you agree/disagree with the following rationales for using technology in your classroom.

Reasons you use technology	Strongly Disagree 1	Disagree 2	No Opinion 3	Agree 4	Strongly Agree 5	N/A
To improve student content learning						
To increase student proficiency in collaboration						
To increase student proficiency in data analysis						
To increase student proficiency in presenting to an audience						
To improve student proficiency in research						
To improve student computer skills						
To prepare students for future jobs						
To support student remediation in basic skills such as math and reading						
To enable students to express their ideas and opinions						
To improve student test scores						
To promote active learning strategies						
To meet districts requirements.						
To satisfy parents and community interests						
To improve your own productivity and efficiency						

16. Please report how often you asked your students to produce the following using computer technology, working at home and/or in the classroom, **SINCE JANUARY**.

	Number of times	N/A
Reports or papers	[pop-up of 0-10 and more than 10]	
Multimedia projects	[pop-up of 0-10 and more than 10]	
Web pages or web sites	[pop-up of 0-10 and more than 10]	
Pictures or artwork	[pop-up of 0-10 and more than 10]	
Stories or books	[pop-up of 0-10 and more than 10]	
Graphs or charts	[pop-up of 0-10 and more than 10]	
Videos or movies	[pop-up of 0-10 and more than 10]	

Now think of a specific lesson or unit you did with your students that made use of computer technology during the past academic year. Please answer questions 19-24 with that specific lesson or unit in mind.

17. How many students were in each class that did this lesson/unit?

1-10
11-20
21-30
31 or more

18. How many instructional periods did students spend on that lesson/unit?

[pop-up of 0-10 and more than 10 and n/a] Instructional periods

19. What subject area was covered in this lesson/unit? Check all that apply.
English/language arts
Math/financial literacy
Social Studies/civics
Geography/global awareness
History
Science
Health/physical education
Computer science
Foreign language
Arts/Music
Other___________________

20. Please continue to think of the lesson/unit referred to above. The following statements are about how this lesson/unit compares to other lessons/units you have done that DO NOT use computer technology. Please indicate the degree to which you agree or disagree with each statement.

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5	N/A
a) *Overall*, students were more actively involved in the lesson/unit than they are with comparable lessons/units that do not involve technology.						
b) *Overall*, students worked together more than they do on comparable lessons/units that do not involve technology.						
c) *Overall*, students' different learning styles were better accommodated than they are with comparable lessons/units that do not involve technology.						
d) *Overall*, student work showed more in-depth understanding of content than in comparable lessons/units that do not involve technology.						
e) *Overall*, student work was more creative than in comparable lessons/units that do not involve technology.						
f) *Overall*, students were able to communicate their ideas and opinions with greater confidence than in comparable lessons/units that do not involve technology.						
g) *Overall*, students helped one another more than they do on comparable lessons/units that do not involve technology.						

21. Please continue to think of the lesson/unit referred to above. The following statements are about challenges you may have faced while implementing this lesson/unit that used computer technology. Please indicate the extent to which you agree or disagree with each statement.

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5	N/A
a) It was difficult to manage your students on the computers.						
b) Not enough computers were available in your classroom.						
c) Not enough computers were available in the computer lab.						
d) You did not have adequate access to software or the Internet.						
e) It was difficult to find time in your curriculum to use technology with your students.						
f) You did not have strong enough computer skills.						
g) Many students did not have strong enough computer skills.						
h) You did not have adequate administrative support.						
i) You did not have adequate technical support.						
j) You did not have adequate instructional support.						
k) It was difficult to schedule adequate time in your computer lab to do the assignment.						

About your access to technology

22. Where do you have access to computers?

in your classroom only
in a computer lab only
in your classroom and a computer lab
no access to computers

23. How many computers are in your classroom?

[pop-up of 0-more than 10] ---- Number of computers

24. Which of the following do you have available to you? Check all that apply
Classroom printer
TV with a VCR to use in your classroom
Internet in your classroom
Internet in a computer lab
Smartboard to use in your classroom
Smartboard in a computer lab
LCD projector to use in your classroom
LCD projector in a computer lab
Laptop computers for students to use in your classroom
Laptop computer for you to use
Handheld computers (i.e. Palm Pilots) for students to use
Handheld computers (i.e. Palm Pilots) for you to use
Digital camera
None of the above

25. Think of a typical **TWO WEEKS (10 days)** of instruction. How many days do you work with your students in the computer lab or media center?

[pop-up of 0-10]----- Number of days

About your technology professional development experience

26. What kinds of **TECHNOLOGY RELATED** professional development opportunities have you participated in over the past 5 years? Check all that apply

Workshops/seminars run by on outside source
Workshops/seminars run by district personnel
University or College work supported by the district in whole or in part
Mentor/colleagues
Attending conferences
District or school sponsored courses
Online or web-based professional development
One-on-one or group training with technology staff
Release time for department or grade-level planning related to technology
Release time for individual professional development related to technology.
I have not participated in technology-related professional development.

27. Please indicate whether you participated in professional development provided by any of the following businesses/organizations? Check all that apply.
Apple
Cisco Systems/Cisco Networking Academies
Classroom Connect
eSchool Online
ISTE (International Society for Technology in Education)
MCI Foundation/Marco Polo
Microsoft Classroom Teacher Network
PBS Teacherline
None of the above
Other__________________________

Your district has participated in a 40-hour professional development program called the Intel® Teach to the Future Essentials Course. It focuses on helping teachers integrate Microsoft® PowerPoint and Publisher into their students' work.

28. Did you participate in this training?
Yes
No
Not sure

If you answered "No," or "not sure" you will be taken to Question 31. Otherwise you will be taken to Question 29.

29. Were you trained as a Master Teacher for this program?

Yes
No

30. When did you complete your training?

2000
2001
2002
2003
2004
2005
2006
Can not remember

31. Did other teachers in your school participate in Intel® Teach to the Future?

Yes
No
Don’t know
Not applicable

32. Is there an Intel® Teach to the Future Master Teacher on the faculty of your school?

Yes
No
Don’t know
Not applicable

About you

The following two questions will be used only to determine whether the demographics of survey respondents are comparable to nationwide teacher demographics.

33. What is your sex?
Male
Female

34. What is your race/ethnicity? Please check all that apply.
American Indian or Alaska Native
Asian
Black or African American
Hispanic/Latino
Native Hawaiian or Other Pacific Islander
White
Other

Thank you for completing this survey!

Appendix B: Frequencies and Means for the2006 Instructional Practices and Classroom Use of Technology Survey

2. Which of the following best describes the professional role you play in your school district?

	Frequency	Percent
Classroom teacher	847	71.8
Enrichment or resource teacher	103	8.7
Technology coordinator	81	6.9
Other professional staff	43	3.6
Administrator	33	2.8
Other	72	6.1
Total	1179	100.0

3. What is the primary subject you are teaching this year?

	Frequency	Percent
All	328	34.7
English/Language arts	119	12.6
Math	88	9.3
Social Studies/Geography/History	49	5.2
Science	65	6.9
Computer Science/Technology Education	61	6.5
Foreign Languages	22	2.3
Arts/Music	52	5.5
Health/Physical education	13	1.4
Special Education	84	8.9
Gifted Education	5	.5
Other	58	6.1
Total	944	100.0

4a. What grade level(s) are you teaching this year? Lower Elementary K-3

	Frequency	Percent
Unchecked	597	62.8
Checked	354	37.2
Total	951	100.0

4b. What grade level(s) are you teaching this year? Middle Elementary 4-5

	Frequency	Percent
Unchecked	726	76.3
Checked	225	23.7
Total	951	100.0

4c. What grade level(s) are you teaching this year?: Middle/Junior High 6-8

	Frequency	Percent
Unchecked	665	69.9
Checked	286	30.1
Total	951	100.0

4d. What grade level(s) are you teaching this year?: High 9-12

	Frequency	Percent
Unchecked	742	78.0
Checked	209	22.0
Total	951	100.0

5. How many total years of experience do you have, including this year?

	Frequency	Percent
Less than 3	89	9.4
3 to 9	270	28.5
10 to 20	271	28.6
Over 20	317	33.5
Total	947	100.0

6. Different teachers have described very different teaching philosophies to researchers. For each of the following pairs of statements, check the button within the scale that best shows how your beliefs fit with the statements presented. If you feel stronger about one statement than the other, click the button that represents your level of agreement. If you are neutral, click the middle button.

Students really won't learn a subject unless you go over the material in a structured way. It's my job to explain, to show the students how to do the work, and to assign specific projects.			I mainly see my role as a facilitator. I try to provide opportunities and resources for my students to discover or construct concepts for themselves.	
1	*2*	*3*	*4*	*5*
Mean = 3.14				
The most important part of instruction is the content of the curriculum. That content is what children need to know and be able to do.			The most important part of instruction is that it encourages 'sense-making' or thinking among students. Content is secondary.	
1	*2*	*3*	*4*	*5*
Mean = 3.24				
Students must learn basic skills before they can master complex content.			Students learn basic skills in the context of mastering complex content.	
1	*2*	*3*	*4*	*5*
Mean = 2.69				
While student motivation is certainly useful, it should not drive what students study. It is more important that students learn history, math and language skills in their textbooks.			It is critical for students to become interested in doing academic work – interest and effort are more important than the particular subject matter they are working on.	
1	*2*	*3*	*4*	*5*
Mean = 3.47				
It is more practical to give the whole class the same assignment, one that has clear directions, and one that can be done in short intervals that match student's attention spans and the daily class schedule.			It is a good idea to have all sorts of activities going on in the classroom. Some students may produce a scene from a play they read. Others may create a version of the set. It is hard to organize but the successes are so much more important than the failures.	
1	*2*	*3*	*4*	*5*
Mean = 3.47				

7. How many times in TWO WEEKS (10 Days) do you:

	N	Mean
7a. Have students engage in lessons from a textbook	846	4.39
7b. Have students engage in lessons that are structured around open-ended questions	895	4.65
7c. Have students choose their own topics for research projects	720	2.07
7d. Have students work individually on a project during class time	870	4.19
7e. Have students work in collaborative groups	917	5.40
7f. Have students conduct research during class time	763	2.90
7g. Have students analyze data	816	3.39
7h. Have students revise their own work products	879	4.00
7i. Have students present their work to the class	889	3.02

8. How many times in TWO WEEKS (10 Days) do you assess students using:

	N	Mean
8a. Teacher-made tests or quizzes	878	2.00
8b. Tests or quizzes included in published curriculum or textbook materials	817	1.28
8c. Teacher-made rubrics	871	2.85
8d. Rubrics created by teachers and students	804	1.89
8e. Rubrics included in published curriculum or textbook materials	774	.93
8f. Student portfolios	805	2.86
8g. Practice tests to prepare students for the state-mandated assessment	749	1.82

9. Do you use computer technology at all in your teaching practice?

	Frequency	Percent
Yes	843	88.9
No	105	11.1
Total	948	100.0

10. How many times in TWO WEEKS (10 Days) do you:

	N	Mean
10a. Access the Internet to aid in developing lessons or activities	831	4.68
10b. Access CD-ROMs to aid in developing lessons or activities	782	2.31
10c. Discuss the value of electronic educational resources with colleagues	783	2.12
10d. Use computers for grading	760	5.58
10e. Use a computer to create handouts	835	5.27
10f. Use a computer to create a test, quiz or assignment	810	4.24
10g. Use a computer to create or support alternative assessments	769	3.02
10h. Email teachers in your school	838	8.37
10i. Email school and district administration	829	5.34
10j. Email a student	781	3.23
10k. Adapt an activity to student	786	3.25
10l. Create or maintain a website	675	1.24
10m. Present information to students using computer technology	805	3.79
10n. Use computer technology to analyze data to inform instructional practice	756	2.29

11. Do you use computer technology with your students?

	Frequency	Percent
Yes	781	92.4
No	64	7.6
Total	845	100.0

12a. There are not enough computers available in your classroom

	Frequency	Percent
Major obstacle	45	54.9
Small obstacle	21	25.6
Not an obstacle	16	19.5
Total	82	100.0

12b. You do not have access to adequate software or Internet in your classroom

	Frequency	Percent
Major obstacle	29	35.4
Small obstacle	24	29.3
Not an obstacle	29	35.4
Total	82	100.0

12c. It is too difficult to schedule time in your school

	Frequency	Percent
Major obstacle	31	39.2
Small obstacle	19	24.1
Not an obstacle	29	36.7
Total	79	100.0

12d. There are not enough computers available in your school

	Frequency	Percent
Major obstacle	12	15.0
Small obstacle	16	20.0
Not an obstacle	52	65.0
Total	80	100.0

12e. You do not have adequate access to software or Internet in your school

	Frequency	Percent
Major obstacle	16	20.0
Small obstacle	14	17.5
Not an obstacle	50	62.5
Total	80	100.0

12f. There is too much course material to cover in a year to have time for technology use

	Frequency	Percent
Major obstacle	22	26.5
Small obstacle	34	41.0
Not an obstacle	27	32.5
Total	83	100.0

12g. You are not sure how to make technology relevant to your subject

	Frequency	Percent
Major obstacle	10	12.2
Small obstacle	25	30.5
Not an obstacle	47	57.3
Total	82	100.0

12h. You need to prepare your students for the state mandated test and technology use does not prepare them for this test

	Frequency	Percent
Major obstacle	9	11.3
Small obstacle	17	21.3
Not an obstacle	54	67.5
Total	80	100.0

12i. You do not feel confident enough in your technology skills

	Frequency	Percent
Major obstacle	10	12.3
Small obstacle	28	34.6
Not an obstacle	43	53.1
Total	81	100.0

12j. You do not have adequate administrative support

	Frequency	Percent
Major obstacle	5	6.1
Small obstacle	16	19.5
Not an obstacle	61	74.4
Total	82	100.0

12k. You do not have adequate technical support

	Frequency	Percent
Major obstacle	9	11.0
Small obstacle	22	26.8
Not an obstacle	51	62.2
Total	82	100.0

12l. You do not have adequate instructional support

	Frequency	Percent
Major obstacle	10	12.5
Small obstacle	26	32.5
Not an obstacle	44	55.0
Total	80	100.0

13. How many times in TWO WEEKS (10 Days) do you:

	N	Mean
13a. Have students use a spreadsheet/database	582	.82
13b. Have students use email or the Internet to consult with experts, mentors or other professionals	603	.82
13c. Have students use email or the Internet to communicate with students in other schools	580	.39
13d. Have students work on assignments using a computer outside of class time	666	2.05
13e. Discuss digital literacy issues with your students	622	1.53
13f. Discuss how to evaluate Internet resources	650	1.48
13g. Discuss ethical or safety issues related to technology	680	1.99

14a. Other teachers have shared examples of how they use computers with their students

	Frequency	Percent
Great Influence	287	37.7
Some Influence	398	52.3
No Influence	55	7.2
N/A	21	2.8
Total	761	100.0

14b. The technology coordinator/specialist in your school has demonstrated uses that you have adapted to your classroom

	Frequency	Percent
Great Influence	158	20.8
Some Influence	306	40.3
No Influence	174	22.9
N/A	122	16.1
Total	760	100.0

14c. You have worked with your colleagues to design lessons that require classroom use of technology

	Frequency	Percent
Great Influence	176	23.2
Some Influence	393	51.8
No Influence	98	12.9
N/A	92	12.1
Total	759	100.0

14d. Professional development experiences have demonstrated uses that you have adapted to your classroom

	Frequency	Percent
Great Influence	248	32.8
Some Influence	417	55.1
No Influence	55	7.3
N/A	37	4.9
Total	757	100.0

14e. By doing research on your own you have found uses of technology that you have adapted to your classroom

	Frequency	Percent
Great Influence	393	52.0
Some Influence	321	42.5
No Influence	31	4.1
N/A	11	1.5
Total	756	100.0

15a. Reasons for technology use: To improve student content learning

	Frequency	Percent
Strongly agree	300	39.4
Agree	423	55.6
No opinion	25	3.3
Disagree	9	1.2
Strongly disagree	1	.1
NA	3	.4
Total	761	100.0

15b. Reasons for technology use: To increase student proficiency in collaboration

	Frequency	Percent
Strongly agree	169	22.3
Agree	403	53.1
No opinion	138	18.2
Disagree	32	4.2
Strongly disagree	3	.4
NA	14	1.8
Total	759	100.0

15c. Reasons for technology use: To increase student proficiency in data analysis

	Frequency	Percent
Strongly agree	136	17.9
Agree	338	44.5
No opinion	195	25.7
Disagree	24	3.2
Strongly disagree	2	.3
NA	64	8.4
Total	759	100.0

15d. Reasons for technology use: To increase student proficiency in presenting to an audience

	Frequency	Percent
Strongly agree	211	27.8
Agree	343	45.3
No opinion	123	16.2
Disagree	22	2.9
Strongly disagree	3	.4
NA	56	7.4
Total	758	100.0

15e. Reasons for technology use: To improve student proficiency in research

	Frequency	Percent
Strongly agree	333	43.8
Agree	331	43.6
No opinion	51	6.7
Disagree	6	.8
NA	39	5.1
Total	760	100.0

15f. Reasons for technology use: To increase student computer skills

	Frequency	Percent
Strongly agree	432	57.0
Agree	291	38.4
No opinion	26	3.4
Disagree	4	.5
NA	5	.7
Total	758	100.0

15g. Reasons for technology use: To prepare students for future jobs

	Frequency	Percent
Strongly agree	395	51.9
Agree	284	37.3
No opinion	53	7.0
Disagree	7	.9
Strongly disagree	2	.3
NA	20	2.6
Total	761	100.0

15h. Reasons for technology use: To support student remediation in basic skills such as math and reading

	Frequency	Percent
Strongly agree	282	37.3
Agree	355	46.9
No opinion	87	11.5
Disagree	17	2.2
Strongly disagree	3	.4
NA	13	1.7
Total	757	100.0

15i. Reasons for technology use: To enable students to express their ideas and opinions

	Frequency	Valid Percent
Strongly agree	225	29.6
Agree	400	52.6
No opinion	97	12.8
Disagree	18	2.4
Strongly disagree	1	.1
NA	19	2.5
Total	760	100.0

15j. Reasons for technology use: To improve student test scores

	Frequency	Percent
Strongly agree	150	19.7
Agree	346	45.5
No opinion	192	25.2
Disagree	40	5.3
Strongly disagree	6	.8
NA	27	3.5
Total	761	100.0

15k. Reasons for technology use: To promote active learning strategies

	Frequency	Percent
Strongly agree	275	36.4
Agree	405	53.6
No opinion	60	7.9
Disagree	8	1.1
NA	8	1.1
Total	756	100.0

15l. Reasons for technology use: To meet district requirements

	Frequency	Percent
Strongly agree	136	17.9
Agree	367	48.4
No opinion	183	24.1
Disagree	44	5.8
Strongly disagree	8	1.1
NA	20	2.6
Total	758	100.0

15m. Reasons for technology use: To satisfy parents and community interests

	Frequency	Percent
Strongly agree	102	13.5
Agree	303	40.0
No opinion	243	32.1
Disagree	70	9.2
Strongly disagree	15	2.0
NA	25	3.3
Total	758	100.0

15n. Reasons for technology use: To improve your own productivity and efficiency

	Frequency	Percent
Strongly agree	331	43.6
Agree	349	45.9
No opinion	54	7.1
Disagree	18	2.4
NA	8	1.1
Total	760	100.0

16. SINCE JANUARY how often have your students produce:

	N	Mean
16a. Reports or papers	625	4.38
16b. Multimedia projects	430	3.06
16c. Web pages or web sites	189	5.92
16d. Pictures or artwork	538	3.93
16e. Stories or books	454	4.05
16f. Graphs or charts	408	3.87
16g. Videos or movies	264	4.76

Now think of a specific lesson or unit you did with your students that made use of computer technology during the past academic year. Please answer the following 5 questions with that specific lesson or unit in mind.

17. How many students were in each class that did this lesson/unit?

	Frequency	Percent
1-10	525	44.5
11-20	251	21.3
21-30	365	31.0
31 or more	38	3.2
Total	1179	100.0

18. How many instructional periods did students spend on that lesson/unit?

	N	Mean
18. How many instructional periods did students spend on that lesson/unit?	689	4.09

19a. Subject area covered in the lesson/unit: English/language arts

	Frequency	Percent
Unchecked	345	45.2
Checked	418	54.8
Total	763	100.0

19b. Subject area covered in the lesson/unit: Math/financial literacy

	Frequency	Valid Percent
Unchecked	585	76.7
Checked	178	23.3
Total	763	100.0

19c. Subject area covered in the lesson/unit: Social Studies/civics

	Frequency	Percent
Unchecked	536	70.2
Checked	227	29.8
Total	763	100.0

19d. Subject area covered in the lesson/unit: Geography/global awareness

	Frequency	Percent
Unchecked	649	85.1
Checked	114	14.9
Total	763	100.0

19e. Subject area covered in the lesson/unit: History

	Frequency	Percent
Unchecked	629	82.4
Checked	134	17.6
Total	763	100.0

19f. Subject area covered in the lesson/unit: Science

	Frequency	Percent
Unchecked	522	68.4
Checked	241	31.6
Total	763	100.0

19g. Subject area covered in the lesson/unit: Health/physical education

	Frequency	Percent
Unchecked	732	95.9
Checked	31	4.1
Total	763	100.0

19h. Subject area covered in the lesson/unit: Computer science

	Frequency	Percent
Unchecked	650	85.2
Checked	113	14.8
Total	763	100.0

19i. Subject area covered in the lesson/unit: Foreign Language

	Frequency	Percent
Unchecked	735	96.3
Checked	28	3.7
Total	763	100.0

19j. Subject area covered in the lesson/unit: Arts/Music

	Frequency	Percent
Unchecked	660	86.5
Checked	103	13.5
Total	763	100.0

19k. Subject area covered in the lesson/unit: Other

	Frequency	Percent
Unchecked	708	92.8
Checked	55	7.2
Total	763	100.0

Please continue to think of the lesson/unit referred to in the previous questions. The following statements are about how this lesson/unit compares to other lessons/units you have done that DO NOT use computer technology. Please indicate the degree to which you agree or disagree with each statement.

20a. Overall, students were more actively involved in the lesson/unit than they are with comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	70	9.2
Disagree	54	7.1
Neutral	131	17.3
Agree	328	43.3
Strongly Agree	174	23.0
Total	757	100.0

20b. Overall, students worked together more than they do on comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	57	7.5
Disagree	122	16.1
Neutral	250	33.0
Agree	256	33.8
Strongly Agree	72	9.5
Total	757	100.0

20c. Overall, students different learning styles were better accommodated than they are with comparable lessons that do not involve technology

	Frequency	Percent
Strongly Disagree	64	8.5
Disagree	86	11.4
Neutral	194	25.6
Agree	316	41.7
Strongly Agree	97	12.8
Total	757	100.0

20d. Overall, student work showed more in-depth understanding of content than in comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	57	7.5
Disagree	98	13.0
Neutral	259	34.3
Agree	255	33.7
Strongly Agree	87	11.5
Total	756	100.0

20e. Overall, student work was more creative than in comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	64	8.5
Disagree	97	12.9
Neutral	207	27.5
Agree	269	35.8
Strongly Agree	115	15.3
Total	752	100.0

20f. Overall, students were able to communicate their ideas and opinions with greater confidence than in comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	59	7.9
Disagree	77	10.3
Neutral	221	29.5
Agree	306	40.8
Strongly Agree	87	11.6
Total	750	100.0

20g. Overall, students helped one another more than they do on comparable lessons/units that do not involve technology

	Frequency	Percent
Strongly Disagree	54	7.2
Disagree	109	14.5
Neutral	214	28.5
Agree	285	37.9
Strongly Agree	90	12.0
Total	752	100.0

Please continue to think of the lesson/unit referred to above. The following statements are about challenges you may have faced while implementing this lesson/unit that used computer technology. Please indicate the extent to which you agree or disagree with each statement.

21a. It was difficult to manage your students on the computers

	Frequency	Percent
Strongly Disagree	96	12.6
Disagree	338	44.5
Neutral	128	16.9
Agree	176	23.2
Strongly Agree	21	2.8
Total	759	100.0

21b. Not enough computers were available in your classroom

	Frequency	Percent
Strongly Disagree	57	7.5
Disagree	109	14.4
Neutral	63	8.3
Agree	271	35.8
Strongly Agree	257	33.9
Total	757	100.0

21c. Not enough computers were available in the computer lab

	Frequency	Percent
Strongly Disagree	155	20.6
Disagree	269	35.8
Neutral	134	17.8
Agree	99	13.2
Strongly Agree	94	12.5
Total	751	100.0

21d. You did not have adequate access to software or the Internet

	Frequency	Percent
Strongly Disagree	151	20.0
Disagree	296	39.2
Neutral	108	14.3
Agree	142	18.8
Strongly Agree	59	7.8
Total	756	100.0

21e. It was difficult to find time in your curriculum to use technology with your students

	Frequency	Percent
Strongly Disagree	115	15.2
Disagree	241	31.8
Neutral	95	12.5
Agree	232	30.6
Strongly Agree	74	9.8
Total	757	100.0

21f. You did not have strong enough computer skills

	Frequency	Percent
Strongly Disagree	264	35.0
Disagree	292	38.7
Neutral	108	14.3
Agree	77	10.2
Strongly Agree	14	1.9
Total	755	100.0

21g. Many students did not have strong enough computer skills

	Frequency	Percent
Strongly Disagree	83	10.9
Disagree	270	35.5
Neutral	132	17.4
Agree	217	28.6
Strongly Agree	58	7.6
Total	760	100.0

21h. You did not have adequate administrative support

	Frequency	Percent
Strongly Disagree	198	26.1
Disagree	303	39.9
Neutral	179	23.6
Agree	52	6.8
Strongly Agree	28	3.7
Total	760	100.0

21i. You did not have adequate technical support

	Frequency	Percent
Strongly Disagree	154	20.3
Disagree	302	39.8
Neutral	133	17.5
Agree	109	14.4
Strongly Agree	61	8.0
Total	759	100.0

21j. You did not have adequate instructional support

	Frequency	Percent
Strongly Disagree	147	19.4
Disagree	336	44.3
Neutral	157	20.7
Agree	87	11.5
Strongly Agree	32	4.2
Total	759	100.0

21k. It was difficult to schedule adequate time in your computer lab to do the assignment

	Frequency	Percent
Strongly Disagree	87	11.6
Disagree	178	23.6
Neutral	153	20.3
Agree	191	25.4
Strongly Agree	144	19.1
Total	753	100.0

22. Where do you have access to computers?

	Frequency	Percent
In classroom only	184	19.4
In a computer lab only	115	12.1
In your classroom and a computer lab	646	67.9
No access to computers	6	.6
Total	951	100.0

23. How many computers are in your classroom?

	N	Mean
23. How many computers are in your classroom?	914	2.86

24a. What's available to you: Classroom printer

	Frequency	Percent
Unchecked	290	30.5
Checked	661	69.5
Total	951	100.0

24b. What's available to you: TV with a VCR to use in your classroom

	Frequency	Percent
Unchecked	240	25.2
Checked	711	74.8
Total	951	100.0

24c. What's available to you: Internet in your classroom

	Frequency	Percent
Unchecked	46	4.8
Checked	905	95.2
Total	951	100.0

24d. What's available to you: Internet in a computer lab

	Frequency	Percent
Unchecked	210	22.1
Checked	741	77.9
Total	951	100.0

24e. What's available to you: Smartboard to use in your classroom

	Frequency	Percent
Unchecked	839	88.2
Checked	112	11.8
Total	951	100.0

24f. What's available to you: Smartboard in a computer lab

	Frequency	Percent
Unchecked	826	86.9
Checked	125	13.1
Total	951	100.0

24g. What's available to you: LCD projector to use in your classroom

	Frequency	Percent
Unchecked	608	63.9
Checked	343	36.1
Total	951	100.0

24h. What's available to you: LCD projector in a computer lab

	Frequency	Percent
Unchecked	652	68.6
Checked	299	31.4
Total	951	100.0

24i. What's available to you: Laptop computers for students to use in your classroom

	Frequency	Percent
Unchecked	744	78.2
Checked	207	21.8
Total	951	100.0

24j. What's available to you: Laptop computer for you to use

	Frequency	Percent
Unchecked	781	82.1
Checked	170	17.9
Total	951	100.0

24k. What's available to you: Handheld computers (i.e. Palm Pilots) for students to use

	Frequency	Percent
Unchecked	945	99.4
Checked	6	.6
Total	951	100.0

24l. What's available to you: Handheld computers (i.e. Palm Pilots) for you to use

	Frequency	Percent
Unchecked	923	97.1
Checked	28	2.9
Total	951	100.0

24m. What's available to you: Digital camera

	Frequency	Percent
Unchecked	462	48.6
Checked	489	51.4
Total	951	100.0

24n. What's available to you: None of the above

	Frequency	Percent
Unchecked	945	99.4
Checked	6	.6
Total	951	100.0

25. How many days in TWO WEEKS (10 Days): Do you work with your students in the computer lab or media center

	N	Mean
25. How many days in TWO WEEKS (10 Days): Do you work with your students in the computer lab or media center	576	2.48

26a. Technology related PD: Workshops/seminars run by on outside source

	Frequency	Percent
Unchecked	650	55.1
Checked	529	44.9
Total	1179	100.0

26b. Technology related PD: Workshops/seminars run by district personnel

	Frequency	Percent
Unchecked	258	21.9
Checked	921	78.1
Total	1179	100.0

26c. Technology related PD: University or College work supported by the district in whole or in part

	Frequency	Percent
Unchecked	872	74.0
Checked	307	26.0
Total	1179	100.0

26d.Technology related PD: Mentor/colleagues

	Frequency	Percent
Unchecked	704	59.7
Checked	475	40.3
Total	1179	100.0

26e. Technology related PD: Attending conferences

	Frequency	Percent
Unchecked	787	66.8
Checked	392	33.2
Total	1179	100.0

26f. Technology related PD: District or school sponsored courses

	Frequency	Percent
Unchecked	593	50.3
Checked	586	49.7
Total	1179	100.0

26g. Technology related PD: Online or web-based professional development

	Frequency	Percent
Unchecked	916	77.7
Checked	263	22.3
Total	1179	100.0

26h. Technology related PD: One-on-one or group training with technology staff

	Frequency	Percent
Unchecked	720	61.1
Checked	459	38.9
Total	1179	100.0

26i. Technology related PD: Release time for department or grade-level planning related to technology

	Frequency	Percent
Unchecked	1042	88.4
Checked	137	11.6
Total	1179	100.0

26j. Technology related PD: Release time for individual professional development related to technology

	Frequency	Percent
Unchecked	1069	90.7
Checked	110	9.3
Total	1179	100.0

26k. Technology related PD: I have not participated in technology-related professional development

	Frequency	Percent
Unchecked	1093	92.7
Checked	86	7.3
Total	1179	100.0

Please indicate whether you participated in professional development provided by any of the following businesses/organizations.

27a. Professional Development provided by: Apple

	Frequency	Percent
Unchecked	1077	91.3
Checked	102	8.7
Total	1179	100.0

27b. Professional Development provided by: Cisco Systems/Cisco Networking Academies

	Frequency	Percent
Unchecked	1160	98.4
Checked	19	1.6
Total	1179	100.0

27c. Professional Development provided by: Classroom Connect

	Frequency	Percent
Unchecked	1138	96.5
Checked	41	3.5
Total	1179	100.0

27d. Professional Development provided by: eSchool Online

	Frequency	Percent
Unchecked	1166	98.9
Checked	13	1.1
Total	1179	100.0

27e. Professional Development provided by: ISTE (International Society for Technology in Education)

	Frequency	Percent
Unchecked	1159	98.3
Checked	20	1.7
Total	1179	100.0

27f. Professional Development provided by: MCI Foundation/Marco Polo

	Frequency	Percent
Unchecked	1163	98.6
Checked	16	1.4
Total	1179	100.0

27g. Professional Development provided by: Microsoft Classroom Teacher Network

	Frequency	Percent
Unchecked	1118	94.8
Checked	61	5.2
Total	1179	100.0

27h. Professional Development provided by: PBS Teacherline

	Frequency	Percent
Unchecked	1116	94.7
Checked	63	5.3
Total	1179	100.0

27i. Professional Development provided by: None of the above

	Frequency	Percent
Unchecked	1085	92.0
Checked	94	8.0
Total	1179	100.0

27j. Professional Development provided by: Other

	Frequency	Percent
Unchecked	493	41.8
Checked	686	58.2
Total	1179	100.0

27k. Professional Development provided by: Other Description

	Frequency
Bureau of Education and Research	2
Boston Symphony Technology for Music Teachers	1
Canter	1
Closing the Gap	1
CNET	1
College/university courses	8
Dell	2
District or state PD	7
Don Johnston	1
E-assessment	1
Harvard WIDE world	2
Imagination Station	1
IBM	1
Inspiration	1
Instructional Technology Coordinator	2
Laureate Learning Systems	1
Leapfrog	1
Learner.org (Annenberg)	1
Learning.com	1
Local PBS support person	1
Mayer-Johnson	1
Microsoft MOUS	1
Nettrekker	1
National Science Teachers Association	1
Orchard/Fast Forward	1
Pearson/SASI	1
ProStar	1
Sagebrush Accent	1
Scholastic	2
Sun Microsystems	1
Texas Computer Ed. Assoc.	3
Texas Instruments	9
Thompson Online	2
Tom Snyder	1
WGBH TV	1

Your district has participated in a 40-hour professional development program called the Intel® Teach to the Future Essentials Course. It focuses on helping teachers integrate Microsoft® PowerPoint and Publisher into their students' work.

28. Did you participate in this training?

	Frequency	Percent
Yes	374	31.7
No	804	68.3
Total	1178	100.0

29. Were you trained as a Master Teacher for this program?

	Frequency	Percent
Yes	76	19.5
No	313	80.5
Total	389	100.0

30. When did you complete this training?

	Frequency	Percent
2000	12	3.3
2001	17	4.6
2002	14	3.8
2003	41	11.1
2004	71	19.2
2005	130	35.2
2006	40	10.8
Cannot remember	44	11.9
Total	369	100.0

31. Did other teachers in your school participate in Intel Teach to the Future?

	Frequency	Percent
Yes	604	51.4
No	85	7.2
Don't know	480	40.8
Not applicable	7	.6
Total	1176	100.0

32. (RC) Is there an Intel Teach to the Future Master Teacher on the faculty of your school?

	Frequency	Percent
Yes	336	28.5
No	843	71.5
Total	1179	100.0

33. What is your sex?

	Frequency	Percent
Male	236	20.1
Female	939	79.9
Total	1175	100.0