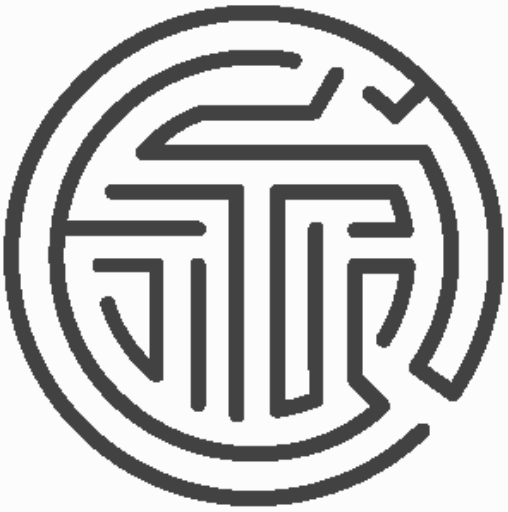
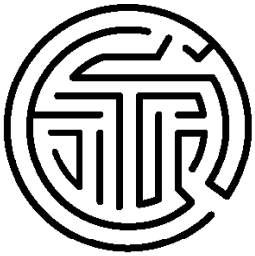


INTEL® TEACH TO THE FUTURE* U.S. IMPLEMENTATION, CLASSIC AND EXPANSION TEACHERS 2004 END OF SCHOOL YEAR SURVEY SUMMARY

CENTER FOR CHILDREN & TECHNOLOGY

*Intel Teach to the Future is now referred to as the Intel® Teach Program



CCT REPORTS
JULY 2004

INTEL® TEACH TO THE FUTURE U.S. IMPLEMENTATION, CLASSIC AND EXPANSION TEACHERS 2004 END OF SCHOOL YEAR SURVEY SUMMARY

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EXECUTIVE SUMMARY

This report presents results from an End of School Year survey administered to Master and Participant Teachers in the Classic and Expansion versions of Intel Teach to the Future. This report compares survey data from Classic and Expansion program participants on the following topics:

- Teaching backgrounds and professional roles
- Program impact on teachers' use of technology
- Program impact on participants' teaching practice
- Factors associated with rates of implementation

The teaching background and professional role data in this report show the following:

- A smaller percentage of Expansion Master Teachers (52%) are classroom teachers than Classic Master Teachers (72.7%). A comparatively large percentage of Expansion Master Teachers (27.9%) report being school or district technology coordinators.
- The largest groups of both Classic and Expansion Participant Teachers work in the early elementary grades.
- Expansion Master Teachers tend to be more experienced educators than Classic Master Teachers; 35.6 percent of Expansion Master Teachers have more than 20 years of teaching experience, while the largest concentration of Classic Master Teachers (34.8%) has 3-9 years of teaching experience.
- A slightly higher percentage of Expansion Master and Participant Teachers work in more affluent schools than Classic Master and Participant Teachers.

This report also presents survey results that explore the impact the program is having on classroom teachers' use of technology in their teaching practice, and compares responses between Expansion and Classic classroom teachers.[1]

The data show the following impact on teachers' use of technology:

- *Both Classic and Expansion teachers implement their unit plans and other technology-integrated lessons in their classrooms.* Majorities of Classic (63%) and Expansion (63.2%) teachers reported using their unit plans more than once. A majority of Expansion teachers (55.5%) report using other technology-integrated lessons more than once a month, while 46.4 percent of Classic teachers report doing so.

[1] It is important to note that the Classic pool of classroom teachers responding to this survey is overwhelmingly comprised of Participant Teachers, while more than half of the Expansion pool of classroom teacher survey respondents are Master Teachers. Differences between Classic and Expansion teacher responses may primarily be due to the larger concentration of Master Teachers in the Expansion sample.

- *Majorities of Classic and Expansion teachers report positive student responses to the technology-integrated lessons.* Large majorities of respondents agreed that students were motivated and actively engaged with the technology-based lessons, students worked together more often, different learning styles were addressed well by the technology-based lessons, and student work was more creative than in previous assignments.

- *Teachers report increases in their use of various software applications.* Majorities of Classic and Expansion teachers report using the Intel Teach to the Future website and Publisher software for desktop publishing more since the training. Overall, Expansion teachers reported 10 percent higher rates of usage of various types of software than Classic teachers.

- *Problems with technology access were the most frequently cited obstacles and challenges to technology integration.* Over half of the Classic teachers and Expansion teachers who did not implement a technology lesson (60.1% and 52%, respectively) reported that the necessary computers were not available. Among those teachers who did implement technology lessons, over half of Classic teachers (55.1%) and nearly half of the Expansion teachers (48.4%) reported this as well.

- *Teachers in the Classic and Expansion subsets had similar access to technology in their schools and classrooms.* More than 90 percent of teachers in each group had access to computer labs or media centers in their schools, and the largest group of teachers in the Classic and Expansion subsets reported having two to four classroom computers.

The survey results presented in this report also suggest that the program is having an impact on participants' teaching practices. Specifically, the data show the following:

- *Classic and Expansion teachers felt the teaching strategies discussed in the training were relevant and useful.* More than 90 percent of teachers in the Classic and Expansion programs felt that the teaching strategies presented in the training were relevant to their teaching goals and would help them integrate technology into their teaching.

- *Teachers use technology and other techniques presented in the training to support their practice.* A majority of teachers from each of the two subsets reported an increase since their training in their use of a range of specific practices emphasized in the training, such as "using essential questions to structure lessons," "using a computer to conduct [their] own research," and "using rubrics to evaluate student work."

- *Classic and Expansion teachers report similar increases in their use of project-based teaching strategies with their students after the training.* From one-third to two-thirds of teachers in each subset report using a variety of teaching strategies more often since the training, such as having students engage in independent Internet research (62.4% for Classic, 64.4% for Expansion), and having students present their work to the class (53.7% for Classic, 58.5% for Expansion).

This report also presents survey findings that examine how a variety of factors may influence teachers' rates of technology implementation. The findings include the following:

- *Teachers' perceptions of the relevance of the teaching strategies presented in the training influenced whether they implemented technology-rich lessons.* Classic and Expansion teachers reported implementing technology more often when they felt that the teaching strategies of the Intel Teach to the Future program were very relevant to their teaching goals.
- *Teachers with greater access to classroom computers implemented more often.* Within each of the Classic and Expansion subsets, more than 60 percent of teachers with five or more computers in their classroom implemented technology-integrated lessons more than once a month, compared to 33.3 percent or fewer who had one or no computers in their classrooms.
- *The socioeconomic status of students in the schools in which teachers worked was not a factor in implementation rates.* The rates of implementation for Classic teachers in schools with a range of socioeconomic levels were the same, and there was a slightly higher rate of implementation among Expansion teachers who worked in the least affluent schools.
- *More experienced teachers had higher rates of implementation.* Ten percent fewer novice teachers (those teaching for only one to two years) reported implementing technology-integrated lessons more than once a month, compared to teachers with three or more years of teaching experience. Rates of implementation for all other teachers were similar.
- *The longer the time between the training and the survey administration, the higher the rates of implementation.* Within the Classic and Expansion subsets, teachers who had completed the training earlier were more likely to use technology-integrated lessons, and to implement them more often, than those trained more recently.

TABLE OF CONTENTS

INTRODUCTION

This report provides an analysis of findings from an End of School Year survey administered in April 2004 to participants in both the Classic and Expansion versions of Intel Teach to the Future (U.S. implementation only). The analysis compares survey responses from these two groups and notes relevant differences among Master Teacher and Participant Teacher respondents.

About Intel Teach to the Future

Intel Teach to the Future was designed to prepare teachers to use technology with their students. The developers of the Intel Teach to the Future program began with two equally weighted goals: 1) to improve the integration of technology into K-12 classrooms, and 2) to train 100,000 teachers in the United States in three years. The second goal was based on the assumption that if a significant segment of a teaching population were trained, these "critical masses" would exert a strong influence on the overall approach of schools or districts to technology planning and training.[2]

The curriculum used in the Intel Teach to the Future trainings was developed in 2000 by the Institute for Computer Technology (ICT; www.ict.org) and Intel Corporation. It focuses on the use of commonly available software in the context of inquiry-oriented and project-based teaching and learning, and stresses the alignment of curricula with standards. The forty-hour training sequence is delivered through a train-the-trainer model. Senior trainers from the Institute for Computer Technology train Master Teachers from local districts or consortia of districts. These Master Teachers are then expected to train Participant Teachers in their districts. The training uses Microsoft productivity software, focusing primarily on learning to use Windows-based versions of PowerPoint and Publisher to support students in creating presentations, webpages, brochures and newsletters. The training also covers pedagogical and classroom management challenges associated with using technology with students, conducting research on the Internet, and handling intellectual property issues.

The central activity of the curriculum is the creation of a unit plan, including model student work samples, support materials, and an implementation plan. Teachers are encouraged to select a unit that they already use in their teaching that might be enhanced with technology. This structure aims to allow teachers to expand their technical skills in the context of a curriculum development process. By designating a large amount of time in the workshops for the creation of immediately relevant materials, the curriculum not only puts the teachers' interests and concerns at the center of the training experience, but also enables them to leave the training with a usable product.

Intel Teach to the Future has used two distinct implementation models to disseminate this program. The initial implementation model, which will be referred to as the "Classic" model, included

[2] Intel Teach to the Future reached a million teachers worldwide as of June 2003. The program had equally important, parallel goal statements concerning its international implementation (which reaches thirty countries including the U.S.). The findings presented here are derived from evaluations of the United States implementation of the program. For more information about Intel Teach to the Future, visit www.intel.com/education.

incentives for participation, such as stipends and laptop computers for Master Teachers, free software for Participant Teachers, and the opportunity to participate in discounted computer purchasing programs for participating districts. This model delivered Senior Trainers to each participating district to train local Master Teachers. It involved several accountability mechanisms to ensure that Master Teachers trained their quota of teachers within a given timeframe. Intel Teach to the Future committed to recruiting districts and training teachers for three years within the "Classic" implementation model. In 2002, Intel Teach to the Future introduced an "Expansion" version of the program, which temporarily overlapped with and has now replaced the Classic program. Under the Expansion model, districts send nominated Master Teachers to attend trainings offered in their region with no stipends or incentives offered for participation in the program. While Intel Teach to the Future maintains some ability to track the performance of Master Teachers, fewer accountability mechanisms are in place and, because Participant Teachers do not have to apply directly to be involved in the program, less data is available on who participates and how they respond to the program.

This survey represents our first opportunity to compare Classic and Expansion program participants' reports of their experience with Intel Teach to the Future.

METHODS

In May 2004, Intel Teach to the Future teachers who had participated in the Classic and Expansion programs between January 2002 and December 2003 were asked to complete an End of School Year survey that covered a range of issues regarding participation in the training.[3] The survey was administered through a website supported by Education Development Center, Inc., and was developed based on previous years' surveys with some modifications. Participation in the survey was solicited via emails containing a message from the evaluation team that Intel technical staff sent to all teachers who met the participation criteria and for whom the program had accurate email addresses. Participant and Master Teachers were asked the same set of questions, and the survey was administered to all participants within a two-week period.

A total of 5,667 Classic and 1,072 Expansion teachers responded to the End of School Year survey. A far larger percentage of the overall population of Classic participants responded than Expansion participants, in part because contact information was not regularly collected from Expansion Participant Teachers.

Response rates were calculated based on the number of responses received per the number of valid email requests that were sent (those that bounced back to Intel were not included). Response rates to this survey vary somewhat. Among Participant Teachers, 24 percent in the Expansion pro-

[3] Note that in previous administrations of this survey (2001-2003) all Classic program participants who completed the course two weeks or more prior to the posting of the survey were invited to complete the survey. This year's administration did not solicit the participation of teachers who participated in the program prior to January 2002 but did, for the first time, solicit the involvement of teachers who participated in the Expansion version of the program.

gram responded while only 11% from the Classic program did. Conversely, 88 percent of Classic Master Teachers and 26 percent of Expansion Master Teachers completed the End of School Year survey. Tables 1a and 1b detail responses from the Classic and Expansion subsets.

TABLE 1A. SURVEY RESPONSES FROM CLASSIC AND EXPANSION SUBSETS: RESPONSE RATE

Type of participant:	Number of valid emails sent	Number of responses	Response rate
Classic (N=1,000)			
Master Teacher	510	448	88%
Participant Teacher	44,015	5,012	11%
Expansion (N=1,072)			
Master Teacher	2,530	663	26%
Participant Teacher	1,650	391	24%

TABLE 1B. SURVEY RESPONSES FROM CLASSIC AND EXPANSION SUBSETS: PERCENTAGE PER MODEL

Type of participant:	Number of valid emails sent	Number of responses	Respondents by model
Classic (N=5,667)			
Master Teacher	510	448	8.2%
Participant Teacher	44,015	5,012	91.8%
Total			**100%**
Expansion (N=1,072)			
Master Teacher	2,530	663	62.9%
Participant Teacher	1,650	391	37.1%
Total			**100%**

Several factors likely influenced the response rate to, and the results of, the End of School Year survey. The time between completing the Intel Teach to the Future training and the dissemination of the survey varied considerably, with the majority of Classic Participant and Master Teachers receiving the survey one to two years after completion of their training, and the majority of Expansion Participant and Master Teachers receiving the survey approximately five months to a year after completion of their training. Additionally, Master Teachers often report a stronger sense of investment in this program than do Participant Teachers, which likely influences their decisions about whether or not to complete the survey.

FINDINGS

Training dates

A majority of Expansion Participant Teachers (58%) who responded to this survey completed their training between October and December 2003. The largest group of Expansion Master Teachers (30.7%) completed their training between April and June 2003. Classic Participant Teachers and Classic Master Teachers tended to participate in trainings in a more evenly distributed pattern, with the largest group of Participant Teachers (21.4%) completing their training between October and December 2002, and largest group of Master Teachers (30.1%) completing their training between July and September 2002. It is important to note that more than half of Expansion teachers participated in training nearly one academic year later than did the majority of Classic teachers. This difference in time could have some impact on what teachers report about their use of technology, as many respondents from the Classic program had more time to incorporate new approaches to technology use. See Tables 2 and 3 for a complete report of quarters in which respondents completed the training.

TABLE 2. TRAINING DATES OF CLASSIC MASTER AND PARTICIPANT TEACHERS

TRAINING QUARTER	MASTER TEACHERS		PARTICIPANT TEACHERS	
	Number of Participants	%	Number of Participants	%
Jan.-March 2002	26	5.9	322	6.5
April-June 2002	98	22.2	758	15.3
July-Sep. 2002	133	30.1	686	13.8
Oct.-Dec. 2002	45	10.2	1,064	21.4
Jan.-March 2003	33	7.5	674	13.6
April-June 2003	53	12.0	711	14.3
July-Sep. 2003	24	5.4	290	5.8
Oct.-Dec. 2003	30	6.8	457	9.2
Total*	**442**	**100.1%**	**4,962**	**99.9%**

* Totals do not equal 100% due to rounding.

TABLE 3. TRAINING DATES OF EXPANSION MASTER AND PARTICIPANT TEACHERS

TRAINING QUARTER	MASTER TEACHERS		PARTICIPANT TEACHERS	
	Number of Participants	%	Number of Participants	%
Jan.-March 2002	8	1.2	3	0.8
April-June 2002	31	4.7	4	1.0
July-Sep. 2002	96	14.5	8	2.1
Oct.-Dec. 2002	25	3.8	39	10.0
Jan.-March 2003	49	7.4	13	3.3
April-June 2003	203	30.7	10	2.6
July-Sep. 2003	185	27.9	86	22.1
Oct.-Dec. 2003	65	9.8	226	58.1
Total	**662**	**100.0%**	**389**	**100.0%**

Professional roles in schools

Although Intel Teach to the Future was originally intended exclusively for classroom teachers covering core content areas, the program evaluation has demonstrated consistently that a more diverse group of educators participate in the program. Consequently, a question was included in the 2004 End of School Year survey that asked respondents about their primary professional roles. Respondents were asked to identify themselves as classroom teachers, enrichment/resource teachers, technology coordinators, professional staff, or administrators.

For Participant Teachers, primary professional roles were similar across the Classic and Expansion groups. The largest group (75.7% for Classic, and 72.1% for Expansion) identified "classroom teacher" as their primary role. For other roles, such as "enrichment/resource teacher," "technology coordinator," "professional staff," and "administrator," responses were very similar, with only a one or two percent difference between Classic and Expansion participants.

However, responses from Master Teachers showed some substantial differences between the Classic and Expansion groups. Only 52 percent of Expansion Master Teachers identified themselves as "classroom teachers," compared to 72.7 percent of Classic Master Teacher. Expansion Master Teachers were far more likely to identify as "technology coordinators" (27.9%) than were Classic Master Teachers (8.9%).

Figure 1. Classic Master Teacher and Participant Teacher professional roles in their school districts

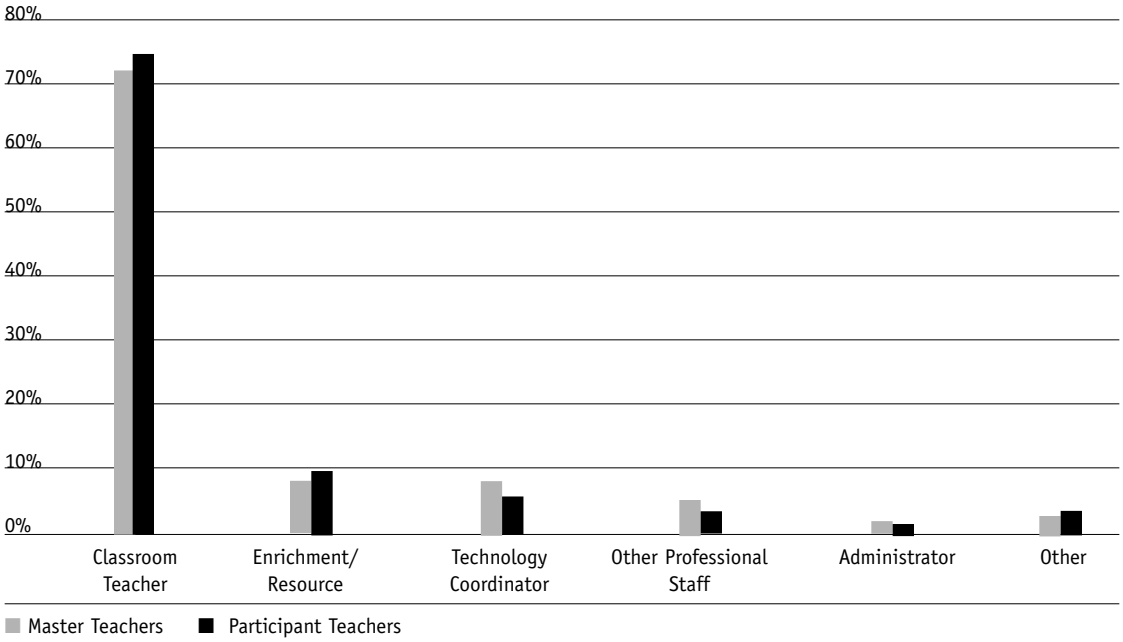
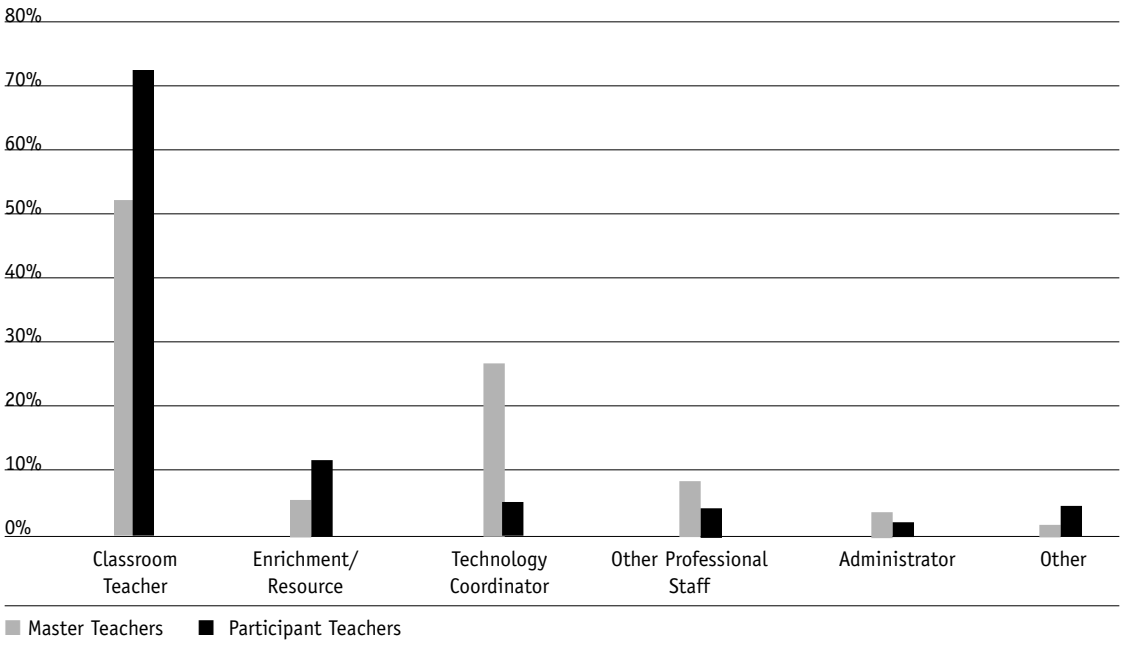


Figure 2. Expansion Master Teachers' and Participant Teachers' professional roles in their school districts



Subject and grade level taught

Respondents who identified themselves as classroom teachers were asked to identify the primary subject areas they taught. Responses across Classic and Expansion Participant Teachers are somewhat similar, with teachers in each group reporting within one or two percentage points of each other in all subjects except "math" and "special populations." For these two subjects the difference was approximately four percentage points, with Classic Participant Teachers selecting these subjects more frequently than Expansion Participant Teachers.

Across the Master and Participant Teacher categories, a lower percentage of Classic respondents selected the category "do not work directly with students" than Expansion respondents, confirming findings noted above regarding teachers' professional roles. While the difference was minimal between Classic and Expansion Participants, the discrepancy was substantial between Classic Master Teachers (5.6%) and Expansion Master Teachers (18.3%). In addition, Expansion Master Teacher responses also show that 21.7 percent of this group works in Computer Science, as compared with only 12.1 percent of Classic Master Teachers.

TABLE 4. CLASSIC MASTER TEACHERS/PARTICIPANT TEACHERS SUBJECT TAUGHT

	Master Teachers		Participant Teachers	
Subject	**n**	**%**	**n**	**%**
Self-contained	136	30.4	1,822	36.4
English, Literature, Language Arts	113	25.2	1,109	22.1
Science	84	18.8	861	17.2
History, Social studies	92	20.5	779	15.5
Math	91	20.3	989	19.7
Special Populations	89	19.9	1,112	22.2
Computer Science	54	12.1	351	7.0
Other Humanities	50	11.2	549	11.0
Non-Academic	52	11.6	491	9.8
Other	45	10.0	487	9.7
Do not work directly with students	25	5.6	157	3.1
Total*	**830**	**185.4%**	**8,687**	**173.3%**

* Totals exceed 100% because teachers were able to select more than one subject.

TABLE 5. EXPANSION MASTER TEACHERS/PARTICIPANT TEACHERS SUBJECT TAUGHT

	MASTER TEACHERS		PARTICIPANT TEACHERS	
Subject	**n**	**%**	**n**	**%**
Self-contained	192	29.0	133	34.0
English, Literature, Language Arts	125 1	8.9	86	22.0
Science	87	13.1	60	15.3
History, Social studies	77	11.6	55	14.1
Math	100	15.1	59	15.1
Special Populations	64	9.7	72	18.4
Computer Science	144	21.7	29	7.4
Other Humanities	50	7.5	43	11.0
Non-Academic	61	9.2	36	9.2
Other	81	12.2	42	10.7
Do not work directly with students	121	18.3	18	4.6
Total*	**1,101**	**166.2%**	**629**	**160.9%**

* Totals exceed 100% because teachers were able to select more than one subject.

Distributions of respondents across grade levels taught were largely consistent between Classic and Expansion Participants and between Master Teachers and Participant Teachers. Participant Teachers in each group tended to have greater representation from the Early Elementary grades, with 36.4 percent of Classic Participant Teachers and 36.6 percent of Expansion Participant Teachers indicating these grades. The Expansion group includes more Master Teachers from the middle elementary grades (34.2% of Expansion versus 27.5% of Classic) and fewer Master Teachers from the high school grades (24.4% of Expansion versus 31.9% of Classic).

Figure 3. Classic Master Teacher and Participant Teacher grade levels taught during the 2003-04 academic year

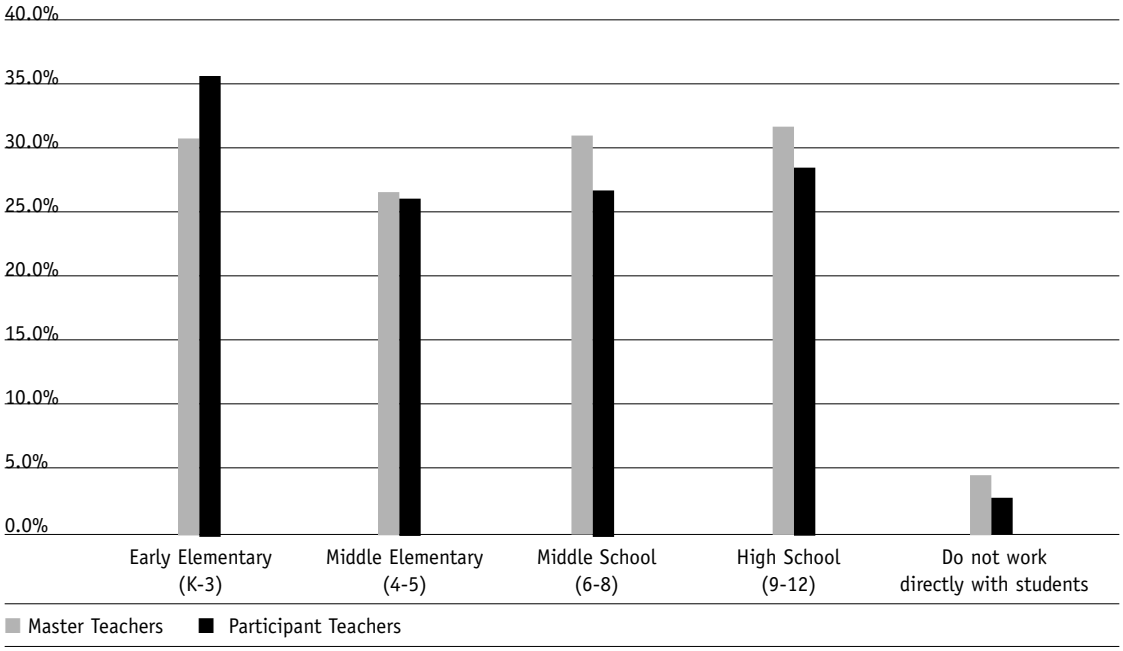
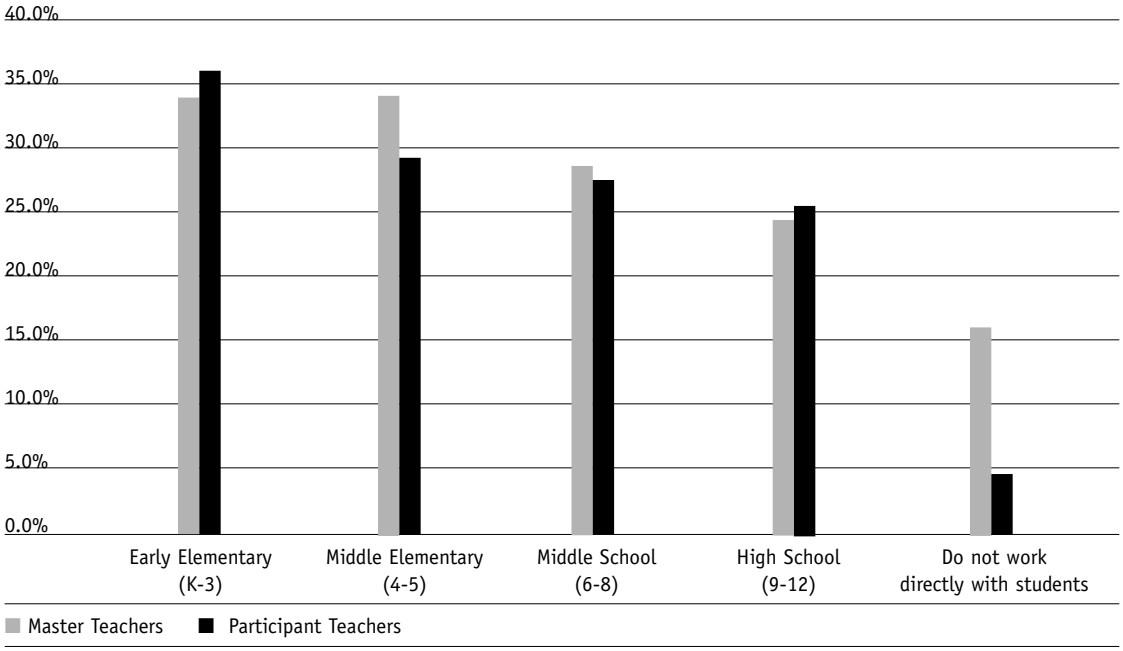


Figure 4. Expansion Master Teacher and Participant Teacher grade levels taught during the 2003-04 academic year



Teaching experience

Another difference between Classic and Expansion Master Teachers emerges when examining teacher responses to a question about years of teaching experience (see Tables 6 and 7). When asked to identify the number of years taught across four categories ("1-2 years," "3-9 years," "10-19 years," and "20 or more") there were more novices (those with 1-2 years experience) among Expansion Participant Teachers (12.3%) than Classic Participant Teachers (4.9%). The greatest concentration of responses from Classic Master Teachers (34.8%) fell in the "3-9 year" range. This suggests that many Classic Master Teachers are relatively new to the classroom. In contrast, Expansion Master Teachers showed a high concentration of responses in the "20 or more" category (35.6%), indicating that this pool of Master Teachers includes some very experienced educators, and may explain why such a large number of these educators are no longer working directly in the classroom. Within the field of education there are few promotion options for teachers who have accumulated many years of experience, and professional advancement often involves leaving the classroom for more administrative positions.

TABLE 6. TEACHING EXPERIENCE OF CLASSIC MASTER TEACHERS AND PARTICIPANT TEACHERS

	Master Teachers		Participant Teachers	
Years of teaching experience	**n**	**%**	**n**	**%**
1-2	12	2.7	243	4.9
3-9	156	34.8	1,741	34.9
10-19	140	31.3	1,594	31.9
20 or more	136	30.4	1,361	27.3
Do not work directly with students	4	0.9	54	1.1
Total	**448**	**100.0%**	**4,993**	**100.0%**

TABLE 7. TEACHING EXPERIENCE OF EXPANSION MASTER TEACHERS AND PARTICIPANT TEACHERS

	Master Teachers		Participant Teachers	
Years of teaching experience	**n**	**%**	**n**	**%**
1-2	15	2.3	48	12.3
3-9	185	27.9	115	29.5
10-19	208	31.4	112	28.7
20 or more	236	35.6	109	27.9
Do not work directly with students	19	2.9	6	1.5
Total	**663**	**100.0%**	**390**	**100.0%**

Socioeconomic status of students attending schools with Intel Teach to the Future trained teachers

Respondents were asked to indicate the approximate percentage of students in their schools receiving free or reduced price lunch. This is commonly used as an indicator of socioeconomic status of students' families. Participant Teachers and Master Teachers who participated in the Expansion group were more likely than their Classic counterparts to work in schools where 25 percent or fewer students receive free or reduced price lunch. Among the Classic respondents, the largest groups of Master Teachers (27.5%) and of Participant Teachers (27.7%) reported working in a school with 26-50 percent of students eligible for free or reduced price lunch. Within the Expansion group, the greatest number of teachers (32.0% of Master Teachers and 30.2% of Participant Teachers) reported working in a school with 0 – 25 percent of students eligible for free or reduced price lunch. Overall, teachers' responses to this item suggest that the schools in which Expansion teachers work tend to serve a population with greater financial resources than schools where Classic teachers work.

Figure 5. Classic Master Teacher/Participant Teacher schools: Percentage of students attending school who are eligible for free or reduced price lunch

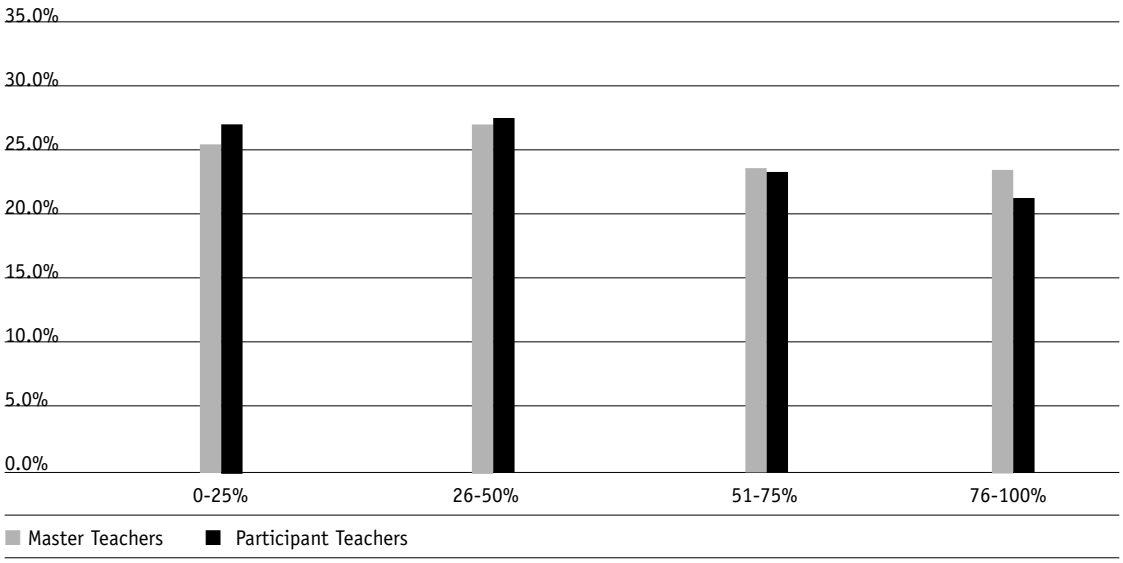
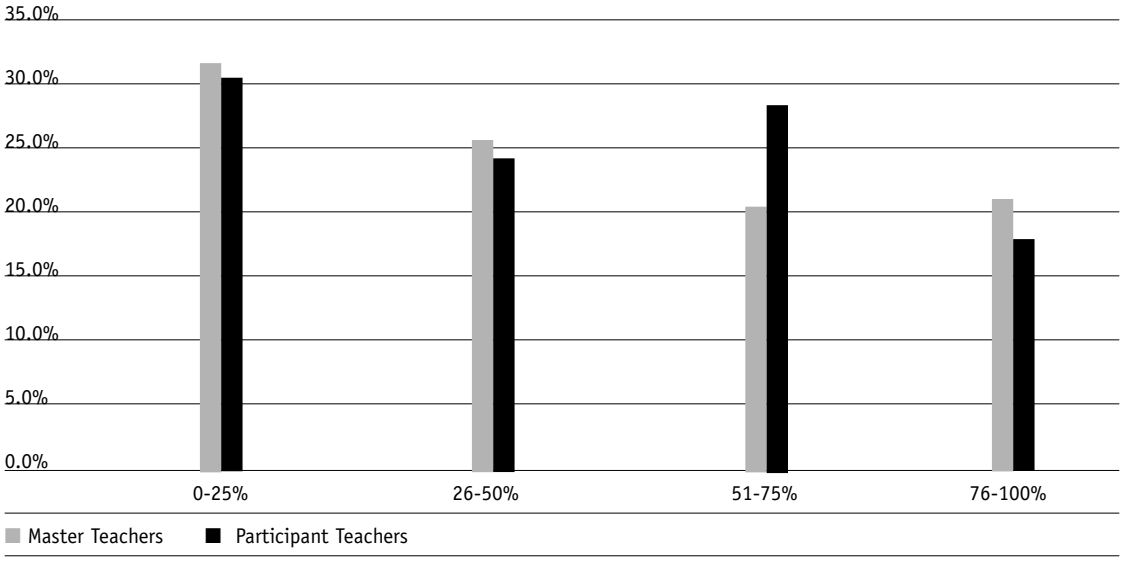


Figure 6. Expansion Master Teacher/Participant Teacher schools: Percentage of students attending school who are eligible for free or reduced lunch



Impact on classroom teachers

This survey presented all Intel Teach to the Future participants with a series of questions that probed issues related to technology use in the classroom, and the impact that Intel Teach to the Future training may have had on teachers' instructional practices. Presented below are findings from classroom teachers (both Master and Participant Teacher responses) in the Classic and Expansion programs.

Before proceeding, it is worth noting that the following summary of findings from the End of School Year Survey only includes the responses of participants who indicated that they had classroom teaching responsibilities. Educators who did not have classroom teaching responsibilities were excluded because the survey specifically probes educators' classroom-based experiences following their participation in this program. Therefore, although the non-classroom-based educators likely used their training in other ways, their responses are not represented in the following analyses. With non-classroom teachers removed from the analysis, 4,775 Classic participants (84.3%) and 722 Expansion participants (67.4%) remain in the sample (see Table 8). As in the full group of respondents, Participant Teachers are overrepresented among the Classic respondents, and Master Teachers are overrepresented among the Expansion respondents. Specifically, in the Classic sample of classroom teachers, there is a ten-to-one ratio of Participant Teachers to Master Teachers, while, in the Expansion pool of classroom teachers, more than half of the respondents are Master Teachers (see Table 9). The findings presented below should be understood with this difference between the two samples in mind.

TABLE 8. CLASSROOM RESPONSIBILITY OF PARTICIPANTS BY CLASSIC AND EXPANSION SUBSET

	Classic Program		Expansion Program	
Classroom Responsibility	**n**	**%**	**n**	**%**
Classroom Teacher	4,775	84.3	722	67.4
Non-Classroom Teacher	892	15.7	350	32.6
Total	**5,667**	**100%**	**1,072**	**100%**

TABLE 9. TYPE OF PROGRAM PARTICIPANT AMONG CLASSIC AND EXPANSION CLASSROOM TEACHER SUBSETS

	Classic Program Classroom Teachers		Expansion Program Classroom Teachers	
Type of Program Participant	**n**	**%**	**n**	**%**
Master Teachers	363	7.9	385	54.2
Participant Teachers	4,256	92.1	325	45.8
Total*	**4,619***	**100%**	**710***	**100%**

*Totals in Table 9 do not equal "Classroom Teacher" totals in Table 8 because some respondents did not identify whether they were Master or Participant Teachers.

Implementation of unit plan or other technology-rich lesson

Asked whether they implemented some or all of the unit plan developed during their training, Classic and Expansion teachers reported similar rates of implementation. Similar proportions of teachers from each group reported that they had implemented their Intel Teach to the Future plan once (24.6% for Classic, 29.0% for Expansion) and more than once (63.0% for Classic, 63.2% for Expansion). In addition, 12.4 percent of Classic teachers reported that they never used their unit plan, compared with only 7.8 percent of Expansion teachers. When asked how often they have used technology-integrated lessons (other than their unit plan) with their students since their training, 55.5 percent of Expansion teachers and 46.4 percent of Classic teachers reported doing so "more than once a month." By comparison, only 5.4 percent of Classic Teachers and 4.2 percent of Expansion Teachers reported that they had not used any technology-integrated lessons with their students.

Figure 7. Implementation of unit plan by Classic and Expansion teachers

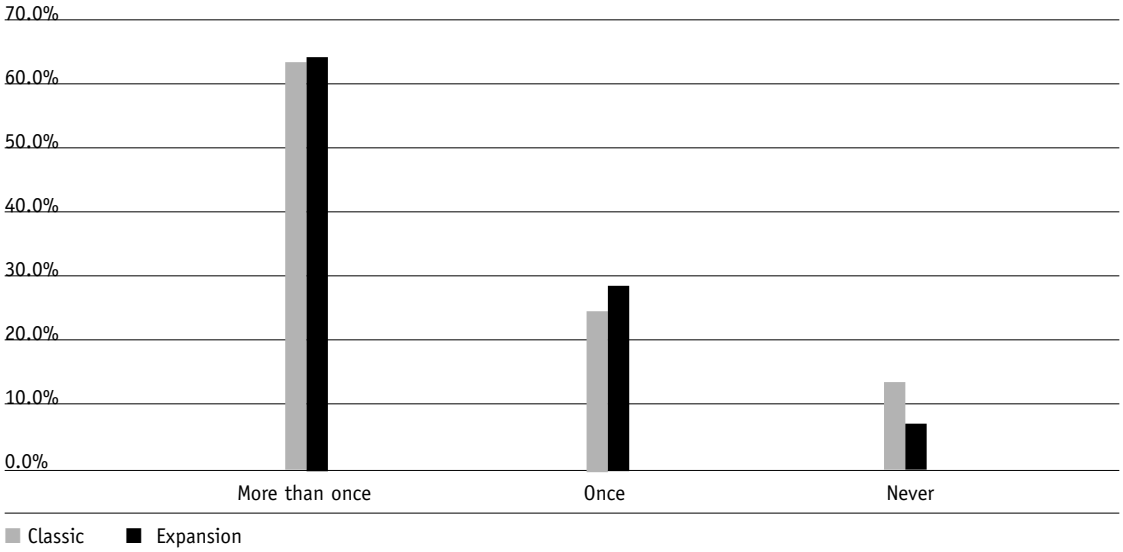
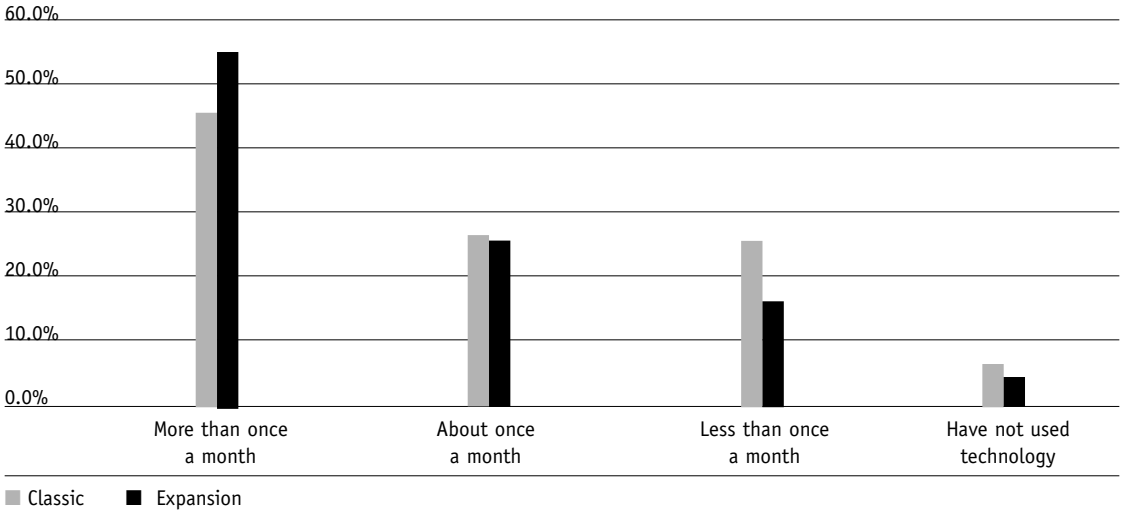


Figure 8. Use of other technology-integrated lesson by Classic and Expansion teachers



Student response to the unit plan

Teachers were also asked a series of questions that addressed student response to the implementation of a technology-integrated lesson used in the classroom. Teachers were asked to respond using a five-point rating scale that ranged from "strongly agree" to "strongly disagree." Overall, teachers from the Classic and Expansion subsets reported that their students responded positively to the technology-based lessons. For example, almost all teachers agreed or strongly agreed that "students were more motivated and actively involved in the lesson" (95.1% of Classic and 94.7% of Expansion teachers). Table 10 summarizes all items that addressed student response to the technology-integrated lessons.

TABLE 10. STUDENT RESPONSE TO TECHNOLOGY-INTEGRATED LESSONS

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
Students were more motivated and actively involved in the lesson		
Strongly agree	38.3	49.2
Agree	56.8	45.5
No opinion	2.2	1.0
Disagree	0.9	1.5
Strongly disagree	1.8	2.8
Students worked together more often than on previous, comparable assignments		
Strongly agree	19.1	24.7
Agree	50.3	46.9
No opinion	18.4	15.7
Disagree	10.6	9.8
Strongly disagree	1.6	3.0
Students with different learning styles were addressed well by the lesson		
Strongly agree	25.2	34.7
Agree	62.9	54.4
No opinion	7.7	5.9
Disagree	2.6	2.2
Strongly disagree	1.6	2.8

TABLE 10. STUDENT RESPONSE TO TECHNOLOGY-INTEGRATED LESSONS - CONTINUED

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
Student work was more creative than previous, comparable assignments		
Strongly agree	26.5	34.6
Agree	48.2	44.6
No opinion	15.8	11.5
Disagree	8.0	6.8
Strongly disagree	1.5	2.5
Student work showed more in-depth understanding of content than previous, comparable assignments		
Strongly agree	16.3	23.2
Agree	54.2	50.4
No opinion	18.8	16.2
Disagree	9.2	7.8
Strongly disagree	1.4	2.4
Students were able to communicate their ideas and opinions with greater confidence than in previous, comparable assignments		
Strongly agree	18.4	25.1
Agree	54.1	50.9
No opinion	18.8	14.5
Disagree	7.1	7.1
Strongly disagree	1.6	2.4
Students gave positive feedback		
Strongly agree	33.1	40.6
Agree	57.9	50.5
No opinion	6.1	4.4
Disagree	1.3	2.1
Strongly disagree	1.6	2.4
Students with varying levels of technology skill performed well on the lesson		
Strongly agree	23.0	29.3
Agree	63.1	59.1
No opinion	7.5	4.7
Disagree	4.9	3.9
Strongly disagree	1.5	3.0

TABLE 10. STUDENT RESPONSE TO TECHNOLOGY-INTEGRATED LESSONS - CONTINUED

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
Students helped one another with the technology		
Strongly agree	43.3	52.9
Agree	48.3	38.4
No opinion	4.7	4.3
Disagree	0.9	1.5
Strongly disagree	1.8	3.3

Use of software applications with students

Classic and Expansion teachers were asked to identify which software and technologies they used prior to and following their participation in the program (see Figures 9 and 10). Each subset indicated a substantial increase in the use of two items after their participation in the training: the Intel Teach to the Future website (52.5% of Classic and 63.1% of Expansion teachers), and Microsoft Publisher for desktop publishing (53.0% of Classic and 55.0% of Expansion teachers). Results also indicated that fairly substantial minorities of teachers reported increasing their use of software presented in the training, such as PowerPoint (45.5% for Classic, 31% for Expansion), and Publisher for building a website (34.5% for Classic, 42.7% for Expansion), and about a quarter to a fifth of teachers began experimenting with software that was not even presented in the training, such as multimedia presentation software other than PowerPoint (25.8% for Classic, 19.6% for Expansion), flow chart or concept-mapping software (24.5% for Classic, 17.8% for Expansion), and web development tools other than Publisher (21.9% for Classic, 20.3% for Expansion). These findings are consistent with those of past years' surveys. Interestingly, across all items, Expansion teachers indicated a higher use of software with their students, on average about 10 percentage points higher than Classic teachers. This finding may be due to the fact that a much larger percentage of the Expansion sample consisted of Master Teachers, who are more likely to be experienced with technology than Participant teachers.

Figure 9. Classic teachers' use of software after training

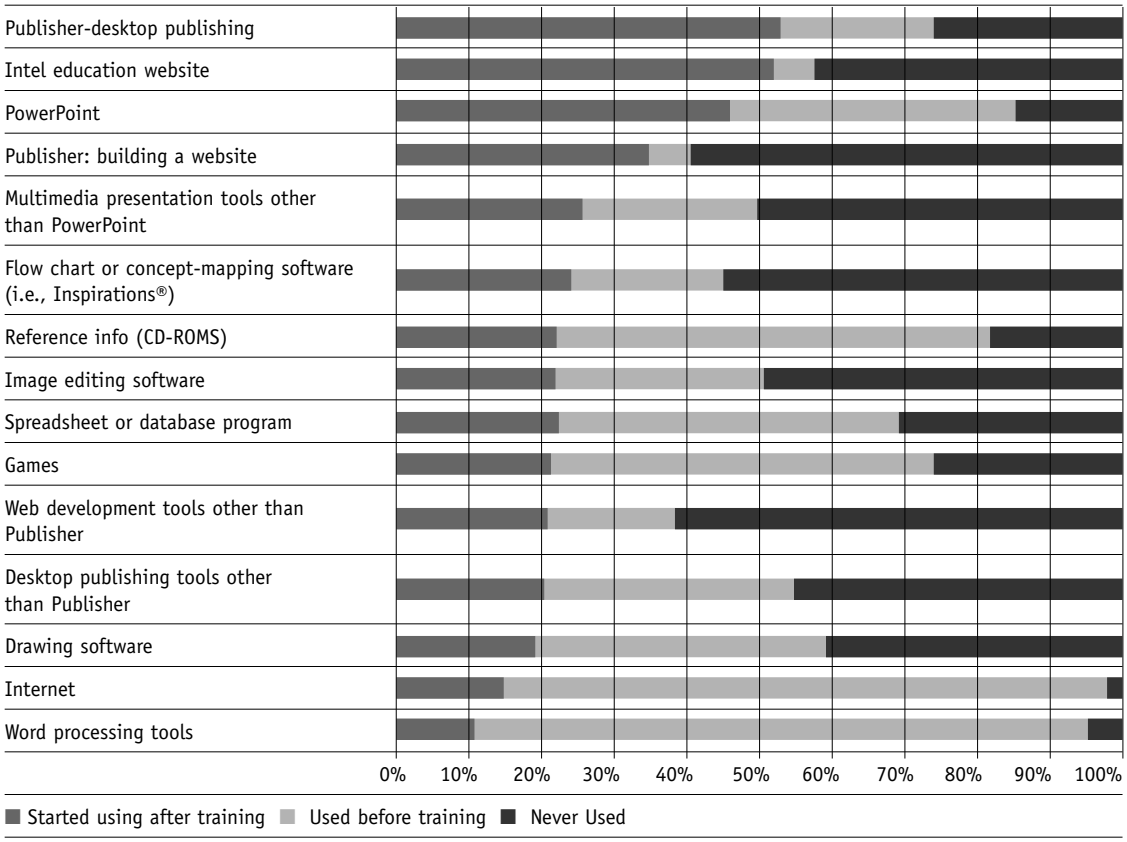
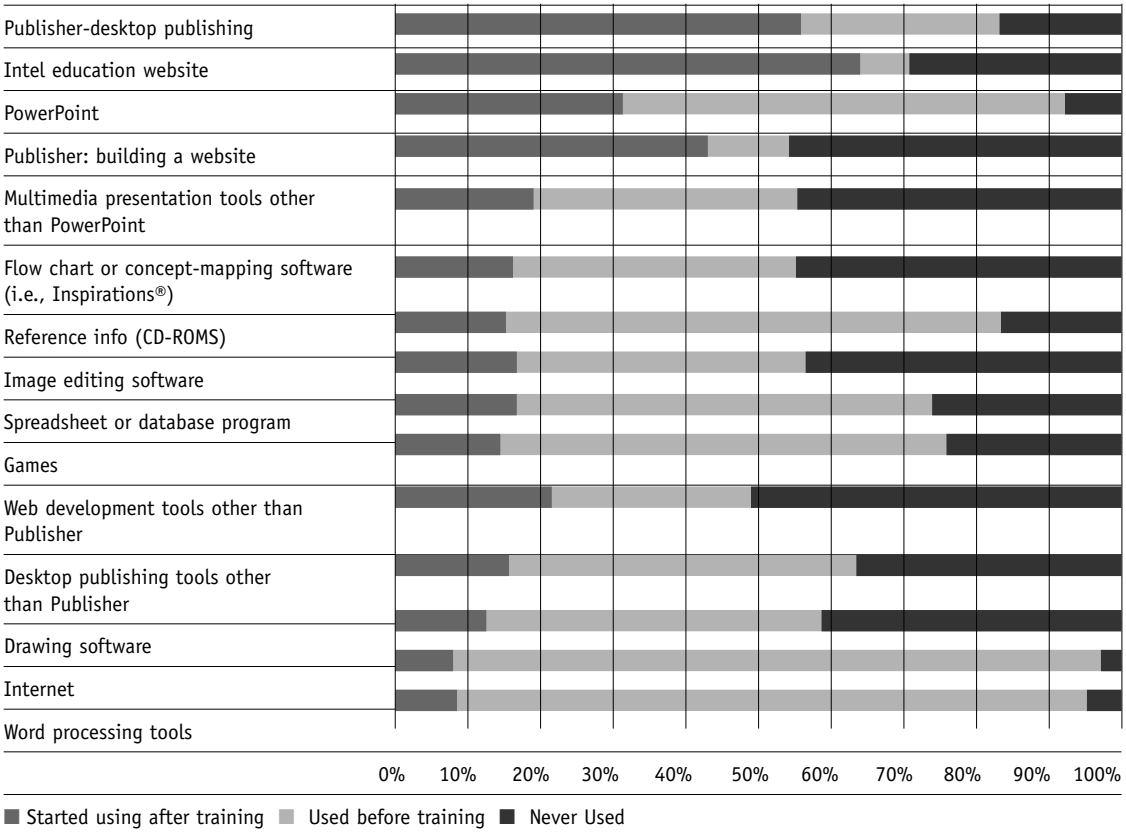


Figure 10. Expansion teachers' use of software after training



Use of Intel Teach to the Future materials

Survey data revealed that while Expansion teachers were using a wider array of software applications than the Classic teachers, this latter group used the Intel Teach to the Future materials to a greater extent (see Figures 11 and 12). For example, 40.3 percent of Classic teachers reported that they used the Intel Teach to the Future Manual 4-10 times since completing their training, while only 29.5 percent of Expansion teachers indicated that they used the manual that often. The percentage of teachers indicating that they used the manual between one and three times was almost identical for each teacher subset. However, there were substantial differences among teachers reporting that they have never used the manual, with 31.3 percent of Expansion teachers saying this, while only 16.4 percent of Classic teachers did so. When asked about use of the Intel Teach to the Future CD-ROM, teachers showed similar differences between subsets, though overall the number of teachers using the CD-ROM was slightly lower than for those using the manual. This difference in usage of the Intel Teach to the Future materials could be due to the fact that most of the Expansion teachers were trained more recently than the Classic teachers. The difference might also indicate that Classic teachers became more familiar with the specific resources available in the manual and the CD-ROM during their training than did the Expansion teachers.

Figure 11. Classic and Expansion teachers' use of the Intel Teach to the Future manual

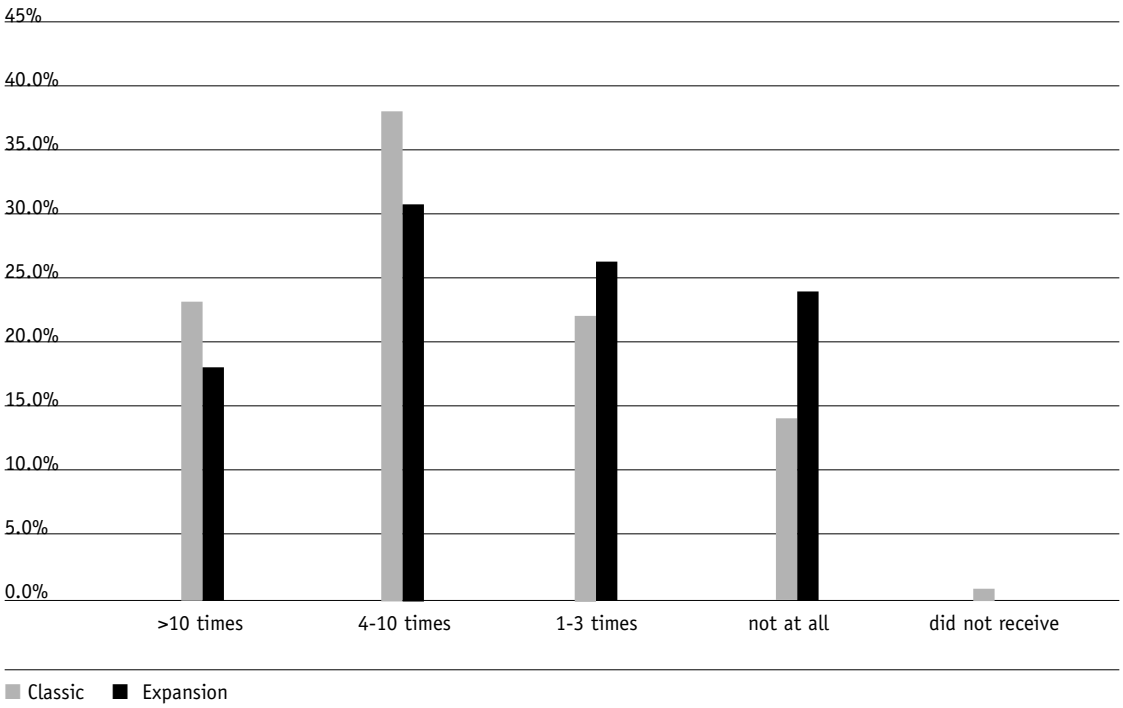
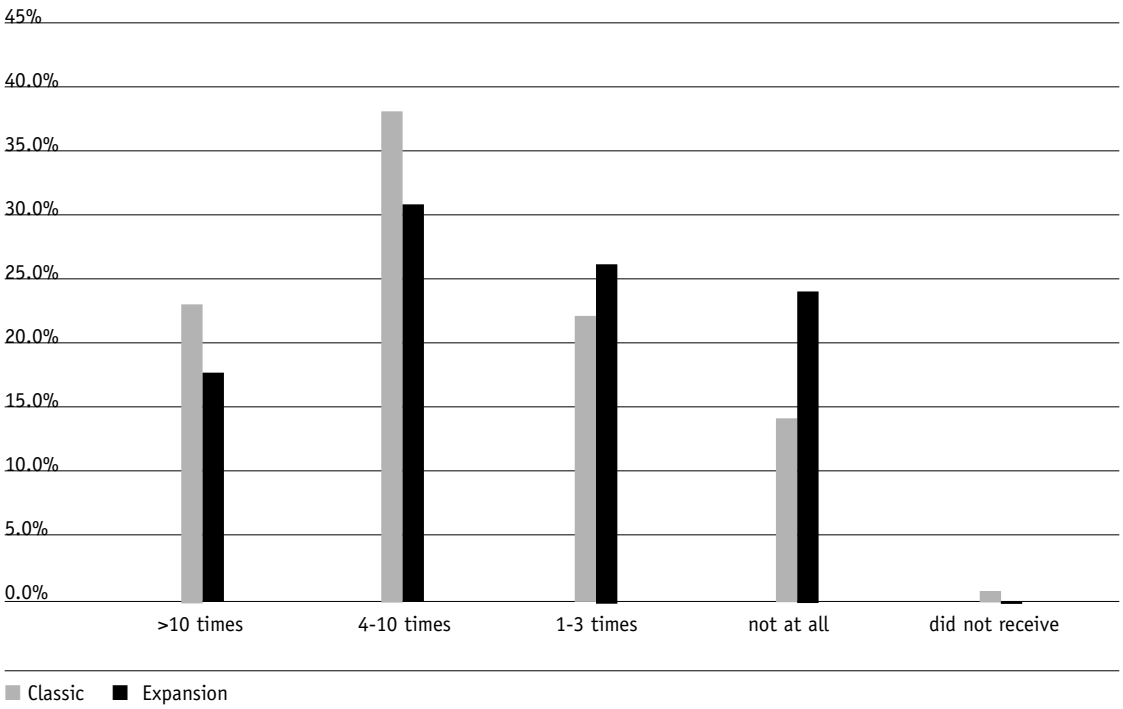


Figure 12. Classic and Expansion teachers' use of the Intel Teach to the Future CD-ROM



Obstacles to technology integration

Participants who had not implemented their unit plans were asked to report on possible reasons why they had not done so. There were some differences between Classic and Expansion teacher responses to this question and several consistencies between responses to this question on the 2004 End of School Year survey and previous administrations of this survey. For example, most teachers rated problems with technology access as the most substantial obstacle to unit plan implementation. Specifically, a larger majority of Classic teachers (60.1%) agreed with the statement, "Necessary computers were not available," while 52 percent of Expansion teachers agreed with this statement. In response to the item, "necessary software was not available" to implement a technology-based lesson, only 44.2 percent of Expansion participants agreed with this statement, whereas 54.7 percent of Classic teachers did so.

In general, responses to this question suggest that most teachers did not feel that the lesson itself presented an obstacle to integration. For example, when teachers were asked to respond to the statement: "[The lesson] would not help me meet student-learning standards as prescribed by my local curriculum," a majority of Classic and Expansion teachers disagreed (76.1% of Classic teachers "disagreed" or "strongly disagreed," as did 81.1% of Expansion teachers). This suggests that both groups tended to feel that the technology-integrated lessons were aligned to standards. When asked if the lesson "did not fit well into [the teachers'] curriculum," only 35.3 percent of Classic teachers and 35.9 percent of Expansion teachers agreed, suggesting that factors other than the quality and appropriateness of the lesson prevented most of these teachers from implementing.

When asked about other factors that may have had an impact on teachers' ability to implement a technology-based lesson, interesting differences between Expansion and Classic teachers emerged. For example, more Classic teachers (47.9%) felt they "did not have adequate planning time" than their Expansion counterparts (38.5%). Neither group felt that lack of administrative support was a major obstacle to unit plan or technology-rich lesson implementation, with only 17.5 percent of Classic and 13.4 percent of Expansion teachers reporting this as an obstacle. When asked about access to "adequate technical or instructional support," 25.8 percent of Classic teachers reported that this was an obstacle, while only 17.3 percent of Expansion teachers reported this. Taken together, these responses suggest that the Expansion group experienced fewer obstacles to unit plan implementation than did Classic teachers, but this finding needs to be interpreted in light of the disproportionate representation of Participant and Master Teachers in each of these groups. These differences may reflect different experiences of Participant Teachers (who are overrepresented in the Classic group) and Master Teachers (who are overrepresented in the Expansion group) more than differences between teachers experiencing the two implementation models.

TABLE 11. OBSTACLES TO TECHNOLOGY INTEGRATION AMONG CLASSIC AND EXPANSION TEACHERS

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
Necessary computers were not available.		
Strongly agree	33.2	30.8
Agree	27.9	21.2
No opinion	4.3	3.8
Disagree	21.5	21.2
Strongly disagree	13.1	23.1
Necessary software was not available.		
Strongly agree	24.7	25.0
Agree	30.0	19.2
No opinion	11.0	7.7
Disagree	21.8	23.1
Strongly disagree	12.5	25.0
Computers were not connected to the Internet.		
Strongly agree	14.1	23.1
Agree	12.6	5.8
No opinion	14.1	5.8
Disagree	32.0	25.0
Strongly disagree	27.2	40.4
I plan to use the lesson before the end of this school year.		
Strongly agree	4.4	9.6
Agree	11.5	13.5
No opinion	21.3	9.6
Disagree	33.1	36.5
Strongly disagree	29.7	30.8
It would not help me meet student-learning standards as prescribed by my local curriculum.		
Strongly agree	6.1	3.8
Agree	17.8	15.1
No opinion	15.9	15.1
Disagree	36.3	24.5
Strongly disagree	23.9	41.5

TABLE 11. OBSTACLES TO TECHNOLOGY INTEGRATION AMONG CLASSIC AND EXPANSION TEACHERS - CONTINUED

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
My teaching assignment changed.		
Strongly agree	9.0	3.9
Agree	9.0	5.9
No opinion	11.7	11.8
Disagree	31.5	23.5
Strongly disagree	38.6	54.9
I did not feel confident enough in my technology skills.		
Strongly agree	6.4	2.0
Agree	19.3	17.6
No opinion	8.1	7.8
Disagree	36.9	29.4
Strongly disagree	29.3	43.1
I do not have enough planning and preparation time.		
Strongly agree	13.7	13.5
Agree	34.2	25.0
No opinion	11.7	11.5
Disagree	23.2	25.0
Strongly disagree	17.1	25.0
I did not have adequate administrative support.		
Strongly agree	6.8	3.8
Agree	10.7	9.6
No opinion	22.2	17.3
Disagree	34.4	23.1
Strongly disagree	25.9	46.2
I did not have adequate technical/instructional support.		
Strongly agree	10.5	3.8
Agree	15.3	13.5
No opinion	18.2	11.5
Disagree	34.1	32.7
Strongly disagree	21.9	38.5

Challenges to technology integration

Classroom teachers who have implemented their unit plan or another technology-integrated lesson were asked to rate their agreement with a range of statements about different challenges they might face when using technology in the classroom. Teachers across the two subsets responded similarly to these challenges. Generally, teachers reported that classroom management was not a concern when implementing technology-based lessons (more than 70% of Classic and Expansion teacher indicated this); more than 60 percent of teachers in each group said that the hardware and software available performed as expected; more than 70 percent felt they had adequate administrative and technical support; and more than 80 percent of all teachers indicated that their own computer skills were strong enough to support the lessons they were implementing.

Teachers did identify other challenges to successful technology-rich lesson integration as being more significant to them. Interestingly, only 55.2 percent of Classic teachers and 61.4 percent of Expansion teachers felt that their students had strong enough computer skills to complete the lessons being implemented. Time constraints, lack of available computers, and lack of adequate time in a computer lab were identified as the other pressing issues by each subset: Responses hovered between 40 percent and 55 percent of teachers reporting that these were challenges.

TABLE 12. CHALLENGES TO TECHNOLOGY INTEGRATION AMONG CLASSIC AND EXPANSION TEACHERS

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
I found it difficult to manage my students on the computers.		
Strongly agree	1.9	1.6
Agree	19.8	14.4
No opinion	6.8	4.3
Disagree	53.8	53.2
Strongly disagree	17.7	26.5
Time constraints prevented me from completing the entire lesson.		
Strongly agree	6.8	8.5
Agree	38.2	35.2
No opinion	6.6	6.9
Disagree	38.7	35.5
Strongly disagree	9.7	13.8
Not enough computers were available		
Strongly agree	21.9	19.7
Agree	33.2	28.7
No opinion	3.8	1.7
Disagree 27.9 30.5		
Strongly disagree	13.3	18.4
The hardware and/or software did not perform as expected or were incompatible		
Strongly agree	4.8	4.6
Agree	18.7	14.4
No opinion	12.6	10.6
Disagree	49.0	47.9
Strongly disagree	15.0	22.5
I did not have strong enough computer skills.		
Strongly agree	1.2	0.7
Agree	8.7	4.6
No opinion	6.4	2.8
Disagree	49.0	36.2
Strongly disagree	34.7	55.7

TABLE 12. CHALLENGES TO TECHNOLOGY INTEGRATION AMONG CLASSIC AND EXPANSION TEACHERS - CONTINUED

Degree of agreement with each statement	Classic (N=4,775) %	Expansion (N=722) %
Many students did not have strong enough computer skills		
Strongly agree	3.6	2.7
Agree	29.9	26.5
No opinion	11.2	9.4
Disagree	45.8	48.1
Strongly disagree	9.4	13.3
It was difficult to schedule adequate time in my school computer lab		
Strongly agree	16.2	12.6
Agree	30.5	29.8
No opinion	13.9	13.5
Disagree	27.8	25.8
Strongly disagree	11.7	18.2
I did not have adequate a dministrative support		
Strongly agree	4.1	3.0
Agree	7.4	6.3
No opinion	19.8	14.3
Disagree	42.8	36.7
Strongly disagree	27.3	39.5
I did not have adequate technical/instructional support		
Strongly agree	4.1	3.0
Agree	12.3	8.4
No opinion	13.8	9.9
Disagree	44.5	40.1
Strongly disagree	25.3	38.5

Technology access

Classic and Expansion teachers showed similarities in their responses to questions about the technology and Internet access they have in their classrooms. The largest group of teachers in each subset (44.4% of Classic, 43.8% of Expansion) had two to four computers in the classroom, and 11.3 percent of Classic and 18.5 percent of Expansion teachers have more than seven computers in their rooms (see Figure 13). More than 70 percent of all teachers said that all of the computers in their classrooms have Internet access, and only between 2 percent and 3 percent indicate that none of them do. In addition, more than 90 percent of all teachers have

access to a computer lab or media center, and over 98 percent reported that computers in the lab or media center were connected to the Internet.

When asked how often they brought their students to a computer lab or media center, between 35 percent and 36 percent of all teachers reported that they take their students to the lab or center on a weekly basis, between 17 percent and 18 percent of all teachers take their students to the lab or center on a monthly basis; 23.6 percent of Classic and 17 percent of Expansion teachers stated that they bring their students to the lab or center less than once a month, and fewer than 10 percent never visit the computer lab with their students (see Figure 14).

Figure 13. Classic and Expansion teachers' access to classroom computers

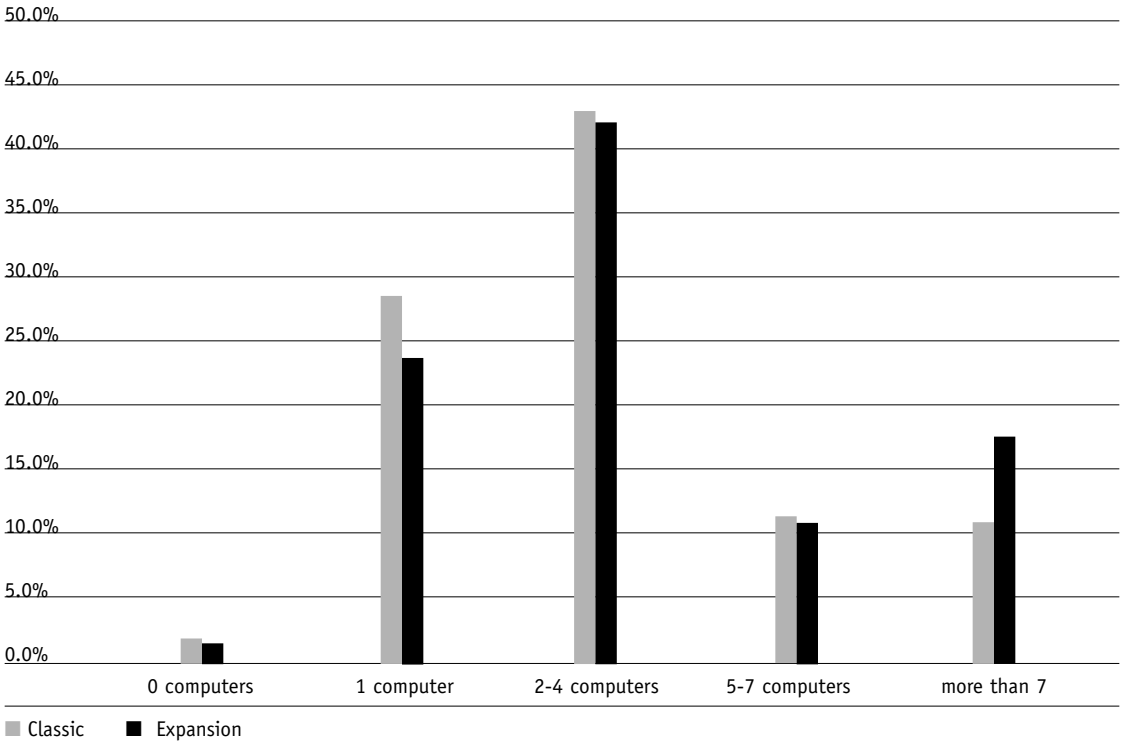
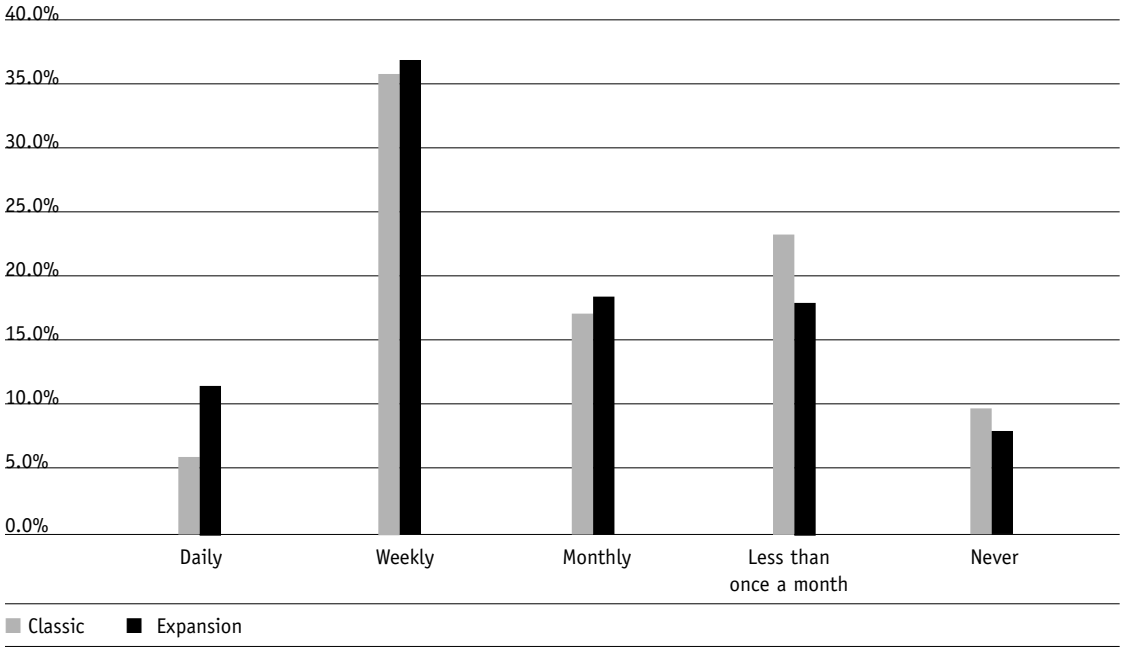


Figure 14. How often Classic and Expansion teachers take students to computer lab



Impact on teaching practices

Because one of the key goals of Intel Teach to the Future is to encourage teachers to integrate technology–rich lessons within the context of project-based pedagogy, the End of School Year survey also asked about teachers' instructional practices. The responses to those practice-related questions are described below. As with the findings above, only those responses from classroom teachers are presented.

Response to teaching strategies

When asked about the incorporation of particular teaching strategies taught during Intel Teach to the Future trainings, more than 90 percent of teachers in each of the Classic and Expansion subsets stated that the teaching strategies helped them understand how to integrate technology into their classroom, and that the strategies were relevant to their teaching goals. Approximately 60 percent from each group thought that the strategies they encountered during the training were new to them to some degree (see Figures 15-17).

Figure 15. Classic and Expansion teachers' responses to whether teaching strategies would help them integrate technology

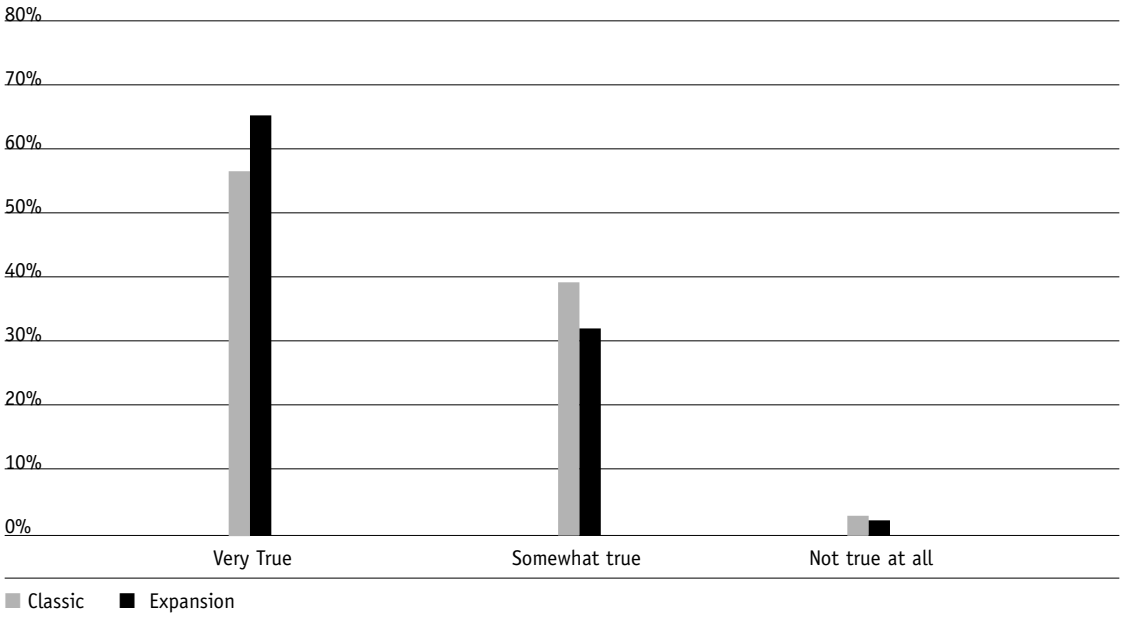


Figure 16. Classic and Expansion teachers' responses to whether teaching strategies were relevant to their teaching goals

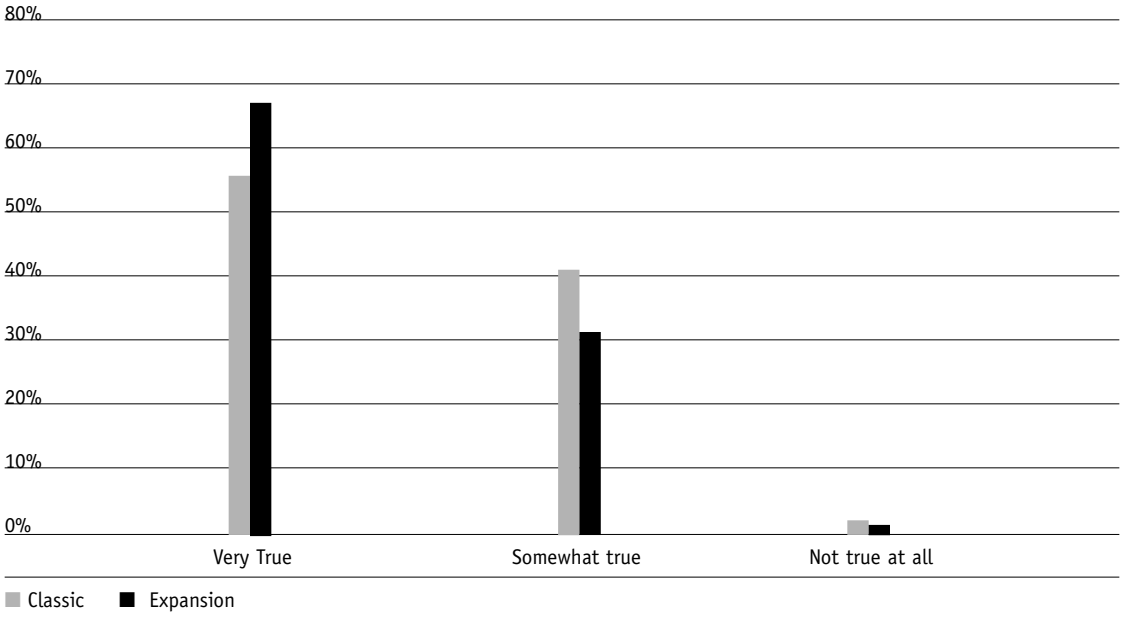
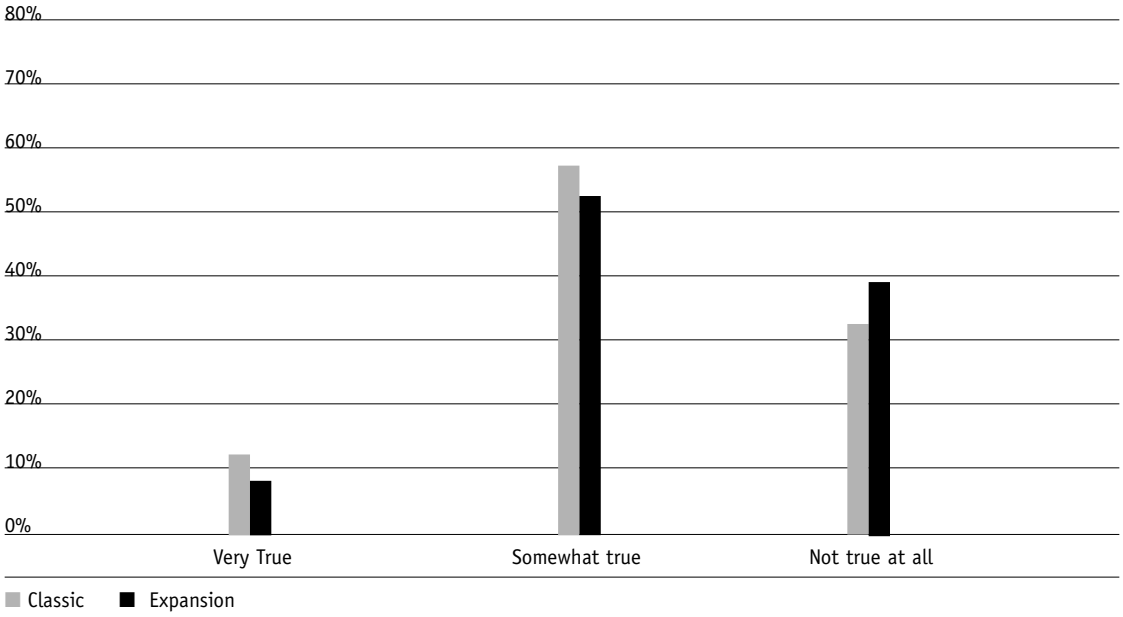


Figure 17. Classic and Expansion teachers' responses to whether teaching strategies were new to them



Change in teaching practice

Classic and Expansion teachers gave similar responses to questions about change in how frequently they use a range of activities to support their teaching practice since the completion of their Intel Teach to the Future training. Teachers were asked to rate items based on four choices: "do this less," "no change," "do this more," and "not applicable." A majority of teachers indicated that they "do this more" in response to several items including: "Use essential questions to structure lessons," "Access the Internet to aid in developing lessons or activities," "Use a computer to conduct my own research," "Use a computer for administrative work," "Present information to students using computer technology," and "Use rubrics to evaluate student work." A third of teachers in each group reported that they "Use textbooks as primary guide for instruction," less often since the training, and just over 50 percent of teachers from each group indicated "no change" in response to this item.

TABLE 13. USE OF TECHNOLOGY AND OTHER TECHNIQUES TO SUPPORT TEACHING PRACTICE

Since completing the Intel Teach to the Future training, have you changed how frequently you do the following activities?	Classic (N=4,775) %	Expansion (N=722) %
Use a textbook as a primary guide for instruction		
Do this more	2.7	1.3
No change	54.6	53.8
Do this less	34.3	34.6
Not applicable	8.4	10.3
Use essential questions to structure lessons		
Do this more	56.7	63.4
No change	39.3	33.9
Do this less	1.8	1.0
Not applicable	2.2	1.7
Access CD-ROMs to aid in developing lessons or activities		
Do this more	49.7	46.9
No change	41.8	46.3
Do this less	2.4	2.1
Not applicable	6.1	4.7
Access the Internet to aid in developing lessons or activities		
Do this more	81.2	79.0
No change	15.9	19.9
Do this less	1.0	0.1
Not applicable	1.9	1.0
Use a computer to conduct my own research		
Do this more	77.9	68.0
No change	19.8	30.5
Do this less	0.6	0.3
Not applicable	1.7	1.3
Use a computer for administrative work		
Do this more	72.5	64.3
No change	24.3	34.4
Do this less	0.6	0.1
Not applicable	2.5	1.1

TABLE 13. USE OF TECHNOLOGY AND OTHER TECHNIQUES TO SUPPORT TEACHING PRACTICE - CONTINUED

Since completing the Intel Teach to the Future training, have you changed how frequently you do the following activities?	Classic (N=4,775) %	Expansion (N=722) %
Present information to students using computer technology		
Do this more	68.6	72.3
No change	26.5	24.9
Do this less	1.4	0.1
Not applicable	3.6	2.6
Use rubrics to evaluate student work		
Do this more	54.9	62.5
No change	38.8	34.3
Do this less	2.3	1.0
Not applicable	4.0	2.2

Classic and Expansion teachers also reported similar responses to questions about their frequency of use of a variety of project-based teaching strategies. Between one-third and two-thirds of teachers in each group reported using each different teaching strategy presented more often since the training. The strategies that the largest percentages of teachers reported using more often include: "Have students work on computers to do lessons or activities during my class time" (60.5% for Classic, 62.1% for Expansion), "Have students engage in independent research using the Internet" (62.4% for Classic, 64.4% for Expansion), and "Have students present their work to the class" (53.7% for Classic, 58.5% for Expansion).

TABLE 14. USE OF TEACHING STRATEGIES WITH STUDENTS

Since completing the training how frequently do you do the following in your classroom?	Classic (N=4,775) %	Expansion (N=722) %
Have students work with a computer teacher to learn technology skills		
Do this more	31.1	29.3
No change	49.2	49.0
Do this less	2.8	2.4
Not applicable	16.8	19.4
Have students work on computers to do lessons or activities during my class time		
Do this more	60.5	62.1
No change	32.7	32.9
Do this less	1.3	0.6
Not applicable	5.5	4.5
Ask students to work on computers in non-school settings		
Do this more	50.4	49.9
No change	38.2	39.3
Do this less	0.9	0.4
Not applicable	10.5	10.4
Have students review and revise their own work		
Do this more	47.5	49.0
No change	45.4	45.7
Do this less	0.6	0.3
Not applicable	6.5	5.0
Have students present their work to the class		
Do this more	53.7	58.5
No change	40.2	37.2
Do this less	0.8	1.0
Not applicable	5.3	3.3
Have students engage in independent research using the Internet		
Do this more	62.4	64.4
No change	28.8	29.0
Do this less	0.9	0.3
Not applicable	8.0	6.3

TABLE 14. USE OF TEACHING STRATEGIES WITH STUDENTS - CONTINUED

Since completing the training how frequently do you do the following in your classroom?	Classic (N=4,775) %	Expansion (N=722) %
Have students work on group projects		
Do this more	50.1	55.1
No change	42.9	40.3
Do this less	1.3	0.6
Not applicable	5.7	4.0
Have students work on projects that take a week or more to complete		
Do this more	49.1	50.4
No change	41.4	42.4
Do this less	1.6	1.1
Not applicable	7.9	6.0
Have students choose their own topics for research projects		
Do this more	38.1	37.3
No change	50.1	53.3
Do this less	1.8	1.1
Not applicable	10.0	8.2
Allow students to decide what materials or resources to use to complete their work		
Do this more	47.2	51.2
No change	43.4	41.7
Do this less	1.4	1.1
Not applicable	7.9	5.9

Factors associated with implementation

In order to further examine the kinds of strategies and supports necessary to help teachers use their unit plans or technology-integrated lessons with their students, evaluators conducted an analysis across multiple factors that previous evaluations have shown to be relevant in determining whether teachers can follow up on their training. Below are findings from cross tabulations of responses from teachers regarding the kinds of resources they have access to, the match between their teaching goals and the technology-based lessons the program helps them to create, the socioeconomic status of their students, their years of teaching experience, and completion dates of training.

Relevance of teaching strategies and access to classroom computers and implementation

Teachers who stated that the instructional strategies and approaches to student learning presented in the Intel Teach to the Future curriculum were relevant to their teaching goals were more likely than their colleagues to have used their unit plan or another new technology-integrated lesson more than once a month since completing their Intel Teach to the Future training. This finding is consistent with findings from the 2003 End of School Year survey (see Figures 18 and 19).

Figure 18. Implementation of technology-integrated lessons by relevance of teaching strategies: Classic teachers

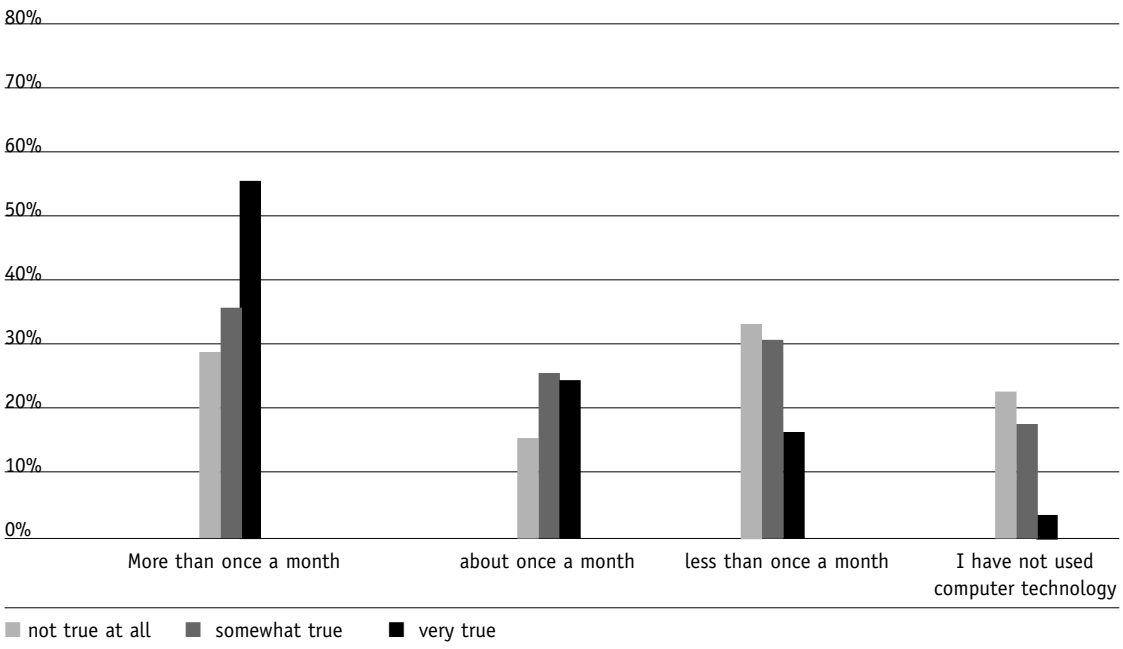
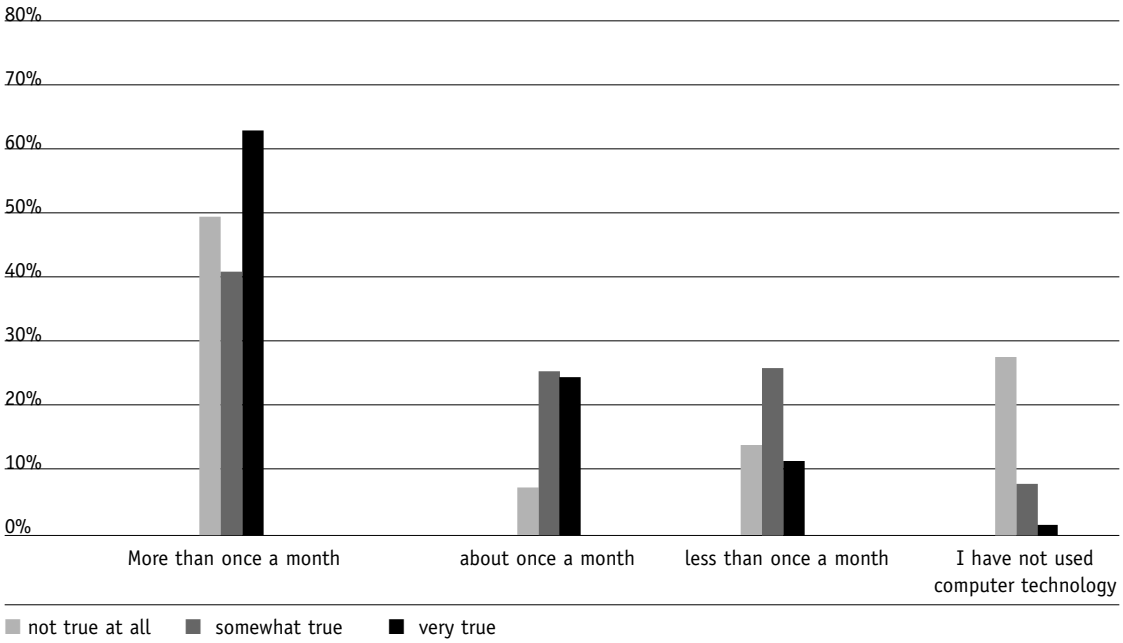


Figure 19. Implementation of technology-integrated lessons by relevance of teaching strategies: Expansion teachers



The number of classroom computers to which teachers had access was also a factor in teachers' rates of implementation. In each group (77.3% for Classic teachers, 78.6% for Expansion teachers), those teachers with the greatest number of computers in their classrooms tended to implement their unit plan or another new technology-rich lesson more often than those with fewer computers (see Figures 20 and 21).

Figure 20. Implementation of technology-integrated lessons by number of classroom computers: Classic teachers

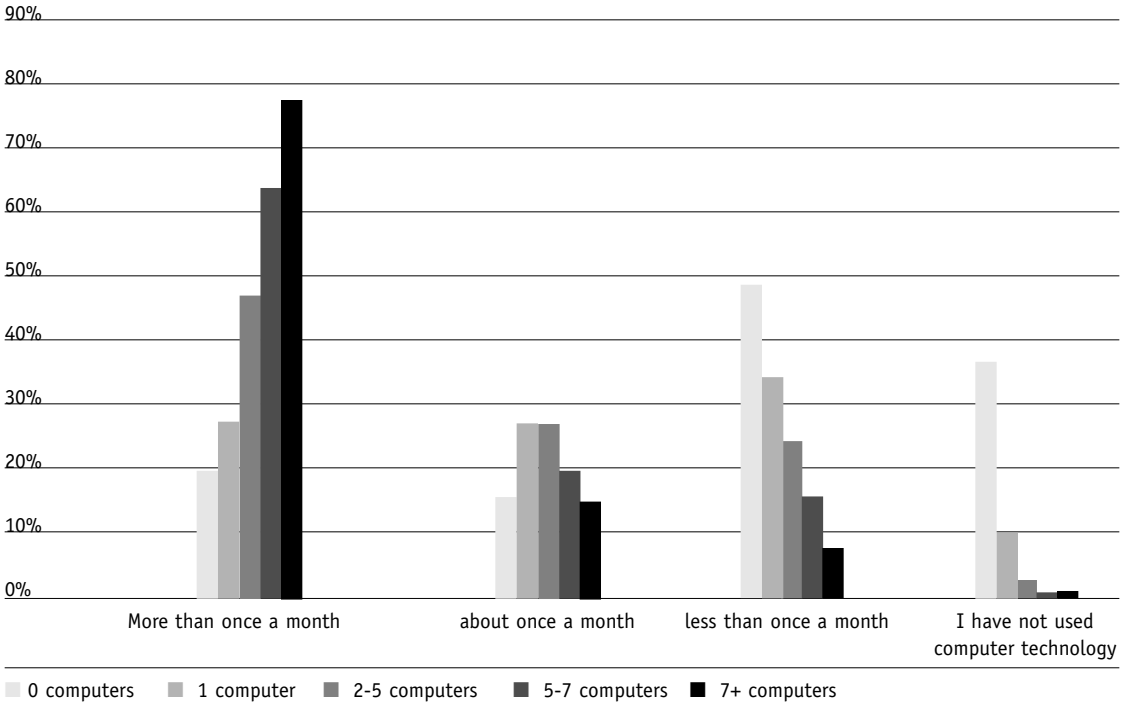
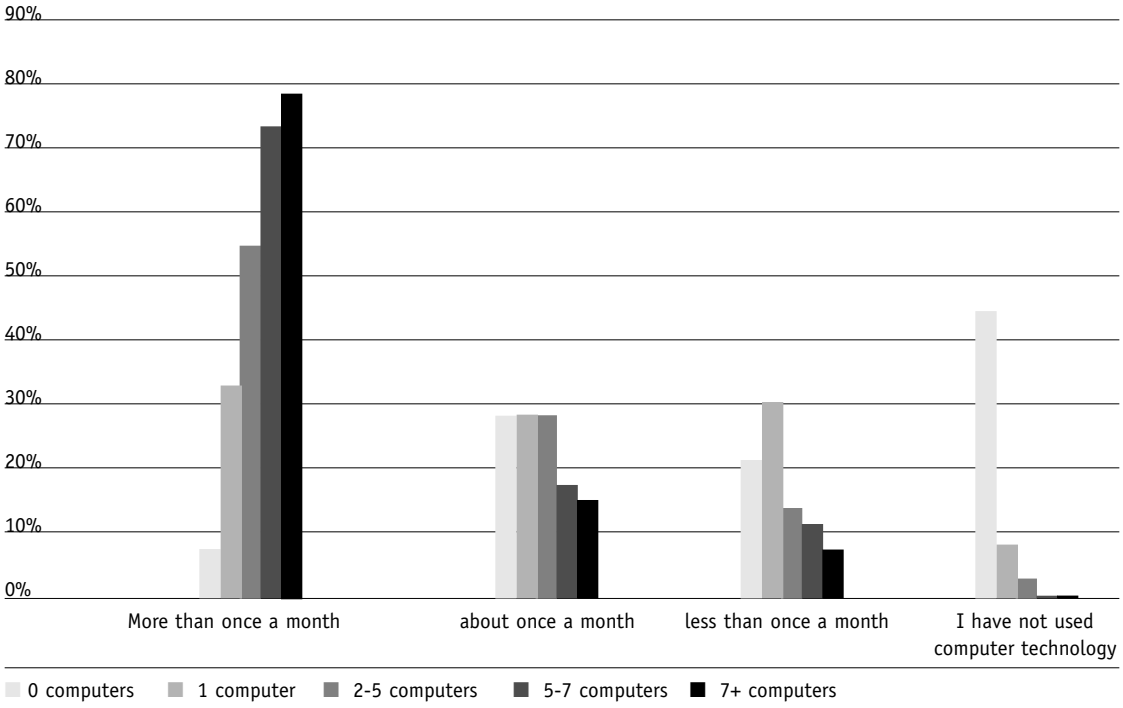


Figure 21. Implementation of technology-integrated lessons by number of classroom computers: Expansion teachers



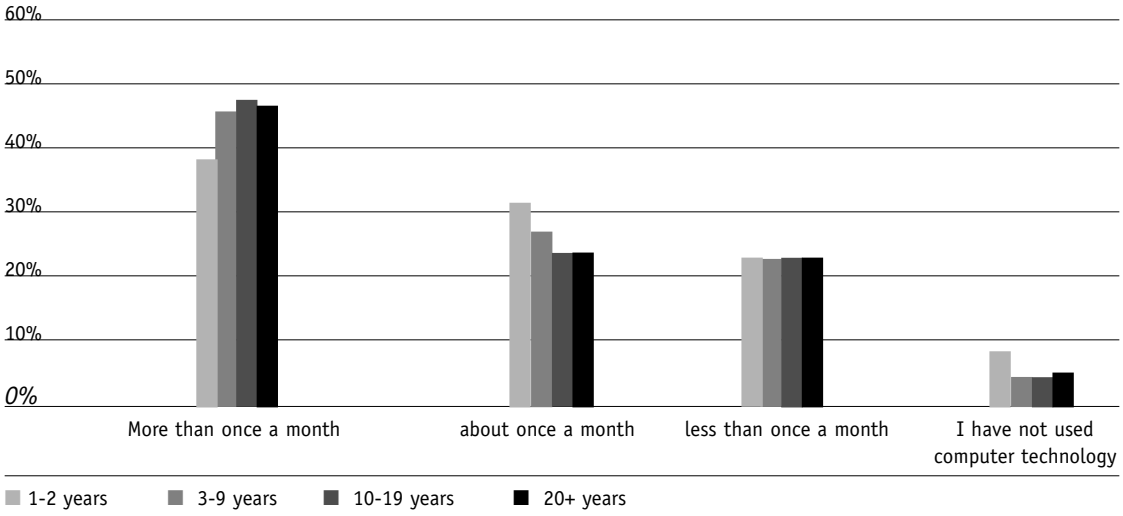
Socioeconomic status of students and implementation

There were only small differences in the rates of implementation of unit plans or other new technology-integrated lessons among Classic teachers who taught at schools with different proportions of students receiving free or reduced-price lunch. However, an interesting trend emerged in the Expansion subset. The highest rates of implementation among Expansion teachers were reported by those who worked in the lowest SES schools; 60.8 percent of teachers in schools serving a student population with 76-100 percent free/reduced price lunch eligibility reported implementing technology-integrated lessons, while 52.7 percent of teachers from schools in the 51-75 percent range, 56.6 percent in the 26-50 percent range and 53.5 percent in the 0-25 percent range reported implementing a unit plan or technology-integrated lesson.

Teaching experience and implementation

When examining the relationship between years of teaching experience and student use of technology, novice teachers (those teaching for between one and two years) were less likely to have implemented their unit plan or a new technology-rich lesson than their more experienced counterparts. In each group about 10 percent fewer novice teachers reported using technology-integrated lessons more than once a month than did all other groups of teachers. However, once teaching experience rose above the 1-2 year range, there was little difference between rates of implementation for teachers with as little as 3 years of experience and the 20-year veteran teachers (see Figure 22).

Figure 22: Implementation of technology-integrated lessons by years of teaching experience



Training date and implementation

A examination of the relationship between when teachers completed their training and the frequency at which teachers report implementing their unit plan (or another new technology-rich lesson) reveals that teachers are more likely to report using these new technology-integrated lessons more than once a month when their date of training completion is farther from the survey period. For example, among Classic teachers who completed their training in January-March or April-June 2002, 50 percent and 51 percent respectively report that they have their students using their unit plans or another technology-integrated lesson more than once a month, whereas among those teachers who completed in July-September or October-December 2002, only 42.9 percent report implementing technology-integrated lessons with their students more than once a month. Among Expansion teachers this pattern is slightly less apparent in part because of the very small number of participants during the first few training periods. However, 64 percent of those trained from April-June 2002 and 62 percent of those trained from July-September 2002 reported that they implemented technology-integrated lessons in their teaching since participating in the training, as compared with 51 percent of teachers reporting this who were trained in July-September and October-December 2003. Teachers who completed their training at an earlier date had a longer amount of time in which to implement technology-rich lessons. These data suggest that, over time, teachers do implement their lessons and that many will implement them repeatedly. (Figures 23 and 24 present these data using the sample sizes (n) rather than percentages, because the numbers for some training dates in the Expansion program are too small for percentages to be valid.)

Figure 23. Implementation of technology-integrated lessons by date of training: Classic

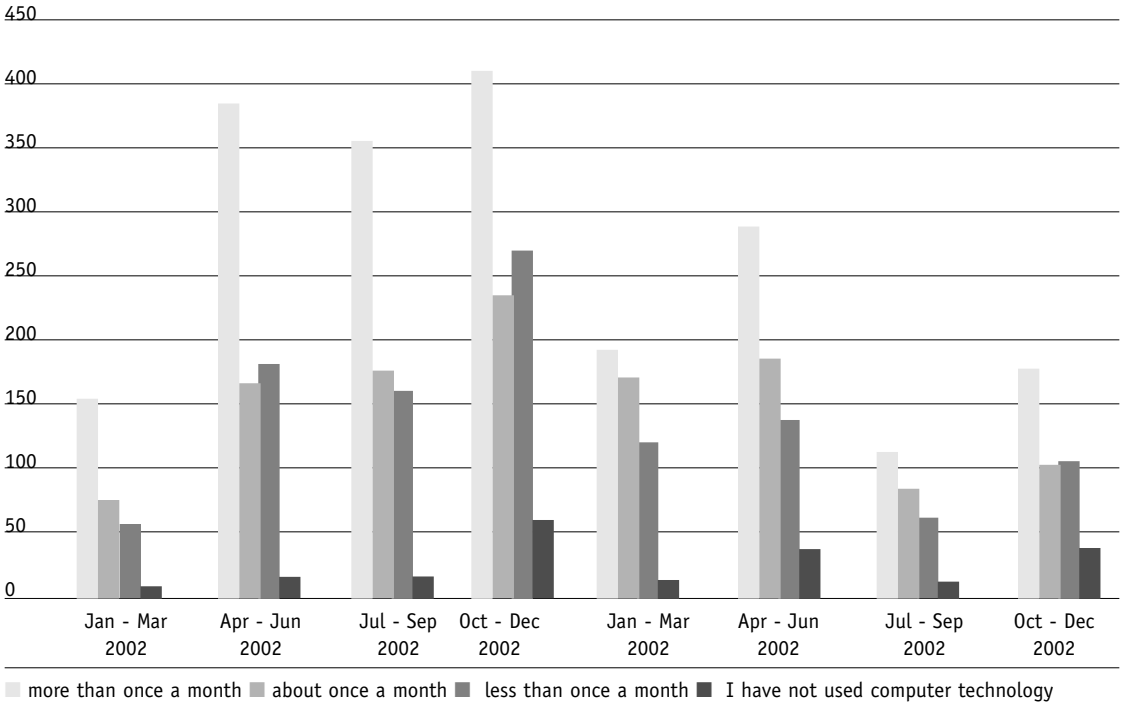
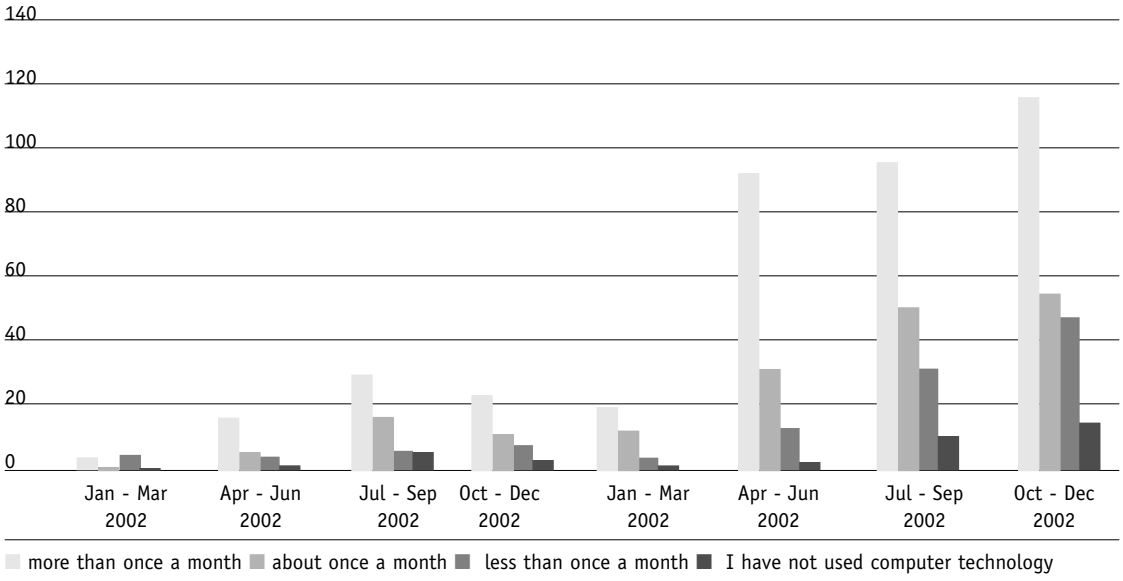


Figure 24. Implementation of technology-integrated lessons by date of training: Expansion



CONCLUSION

Teachers' responses to this survey help us to define who is participating in both the Classic and Expansion versions of Intel Teach to the Future, and the environments in which they teach. Intel Teach to the Future continues to reach teachers from all grade levels and a wide range of teaching specializations. Program participants are most commonly teachers of early elementary grades and include many teachers from the core content areas including English/language arts, science, history or social studies and mathematics. Many Master Teachers do teach in core content areas, but a considerable proportion of this group does not work directly with students, particularly in the Expansion program, in which only about half (52%) of Master Teachers are classroom teachers and 27.9 percent are technology coordinators. Although teachers continue to report that inadequate access to hardware is a significant obstacle to the integration of technology into their teaching, most of these teachers report having access to at least two to four computers in their classrooms and almost all have access to computer labs and to the Internet. Most teachers also report having the administrative and technical support necessary to integrate technology into teaching.

This is the first year in which Expansion program participants have participated in the End of School Year survey. The findings from this group demonstrate that large numbers of these teachers are implementing their unit plans or other technology-integrated lessons in their teaching. In addition, these teachers are also finding the teaching strategies presented in the training to be relevant enough to begin experimenting with them in their own practice. In some cases, Expansion teachers are following up on their training to a greater degree than Classic participants, although these results may be due to the large percentage of Master Teachers in the group of Expansion survey respondents. However, the available data are consistent with findings from the Classic program and suggest that those Expansion program participants who have been surveyed are following up on their experience with Intel Teach to the Future by implementing their unit plans and other technology-rich lessons, and are bringing core messages from the training about project-based teaching and learning back to their classrooms.

The results of this survey also highlight several interesting differences between the Classic and Expansion program participants. Findings from previous surveys have suggested that Expansion participants are a somewhat different population than their counterparts in the Classic program. Expansion Master Teachers appear more likely than Classic Master Teachers to work outside the classroom, and both Master and Participant Teachers in this group appear to work in schools serving fewer students who were eligible for free and reduced lunch than their Classic counterparts. Analysis of the 2004 End of School Year survey data has confirmed these speculations. Based on results from this most recent survey, Expansion Master Teachers also appear to be somewhat more experienced educators than their Classic counterparts. Further, Expansion Master Teachers are more likely than Expansion Participant Teachers to work in schools serving lower socioeconomic communities.

Taken together these distinctions suggest two broader conclusions. First, the Expansion program appears to be reaching a less diverse (by socioeconomic status) range of schools and to be reaching, on average, higher socioeconomic status student populations than the Classic program. This conclusion is consistent with other survey findings. For example, Classic teachers tended to report less access to computers, less Internet connectivity, less technical and administrative support, less flexibility of time for implementing technology-based lessons, and less technically knowledgeable students than their Expansion counterparts. Second, Expansion Master Teachers seem to be selected somewhat differently than their Classic counterparts. They are more experienced teachers, more likely to be working outside the classroom as technology coordinators or full-time professional developers, more likely (if they are classroom teachers) to be teaching computer science, and more likely than their Classic counterparts and even than their own Expansion Participant Teachers to be working in schools that serve few students from low socioeconomic backgrounds. Overall, this suggests that in the Expansion program educators who are already leaders in their districts regarding technology training are taking on Intel Teach to the Future as a new responsibility. By contrast, Classic Master Teachers were most frequently core content-area teachers with some experience and seniority and with a strong interest in technology. Prior evaluation findings suggest that these divergent backgrounds are likely to lead to different kinds of influence for these Classic and Expansion Master Teachers within their school districts, but determining this will require further research.

Overall, this survey demonstrates substantial changes for both Classic and Expansion program participants' use of technology and of project-based teaching strategies since their participation in Intel Teach to the Future trainings. These survey results are consistent with prior evaluation findings and continue to demonstrate that teachers who participate in Intel Teach to the Future are coming away from the training with the ability and desire to enhance their teaching practice and share what they learn with their students.