MAINE STATE LEGISLATURE

The following document is provided by the
LAW AND LEGISLATIVE DIGITAL LIBRARY
at the Maine State Law and Legislative Reference Library
http://legislature.maine.gov/lawlib

Great Maine Schools Project

at the Senator George J. Mitchell Scholarship Research Institute

One-to-One Laptops in a High School Environment

Piscataquis Community High School Study
FINAL REPORT

February 2004

Mitchell Institute
SENATOR GEORGE J. MITCHELL
SCHOLARSHIP RESEARCH INSTITUTE

BILL & MELINDA GATES *foundation*

One-to-One Laptops in a High School Environment
Piscataquis Community High School Study
FINAL REPORT, February 2004

CONTENTS

EXECUTIVE SUMMARY

The Mitchell Institute conducted this research project as part of a grant to Piscataquis Community High School (PCHS) by the Great Maine Schools Project with funding from the Bill & Melinda Gates Foundation. This Final Report presents findings from surveys of PCHS students, faculty, and parents; interviews with students, faculty, and administrators; and a review of administrative data from the past three academic years. The study reflects the experience of those involved in the first two years of a one-to-one laptop computing program in a high school environment. The findings are valid for this high school, but cannot necessarily predict the results of a statewide effort. Nevertheless, we are aware of the high level of interest in the unique program at PCHS, particularly as the Legislature considers expansion of the current middle school laptop initiative to Maine's high schools. We see our role as gathering and analyzing data to inform public debate, and providing information on this school's experience to other Maine high schools that may seek to do what PCHS has done.

PCHS is located in Guilford, in rural Piscataquis County, and currently enrolls 285 students in grades 9 through 12. In 2002, every student and teacher at PCHS received a laptop computer to use at home and at school, and the school was outfitted with wireless Internet access. The school's curriculum is centered on heterogeneous grouping rather than academic tracking, and all students are expected to take a core college preparatory curriculum. This commitment to equity, rigor, and personalization of the curriculum was already in place at PCHS prior to the implementation of the laptop program.

Computer Skills and Access to Resources
We find strong evidence that the PCHS laptop program has improved students' and teachers' computer skills and enhanced access to educational resources.
- More than one-half (52%) of students rate their computer skills as advanced, and only 3% consider themselves beginners with a computer.
- Majorities of students indicate that they use their laptops daily to complete homework, search for information, and communicate using e-mail or instant messaging.
- All the teachers surveyed indicate that laptops have had a positive impact on student computer literacy, and 96% report that the program has enhanced access to educational resources at PCHS.
- The guidance counselor reports that one-to-one laptops provide students with better access to college and career planning resources, such as virtual college tours, SAT study guides, and online applications.
- Nearly all teachers (95%) agree that their own computer skills have improved since the laptop program began.
- Strong majorities of parents also report that laptops have had positive impacts on their child's computer skills (87%) and access to educational resources (74%).

Student Motivation and Interest
Our findings strongly suggest that the laptop program has improved student motivation and interest in school.
- Most students agree that laptops make schoolwork more interesting (79%) and that they are more motivated to do schoolwork with their laptops (60%).

- Strong majorities of teachers report that laptops have improved student engagement/interest level and motivation.
- The daily student attendance rate at PCHS improved from 91% before to over 98% since the laptop program began.
- More than 40% of parents report that their children are more motivated (48%) and that their level of interest in classes has improved (43%) since they received laptops.
- There are very few instances in which a survey respondent reports that student motivation or interest has declined since the laptop program began.

Quality of Work and Student Achievement
Most students and teachers believe that the laptop program has improved the quality of student work and has had a positive impact on student achievement. At this time, data on test scores and student grades are not available to verify this.
- Most students agree that laptops have improved the quality of their schoolwork (71%), and more than one-half (54%) agree that having a laptop has improved their grades.
- Nearly two-thirds of teachers (64%) agree that student achievement in their classes has improved since the laptop program began, and most report that laptops have improved the quality of work, particularly for students they define as at-risk or low-achieving.
- More than two in five parents surveyed (42%) say that laptops have had a positive impact on the quantity and quality of what students learn in school, and nearly two in five (38%) report that their child's grades have improved since the laptop program started.

Interaction among Students and Faculty
Our findings indicate that laptops have improved interaction among students and between students and faculty. This mirrors evidence from an evaluation of the statewide middle school laptop initiative, which found that laptops were promoting more student/teacher and student/student collaboration (Lane, 2003).
- More than 70% of teachers report that the laptop program has improved student interaction with teachers, and that it has improved interaction among students they define as traditional, at-risk, or low-achieving. Particularly for at-risk or low-achieving students, teachers also report that laptops have improved students' ability to work in groups.
- While just over one-half of students report that they work in groups about as often since the laptop program began, 38% say that they work in groups more often now.
- Several teachers mentioned in interviews that laptops have provided a way for students to have social contact with those who they otherwise would not, or that laptops have given shyer students a better way to express their views and get involved in school.
- A number of students interviewed said that laptops make it easier and more efficient to work in groups, as there are more options for dividing assignments and communicating.

The survey results also illustrate the importance of student relationships with faculty. 80% of students responding to the survey indicate that there is at least one adult at school whom they feel they can really talk to. The more adults at school students feel they can really talk to, the more likely they are to agree that school is relevant to their lives and is helping them to prepare for the future, and that laptops have improved their interest in and motivation for doing schoolwork.

Classroom Practices
While there do not appear to have been major shifts in classroom practices since PCHS began the laptop program, there are several indications that some changes have begun to occur.

- Presented with a list of 14 classroom practices, majorities of students report that three of these practices occur more often since the laptop program began: "students explore a topic on their own," "students write more than one page," and "students present their work in class."
- Most teachers also report that "students explore a topic on their own" more often now, and that "students teach the teacher" more often since the laptop program began.
- While there is no classroom practice that the majority of students or teachers report occurs less often now, near majorities of both students and teachers (41% and 45%, respectively) report that "a textbook is the primary guide" less often since the laptop program began. Students in 12th grade are significantly more likely than underclassmen (32% compared with 13%) to report that "direct instruction" occurs less often since they received laptops.
- Nearly three-quarters (73%) of PCHS teachers agree that their role in the classroom has changed since the laptop program started.

Equity
We find that, while the laptop program has had positive impacts for all students, it has resulted in the greatest improvements for at-risk or low-achieving students. Asked how laptops have affected three groups of students—"traditional," "at-risk or low-achieving," and "high-achieving"—teachers are most likely to indicate that laptops have helped those they consider to be at-risk or low-achieving to make the greatest number of improvements.

- Majorities of teachers indicate that at-risk or low-achieving students have improved as a result of the laptop program in every area covered in the survey. More than three-quarters of teachers indicate that laptops have improved student engagement, class participation, motivation, ability to work in groups, and ability to work independently for this group.
- Students who do not have a parent with a bachelor's degree are more likely to agree that having a laptop has improved their grades than are students who have a parent with a bachelor's or graduate degree.
- In interviews, several teachers observed that one-to-one laptops have helped to "level the playing field" at school or have minimized differences betweens "haves and have-nots."

Teachers are least likely to indicate that laptops have helped students they consider high-achieving to make improvements, perhaps because these students have the least room for improvement. However, teachers do not report declines for these students as a result of laptops. Further, student survey responses indicate that laptops may be providing additional learning opportunities for higher-achieving students.

- Students with higher grades are more likely than those with lower grades to report that several classroom practices occur more often since the laptop program began, including "students teach other students," "students teach the teacher," "students select their own research areas," and "student interests influence lessons."

Personalization
One of the potential benefits of one-to-one computing is expanding personalized learning opportunities for students. There are several indications from survey responses that the laptop program at PCHS has improved personalization.

- 86% of teachers and 49% of parents report that laptops have had a positive impact on providing students with more personalized learning opportunities.
- 68% of teachers and 61% of students report that "students explore a topic on their own" more often since the laptop program began. In addition, 41% of students report that "students select their own research areas" more often now, and 23% say that "student interests influence lessons" more often since the laptop program began.
- In open-ended survey responses about the best projects they have done using laptops, many students said things like "we get to design [the project] how we want to," "we have to make our own web pages and design and make them by ourselves," and "we could do [the project] however we wanted, and they turned out really cool."

Rigor
Survey results indicate that the rigor of the curriculum is the area least likely to have been impacted by the laptop program to date.
- Just under one-half of teachers (48%) and about one in five parents (22%) indicate that laptops have had a positive impact on rigor of the curriculum. Both groups were presented with a list of potential positive impacts of laptops, and, for both, this was the positive impact least likely to be chosen.

There is evidence, however, that the implementation of one-to-one computing has helped to prepare PCHS students for more rigorous, higher-level learning. As described above, there are strong indications that the laptop program has increased student engagement, interest, and motivation; that the quality of student work and even, in some cases, grades have improved; and that, particularly for at-risk or low-achieving students, laptops have improved students' ability to work both independently and in groups. 81% of teachers report that class participation among at-risk or low-achieving students has improved, implying that these students are significantly more engaged in their own learning with the laptops in place. The survey findings suggest that PCHS students are well prepared for a more rigorous curriculum, and that this should be a focus of current and future coaching and professional development activities.

Disadvantages of the Laptop Program
The survey results do not reveal any glaring disadvantages or complaints about the laptop program at PCHS. Analysis of open-ended survey responses from several PCHS teachers and parents, however, shows that the three most commonly cited disadvantages of the program are:
- potential for distraction in the classroom,
- non-educational and/or inappropriate laptop use by some students, and
- technology failure that interrupts planned class activities.

The school has developed a list of ten policies and procedures for the laptop program. Students who violate the policies will lose their laptop for a period of time that the administration deems appropriate. In interviews, teachers mentioned that the consequences for misusing laptops were better understood and enforced this year as compared with last year, and that the consequence of losing access to a laptop was very effective in preventing student misuse. Since the survey was conducted, the school has worked out technical problems with the wireless network, and administrators believe that there will be few if any more instances of network downtime.

INTRODUCTION

Maine's School Administrative District (SAD) 4, located in Piscataquis County, serves the communities of Abbott, Cambridge, Guilford, Parkman, Sangerville, and Wellington. The district has two elementary schools, a middle school, and a high school. Piscataquis Community High School (PCHS) currently enrolls 285 students and has 26 teachers on its faculty. Unlike many high schools, PCHS does not "track" students academically. For more than ten years, PCHS has practiced heterogeneous grouping, enrolling all students in a core of college preparatory courses. Maine Education Assessment (MEA) scores at PCHS have been strong and rising over the past decade, with some leveling off in recent years (Ray, 2003).

SAD 4 administrators began to emphasize technology in the schools in the 1990s, and secured several grants to bring more computers into the schools. In the spring of 2000, SAD 4 formed a "laptop partnership" with a local textile manufacturer, Guilford of Maine. Middle school teachers received computers and participated in an "iBook Boot Camp" that summer, and each 8th grader (now high school juniors) started the 2000-2001 school year with his or her own laptop computer to use in school. The partnership also provided shared iBooks for 5th through 7th graders. The one-to-one laptop program expanded to 7th graders (now high school freshmen) in the spring of 2002, when Piscataquis Community Middle School became one of the demonstration schools of the Maine Learning Technology Initiative. In September 2002, SAD 4 received a $300,000 Advanced Technology grant from the State of Maine, and implemented its current laptop program. The program includes an infusion of wireless technologies into the high school, and a laptop computer for every high school student to use both at school and at home (Ray, 2003).

In the spring of 2003, PCHS received a grant from the Great Maine Schools Project, funded by the Bill & Melinda Gates Foundation. The core elements of the Great Maine Schools Project are equity, rigor, and personalization of the learning experience in high school. The grant funded a summer "laptop boot camp" for teachers and students in 2003, ongoing coaching and professional development to address integrating laptop technology into instruction and the curriculum, and a study to learn about the early effects of one-to-one computing, particularly its impacts on teaching and learning. The study began in October 2003 and includes:
- Online surveys of all students and teachers at PCHS;
- A mailed survey of all parents of PCHS students;
- A review of administrative data; and
- Interviews with 12 PCHS students, four faculty members, and the Principal.

An Interim Report, released last month, summarized the findings of the student, faculty, and parent surveys, giving an overview of the perceptions of those involved in the second year of PCHS's one-to-one laptop computer program. This Final Report builds on the Interim Report by integrating administrative data from the high school and information collected during on-site interviews and observation at PCHS.

A recent literature review concludes that a growing body of research "indicates that the computer and related technologies, when combined with teacher training and support, can be a transformational agent and help create new learning environments…Computers and technology

alone will accomplish little…How it is used and how a particular program is planned and implemented is equally, if not more, important" (Fouts, 2000).

The Great Maine Schools Project study of laptops at PCHS was designed to investigate the extent to which the program has changed the learning environment, and to identify opportunities for further shifts in classroom practices and improvements in the curriculum at PCHS. This report was also produced to provide useful information to other schools, particularly high schools, considering implementing a one-to-one laptop program. We are aware of public policy discussions regarding expansion of the Maine Learning Technology Initiative to the high school level, and hope that this report will help to inform the decision-making process.

LITERATURE REVIEW

Several studies conducted over the past five years have examined the effects of one-to-one computing on teaching, learning, and student achievement. In Maine, a study of the middle school laptop program, the Maine Learning Technology Initiative (MLTI), is in progress. Several studies have been conducted in other parts of the U.S., as summarized below.

The MLTI provides a laptop computer for each 7th and 8th grade student in Maine. The Maine Education Policy Research Institute is evaluating the MLTI. The study's first report, based on surveys, interviews, and observations conducted around the state, presented early evidence that one-to-one laptop computing has had positive impacts on teaching and student learning (MEPRI, 2003). The second report, just released, finds that large majorities of teachers and students report increases in student engagement and motivation, better interaction among teachers and students, and improvements in the quality of student work as a result of the laptop program. Teachers are more likely to report improvements for at-risk and special education students than for traditional and high-achieving students, but fewer than 10% report declines for any group of students. The authors note that many teachers feel that more time and professional development opportunities are needed to fully integrate technology into teaching and learning (Silvernail and Lane, 2004).

A California research group conducted a three-year evaluation of Microsoft's Anytime Anywhere Learning Program, which provides schools with laptop computers, software, and training. During the second year of laptop programs at four middle and high schools around the U.S., researchers found that, compared to students who did not have their own laptops, students with laptops participated in more project-based learning, produced more and better writing, had stronger research and analysis skills, and presented their work more often. Eight schools were studied in the third year of laptop programs and were compared with three schools that did not have laptop programs. The study found that:

- Laptop students used computers more frequently and for longer periods of time, and used technology more flexibly and to a greater extent than non-laptop students;
- Laptop teachers changed their teaching practices (e.g., used student-led inquiry and collaborative work more often), while non-laptop teachers did not; and
- Laptop students performed better on writing assessments than others (Rockman et al, 2000).

The Anytime Anywhere study did not find significant differences between standardized test scores of laptop and non-laptop students. The researchers note that "while students may end up being more productive, more effective writers, more able to handle complex, real-world projects, or better able to master skills that will do them well in college or on the job…these attributes do not appear on the standardized assessment measures used here." Findings from the study's teacher and student surveys and classroom observations suggest that full-time access to laptops stimulates analytical thinking and provides more opportunities for students to develop higher-order thinking skills (op. cit.). A study conducted in one South Carolina county did find that one-to-one laptop computing had a positive impact on standardized test scores, particularly for students eligible for free and reduced-price lunch (Stevenson, 1998).

In 2002, SAD 4 commissioned a study of the effects of one-to-one computing on student engagement and academic achievement at PCHS during the first year of the program. The study focused on 15 students, and found positive impacts for nearly all of them, primarily in the areas of enhanced access to resources and an increased sense of self-efficacy (Ray, 2003).
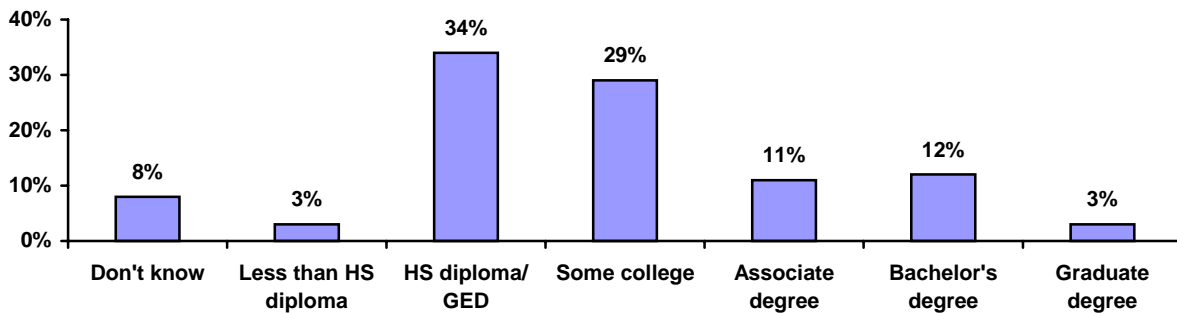
PCHS STUDENTS

All PCHS students were encouraged to participate in the online survey for this study. 190 PCHS students—two-thirds (67%) of the student body—completed the survey in mid-November 2003. The respondents are distributed quite evenly across the grades, with 27% in 9th grade, 26% in 10th grade, 25% in 11th grade, and 22% in 12th grade. 53% of survey respondents are female and 47% are male. On-site interviews with 12 students were also conducted in November 2003. Six freshmen, three sophomores, one junior, and two seniors (eight female and four male students) were interviewed.

Parental Education

At least 37% of the respondents are potential first-generation college students, meaning that they do not have a parent with any education beyond high school (see chart below). Only 15% have a parent with a bachelor's degree or more, which is consistent with Census data for adults in Piscataquis County.

Highest Education of Either Parent

Bar chart showing: Don't know 8%, Less than HS diploma 3%, HS diploma/GED 34%, Some college 29%, Associate degree 11%, Bachelor's degree 12%, Graduate degree 3%.

Computers at Home and Computer Skill Level

85% of students report that they have a family computer at home, and 80% have Internet access at home.

52% of respondents rate their overall computer skill level as "advanced (I can help teach others)" while 46% rate themselves "intermediate (I am comfortable using a computer)" and 3% consider themselves "beginner (I am just learning)." Female students are significantly more likely than males to rate themselves advanced (61% compared with 41%).

Typical Grades

Students were asked what grades they usually receive in school. Just over one-half (51%) of respondents report that they usually receive Bs or better, and more than one-quarter (28%) indicated that they mostly receive Bs and Cs. Female students report significantly better grades, as shown in the chart below. Parental education is also strongly correlated with grades: On

average, students whose parents have completed more education report that they typically receive higher grades.

**Self-Reported Typical Grades, by Gender**
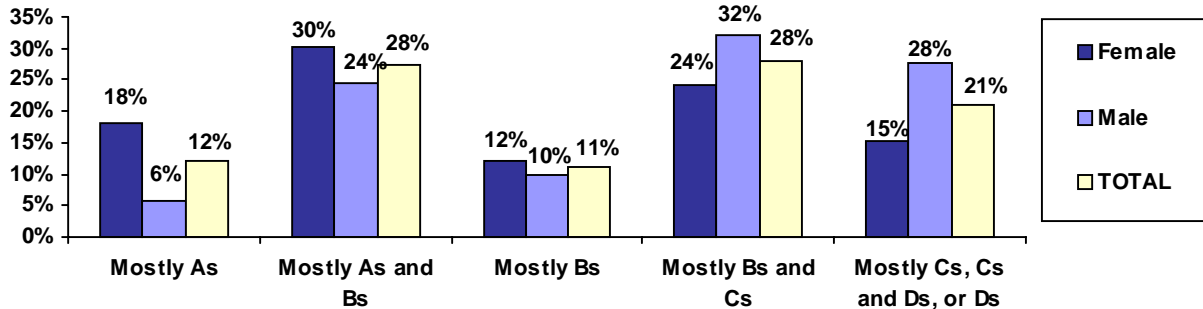
School Attendance
In the first year of the laptop program, the daily student attendance rate increased by more than seven percentage points, to over 98% from 91% the year before. The daily attendance rate to date in 2003-2004 is also 98%. A recent article notes that "participation in laptop programs has come to be associated with more regular school attendance and with students staying in school longer—variables key to learning and achievement" (Carter, 2001).

Relationships with Adults at School
Most respondents (80%) indicate that there are two or more adults at school who they feel that they can really talk to: 17% say there is one adult they can really talk to; 30% say there are two such adults; and one-third say there are three or more adults at school who they feel they can really talk to. One in five students (20%) say that there is not an adult at school that they can really talk to. There is significant variation by grade level, as shown in the chart below. Ninth graders are much more likely than others to say that there is not an adult at school they can really talk to, while 12th graders are significantly more likely to say there are three or more such adults.

Number of Adults at School Students Feel They Can Really Talk To, by Grade Level
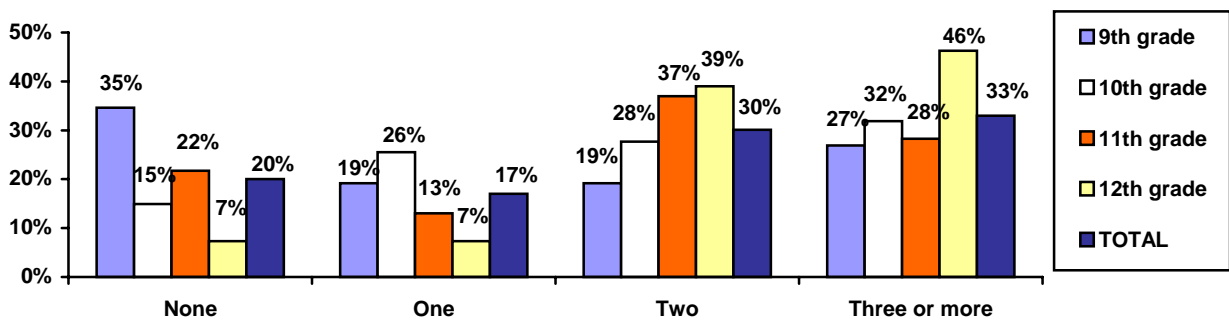
Laptop Use in Classes
Among survey respondents, the greatest proportions of students report using their laptops for class work or projects in Language Arts and Social Studies classes (98% and 95%, respectively). Majorities of students taking Science, Math, and Foreign Language classes report using their laptops in those classes, and 30% of students in an art or music report that they use their laptops for those classes (see table below).

In interviews, students described using laptops for Beyond Books assignments in several classes, writing stories in English, and using graphing calculators in math.

Laptop Use for Class Work or Projects

Subject	% of Students Taking this Subject	% Using Laptop (of those with this subject)
Language Arts/English	98%	98%
Social Studies/History	96%	95%
Science	96%	85%
Math	94%	74%
Foreign Language	64%	57%
Art/Music	55%	30%

Frequency and Types of Laptop Use
Survey respondents report spending more time using their laptops at school than at home. In a typical week, 81% of students say that they spend five or more hours per week using their laptop at school, and 46% spend five or more hours using their laptop at home (see chart below).

Hours of Laptop Use in a Typical Week
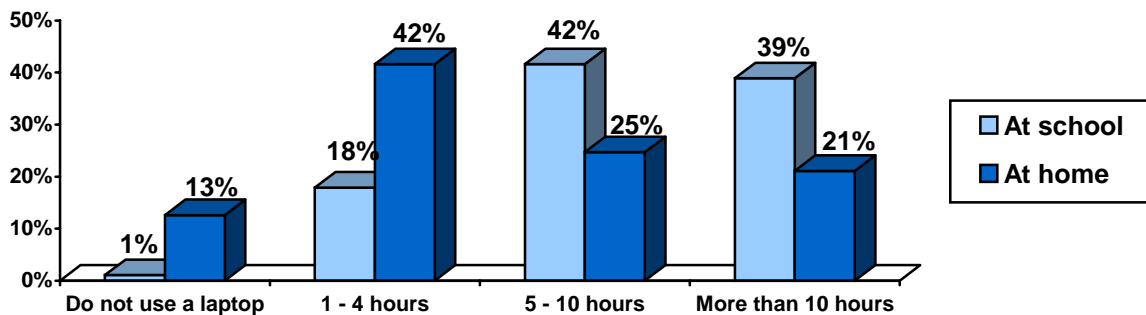
Students are most likely to say that they use their laptops daily to complete homework, search for information, and communicate using e-mail or instant messaging (see table below). More than one-half of respondents report that they use the laptop at least weekly to take notes in class, organize information, and work on assignments in small groups. Two in five respondents (41%) use the laptop to create presentations or projects at least weekly, and 87% do this at least monthly. The survey did not distinguish as to whether students use their laptops in these ways at

school, at home, or both. Students are most likely to say they never use their laptops for taking quizzes or tests, doing drills to increase skills, and working on websites or digital media.

In interviews, students reported that they use their laptops for Internet research, slide shows, and taking notes in most of their classes. Students also mentioned that digital film projects are occasionally assigned.

Frequency of Various Laptop Uses

	Never	Less than monthly	Monthly	Weekly	Daily
Complete homework	2%	3%	6%	31%	59%
Search for information	1%	3%	10%	29%	57%
Communicate using e-mail or instant messaging	11%	9%	8%	21%	52%
Take notes in class	6%	6%	6%	38%	44%
Organize information	6%	5%	14%	32%	43%
Work on assignments in small groups	2%	11%	31%	43%	13%
Create presentations and projects on your own	3%	10%	46%	35%	6%
Work on websites, digital films/media, etc.	36%	21%	16%	11%	16%
Do drills to increase skills in math, English, etc.	38%	14%	18%	18%	11%
Take a quiz, test, or assessment	40%	23%	23%	13%	2%

The chart below shows that the most commonly used types of software among PCHS students are Internet browsers, word processing, and e-mail. In addition, nearly one-half (48%) of respondents use PowerPoint or other presentation software on a weekly basis, and more than one-third (36%) use graphics, image, or multimedia software weekly.

Software Used on a Weekly Basis (% of Students)
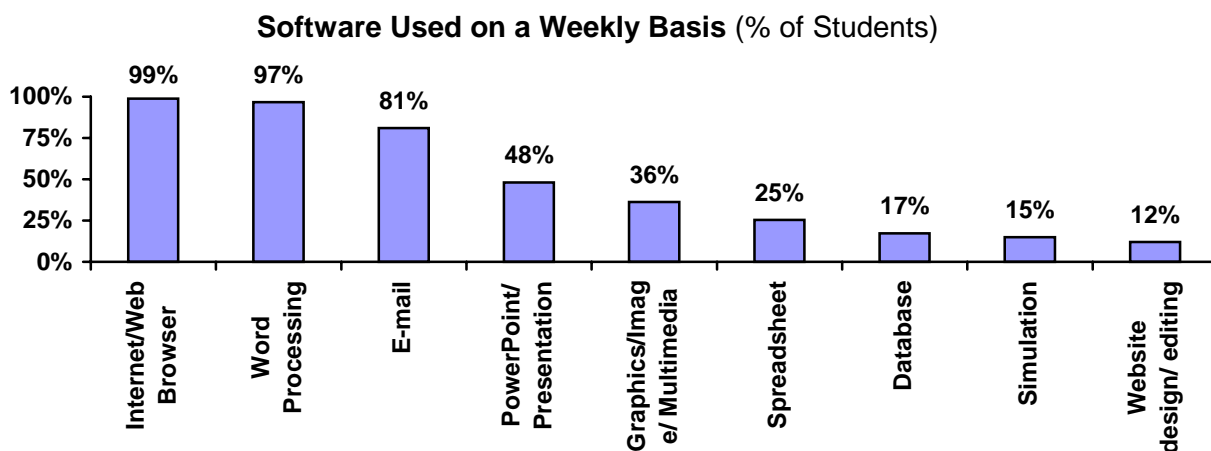
Instances of Laptops Breaking Down
35% of students responding to the survey report that their laptop has broken down or been damaged at some point since the program began. Of these students, most report that they were without a laptop for a week or more:

- 11% report that they got a loaner machine right away and were never without a laptop;
- 11% say they were without a laptop for less than one week;
- 39% were without a laptop for one to two weeks;
- 39% were without a laptop for more than two weeks. (The longest period reported is two months).

School data indicate that about one-half of the school's laptops (150) needed at least a minor repair between September 2002 and January 2004. There have only been two instances of intentional abuse of machines. The main problem students have encountered is accidental damage to computer screens. Forty machines have been returned to Apple to have screens repaired or replaced.

Occurrence of Classroom Practices

Students were asked whether certain practices occur in their classes less often, about as often, or more often now than they did before the laptop program began. As shown in the table below, the classroom practices most students say happen *more often* now than before laptops are:
- Students explore a topic on their own (61%);
- Students write more than one page (59%); and
- Students present their work in class (58%).

Occurrence of Classroom Practices Since the Laptop Program Began

	More often	About as often	Less often
Students explore a topic on their own	61%	29%	10%
Students write more than one page	59%	32%	9%
Students present their work in class	58%	36%	6%
Students engage in multiple activities during class	44%	44%	12%
Students select their own research areas	41%	39%	20%
Students teach other students	40%	36%	24%
Students work in groups	38%	53%	9%
Students teach the teacher	33%	31%	36%
Teachers make connections across classes	23%	61%	16%
Student interests influence lessons	23%	56%	21%
Direct instruction by teachers	19%	65%	17%
Quizzes and tests	17%	67%	16%
Students answer textbook questions	14%	60%	26%
A textbook is the primary guide	6%	53%	41%

Most students report that the following practices occur *about as often* since getting laptops:
- Quizzes and tests (67%);
- Direct instruction by teachers (65%);
- Teachers make connections across classes (61%);
- Students answer textbook questions (60%);
- Student interests influence lessons (56%);
- Students work in groups (53%); and
- A textbook is the primary guide (53%).

There is no classroom practice that most students report occurring with less frequency since they received laptops. However, two in five students (41%) report that a textbook is the primary guide in class less often now.

Students who report having higher grades are significantly more likely than those with lower grades to say that five of the classroom practices occur more often since the laptop program began:
- Students teach other students;
- Students teach the teacher;
- Students select their own research areas;
- Students engage in multiple activities during class; and
- Student interests influence lessons.

High school seniors are significantly more likely than underclassmen (32% compared with 13%) to report that direct instruction occurs in class less often since the laptop program began. Otherwise, student perceptions about occurrence of classroom practices do not vary significantly depending on their year in school (or the number of years they have had a laptop).

Most of the students interviewed mentioned that they write more now that they have laptops, both because they prefer typing to writing by hand, and because having access to spell check and grammar check gives them more confidence. Students also explained that having laptops gives them more options for presenting their work, and that each student having his or her own machine makes it easier and more efficient to work together on group projects. One student said that there are more non-paper tests in classes now.

Perceived Impacts of Laptops
Students were asked whether they agree with a range of statements about the possible impacts of laptops. As shown in the table below, the majority of students agree with all of the statements:
- 83% agree that laptops make schoolwork easier to do;
- 79% agree that laptops make schoolwork more interesting;
- 71% agree that laptops have improved the quality of their schoolwork;
- 68% agree that they do more homework outside school with their laptop;
- 60% agree that they are more motivated to do schoolwork with their laptop; and
- 54% agree that having a laptop has improved their grades.
In addition, two-thirds of respondents agree that what they learn in school is helping them to prepare for the future, and 49% agree that what they learn in school is relevant to their life now.

Interestingly, the student characteristic most strongly correlated with agreement with many of the survey statements is the number of adults at school the student feels he or she can really talk to. The more adults at school students feel they can talk to, the more likely they are to agree that:
- "What I learn in school is relevant to my life now"
- "What I learn in school is helping to prepare me for the future"
- "Laptops make schoolwork more interesting"
- "I am more motivated to do schoolwork when using a laptop" and
- "Laptops make schoolwork easier to do."

Student Agreement about Possible Impacts of Laptops

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Laptops make schoolwork easier to do.	47%	36%	12%	2%	4%
Laptops make schoolwork more interesting.	40%	39%	14%	1%	7%
Laptops have improved the quality of my schoolwork.	32%	39%	19%	6%	4%
I do more homework outside of school if I am able to use my laptop.	34%	34%	18%	8%	6%
I am more motivated to do schoolwork when I use my laptop.	29%	31%	24%	9%	7%
Having a laptop has improved my grades.	24%	30%	31%	9%	6%
What I learn in school is helping me to prepare for the future.	29%	38%	19%	7%	8%
What I learn in school is relevant to my life now.	19%	30%	33%	8%	10%

The earlier their year in school, the more likely students are to agree that laptops make schoolwork more interesting (see chart below) and that they make schoolwork easier. Student agreement with the other statements did not vary significantly based on their year in school or the number of years that students have had a laptop.

Student Agreement that "Laptops Make Schoolwork More Interesting"
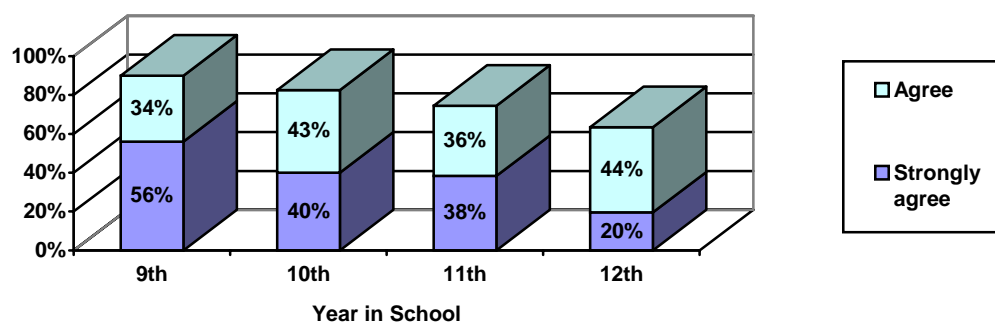
The majority (53%) of students who do not have a parent with a bachelor's degree agree that having a laptop has improved their grades, compared with only 45% of students who have a parent with a bachelor's or graduate degree (a statistically significant difference).

In nearly all the student interviews, students volunteered that their grades have improved with laptops. One student said that having a laptop "makes me more consistent at getting my homework in." Another explained, "We can do more with our assignments now." Others mentioned access to calculators, the neatness of typing compared with writing, more resources for research, and more chances to revise and improve assignments as benefits of laptops that help them to improve their grades. Many students also mentioned that they believe the quality of their work is higher when they use their laptops.

Another positive impact of laptops mentioned in interviews is that students feel better prepared for the future because of the computer skills they are learning and practicing. One student expressed it this way: "We are more skilled than a lot of kids…we're ahead of our generation."

Maine Educational Assessment (MEA) Scores
A comparison of PCHS students' MEA scores for the past two years is inconclusive, and may be premature. Only 11th grade students take the MEAs, so each year's test data are for a different set of students. Between school year 2001-2002 and 2002-2003, the average MEA scores for PCHS 11th graders improved in writing, stayed the same in science and social studies, and declined slightly in reading and math (www.state.me.us/education/mea/edmea.htm). The next round of MEA testing is scheduled for March 2004. It will likely take several years' of data to determine whether the laptop program has a significant impact on MEA scores. As discussed in the literature review, a South Carolina study of one-to-one laptop computing found a significant increase in standardized test scores after two years, particularly for students who qualify for free and reduced-price lunch (Stevenson, 1998). Another study found that one-to-one laptops had positive impacts on students' writing and analytical thinking skills, but did not find an improvement in standardized test scores after three years. The authors theorize that the standardized assessments used did not measure these skills (Rockman et al., 2000).

Most Interesting School Project Using a Laptop
Students were asked to briefly describe the most interesting school project they have done with their laptop. 19 respondents (10%) did not answer this question. Among the 171 students who described one or more projects:
- 47 (27%) say that PowerPoint presentations are their favorite way of using the laptop.
- 29 (17%) described I-Movie projects that they worked on in one or more classes.
- 29 (17%) described a Biology or other Science project. Many of these referred to one project in particular, a biodiversity alphabet slide show.
- 26 (15%) described Language Arts projects, including a medieval project, poetry writing, and various slide show projects.
- 22 (13%) described History, World Cultures, or Social Studies projects, including developing a television show and researching a famous Mainer.
- 18 (11%) described other projects, including digital photography, developing websites, math graphs, a Spanish project involving mapping the Arctic, and a clay animation film they made in 8th grade.
- 18 students (11%) say that they have not done any interesting projects, and five (3%) say that they didn't know what their most interesting project was.

In describing their most interesting laptop projects, many students said things like "we get to design [the project] how we want to," "we have to make our own web pages and design and make them by ourselves," and "we could do [the project] however we wanted, and they turned out really cool."

Disadvantages of Laptops
The interviewer asked students if the laptop program had any disadvantages. Many students could not think of any, but those that did describe disadvantages that echo the issues mentioned by some teachers and parents:
- Laptops present an additional distraction in the classroom for some students; and
- It is frustrating when a student's machine breaks down or the school's Internet connection is not working.

Several students also mentioned that teachers' expectations are greater now that students have laptops. Two students said that some students don't know all the software programs they need to use well enough, two said that some students have had trouble keeping their laptop batteries charged, and one mentioned that theft of batteries has occurred.

Students' Suggestions for Improvement
The survey included an open-ended question asking students for suggestions about how laptops could be used to improve their learning experiences. About one in five respondents (21%) offer suggestions for improving the laptop program. The most common suggestions are:
- Seven students suggest that the school should fix problems with its wireless Internet access and/or individual machines;
- Six students suggest using laptops more extensively in class and/or using more software programs regularly in assignments (examples include movie projects, Adobe PhotoShop, Linux, online textbooks and tests);
- Five students asked for more freedom and more privileges with the Internet, instant messaging, etc.;
- Five students suggest changing the hardware, operating systems, or software available on the laptops (e.g., switch to blue screens, switch to a PC/Windows platform); and
- Two students suggest that teachers should get more training in order to better integrate the laptops into lessons.

Examples of verbatim responses to this question include:
- "I think we should do more projects or presentations on the laptops. I think that the laptops make it easier and much more fun, and it makes me ambitious to do my schoolwork. It makes the work look interesting and neat, so you get good grades."
- "Lower the security, more access to the Internet without too much blocking."
- "Teachers should be on aol so that we can talk to them about assignments and such."
- "The teacher should assign us a project and leave us free to use the internet and every available source with the computers to get it done, and give the students a set date to have it done."
- "They should have online textbooks so the school does not have to pay for the textbooks it uses."
- "Use them to make a school newspaper."

FACULTY AND ADMINISTRATION

22 of the 26 faculty members at PCHS completed an online survey in mid-November 2003. In the same month, three classroom teachers, the guidance counselor, and the principal participated in on-site interviews. In December, the GMS researcher and school coach attended a faculty meeting and presented some of the survey data to the staff. The school principal provided administrative data and school documents for this research.
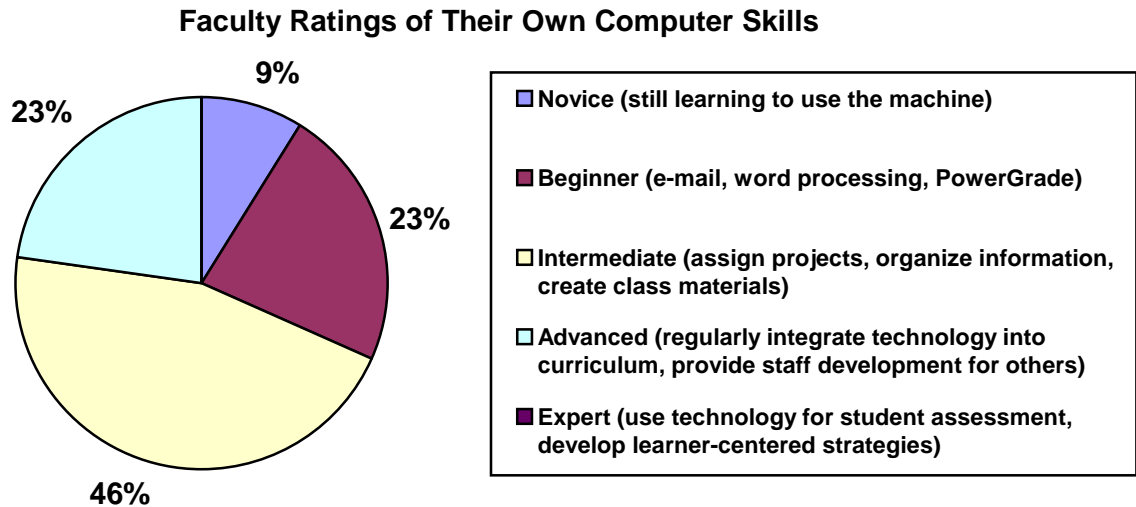
Years Teaching
The majority of PCHS teachers (12 of 22) have 13 or more years of teaching experience.
- 2 (9%) have 3 or fewer years of teaching experience;
- 5 (23%) have 4 to 6 years of experience;
- 3 (14%) have 7 to 9 years of experience;
- 6 (27%) have 13 to 19 years of experience; and
- 6 (27%) have 20 or more years of experience.

Computer Skill Level
Nearly one-half of the teachers (46%) rate their computer skills intermediate. Two teachers (9%) rate themselves novice and five each (23%) rate themselves beginner and advanced (see chart below). No teacher rates him or herself a computer expert. 82% of respondents report that they have access to the Internet at home.

Faculty Ratings of Their Own Computer Skills

- 9%
- 23%
- 23%
- 46%

☐ Novice (still learning to use the machine)

◼ Beginner (e-mail, word processing, PowerGrade)

☐ Intermediate (assign projects, organize information, create class materials)

☐ Advanced (regularly integrate technology into curriculum, provide staff development for others)

◼ Expert (use technology for student assessment, develop learner-centered strategies)

Impact on Lesson Planning and Overall Efficiency
As shown on the next page, more than three-quarters of the teachers (82%) indicate that they spend about the same amount of time planning lessons now as before the laptop program began, and the other 18% said they spend more time planning lessons now than before. None of the teachers report that they spend less time planning lessons now. Nearly three-quarters (73%), however, said that the laptop program has made them more efficient, while two (9%) said that it

has made them less efficient, and four (18%) said that it has not made them less nor more efficient.

Since the Laptop Program Began:
Time Teachers Spend Planning Lessons *and* **Overall Efficiency**
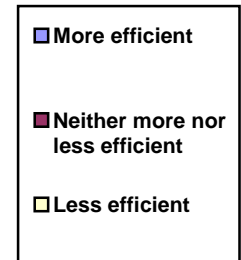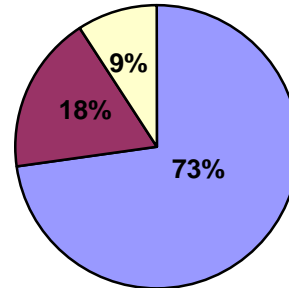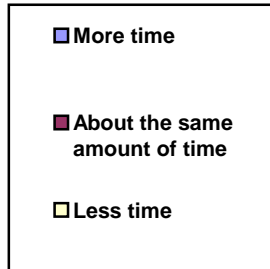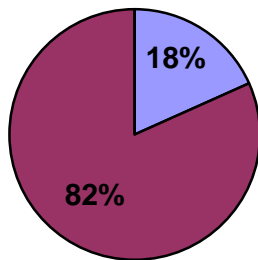
Occurrence of Classroom Practices
A majority of teachers reported that two classroom practices occur *more often* since the laptop program began:
* Students explore topics on their own (68%), and
* Students teach the teacher (57%).

Most teachers report that all the other classroom practices listed in the survey (see table below) occur about as often now as before the laptop program began. Nearly one-half (45%), however, report that a textbook is the primary guide less often now than before the laptop program began.

Occurrence of Practices in Your Classroom Since the Laptop Program Began

Practice	More often	About as often	Less often
Students explore a topic on their own	68%	32%	0
Students teach the teacher	57%	38%	5%
Students teach other students	47%	47%	5%
Students engage in multiple activities during class	45%	55%	0
Students do different assignments in one class	41%	59%	0
Teachers evaluate student work	32%	68%	0
Curriculum regularly connects with other disciplines	19%	71%	10%
Students review their own work	18%	82%	0
Students select their own research areas	18%	82%	0
Student interests influence lessons	18%	77%	5%
Students write more than one page	18%	73%	9%
Direct instruction	14%	77%	9%
Quizzes and tests	14%	71%	14%
Students work in groups	9%	82%	9%
Students answer textbook questions	5%	64%	32%
A textbook is the primary guide	0	55%	45%

The results of Microsoft's Anytime Anywhere Learning Program survey were similar to those in this study in that teachers were most likely to report a change in classroom practice in the same top three areas: students teach other students, students teach the teacher, and students explore topics on their own. In the third year of one-to-one laptop programs, teachers responding to the national study's survey were much more likely to report changes in classroom practices than they had during in the second year of the program (Rockman et al, 2000).

At PCHS, teacher and student responses are largely similar as to whether specific classroom practices occur more often, about as often, or less often since the laptop program began, with a few notable exceptions (see the student table on page 12 for comparison).
- A majority of students (59%) report that students write more than one page *more often* since the laptop program began, compared with only 18% of teachers.
- Students were much more likely than teachers (41% compared with 18%) to report that students select their own research areas *more often* now and that students work in groups *more often* now (38% of students compared with 9% of teachers).
- While a majority of teachers (55%) reports that students teach the teacher more often since the laptop program began, students are almost equally divided as to whether students teach the teacher more often, about as often, or less often since getting laptops.

Perceived Impacts of the Laptop Program
Most teachers agree that, since the laptop program began:
- My computer skills have improved (95%);
- The school climate has changed (95%);
- My role in the classroom has changed (73%);
- Student achievement in my classes has improved (64%); and
- My goals for students have changed (55%).

Teacher Agreement about Possible Impacts of the Laptop Program

"Since the laptop program began:"	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My computer skills have improved.	33%	62%	5%	0	0
The school climate has changed.	14%	82%	0	5%	0
My role in the classroom has changed.	9%	64%	14%	5%	9%
Student achievement in my classes has improved.	9%	55%	28%	5%	5%
My goals for students have changed.	5%	50%	23%	18%	5%
My understanding of how people learn has changed.	14%	36%	32%	18%	0
The school has developed effective policies and procedures for the laptop program.	14%	36%	27%	18%	5%
My beliefs about teaching and learning have changed.	14%	23%	46%	18%	0
The curriculum in my classes has changed.	9%	32%	41%	18%	0
I have had adequate professional development opportunities.	9%	27%	18%	41%	5%

Exactly one-half of teachers agree that:
- My understanding of how people learn has changed; and
- The school has developed effective policies and procedures for the laptop program.

Nearly one-half of teachers (46%) disagree that they have had adequate professional development opportunities. Professional development is discussed beginning on page 23.

In interviews, changes in the school atmosphere mentioned by teachers include:
- Students spend more time at school now;
- The quality of student work has improved, especially the creative and artistic aspect;
- A larger proportion of students are involved at school, and students who were quiet before have found new ways to voice their views; and
- The language of laptops and the resources they provide have become part of the fabric of the school.

In addition, the number of office referrals for disciplinary reasons in the first year of the laptop program was 45% lower than the previous year (94 compared with 171), even though the number of students enrolled remained comparable.

Effects on Different Groups of Students

Teachers were asked whether laptops have affected students in a number of areas. Although PCHS does not practice academic tracking, the survey question asked teachers about three groups of students: "traditional," "at-risk or low-achieving," and "high-achieving." These terms were not further defined in the survey, leaving each respondent to interpret them.

Teacher Perceptions of the Effects of Laptops on Three Groups of Students

	Traditional Students			At-Risk or Low-Achieving Students			High-Achieving Students		
	Declined	No Effect	Improved	Declined	No Effect	Improved	Declined	No Effect	Improved
Interaction with teachers	0	23%	77%	0	29%	71%	0	29%	71%
Interaction with other students	0	27%	73%	0	29%	71%	0	43%	57%
Engagement / Interest level	0	35%	65%	5%	10%	85%	0	45%	55%
Motivation	5%	27%	68%	5%	14%	81%	5%	52%	43%
Ability to work in groups	0	32%	68%	0	19%	81%	0	57%	43%
Ability to work independently	9%	32%	59%	10%	14%	76%	5%	48%	48%
Quality of work	0	36%	64%	0	29%	71%	0	48%	52%
Participation in class	5%	27%	68%	10%	10%	81%	0	67%	33%
Preparation for class	14%	27%	59%	10%	29%	62%	5%	57%	38%
Ability to retain content material	5%	41%	55%	5%	43%	52%	5%	57%	38%
Behavior	5%	36%	59%	5%	33%	62%	5%	76%	19%
Attendance	0	68%	32%	0	43%	57%	0	86%	14%

Teachers report student improvements in many areas as a result of laptops. Overall, the areas in which teachers are most likely to indicate that laptops have helped students improve are: interaction with other students and with teachers, engagement/interest level, motivation, ability to work both in groups and independently, quality of work, and participation in and preparation for class. The area in which teachers are least likely to report improvements is attendance, although the majority of teachers report that attendance has improved among at-risk or low-achieving students (see table above). There are very few instances of teachers reporting that laptops have contributed to student declines. The only area in which more than 10% of teachers report a decline is in preparation for class among traditional students (14%).

Teachers are most likely to indicate that laptops have helped students they define as at-risk or low-achieving to make improvements, as shown in the table above and in the series of charts below. More than two-thirds of teachers indicate that, for at-risk or low-achieving students, laptops have improved student engagement/level of interest, motivation, participation in class, ability to work in groups, ability to work independently, interaction with teachers and with other students, and quality of work. Last year's evaluation of the Maine middle school laptop initiative also found that teachers expected these types of improvements for all their students, but that they were most likely to expect improvements for at-risk and special education students (Maine Education Policy Research Institute, 2003). Similarly, a study of a middle school laptop program in one school district in South Carolina found that students eligible for free and reduced-price lunch benefited more than other students, in terms of increases in standardized test scores (Stevenson, 1998).

AT-RISK/LOW-ACHIEVING STUDENTS
A Majority of Teachers Indicate that Laptops Have Improved:

Category	Percent
Engagement	85%
Class participation	81%
Motivation	81%
Work in groups	81%
Work independently	76%
Interaction with students	71%
Interaction with teachers	71%
Quality of work	71%
Behavior	62%
Class preparation	62%
Attendance	57%
Retain content material	52%
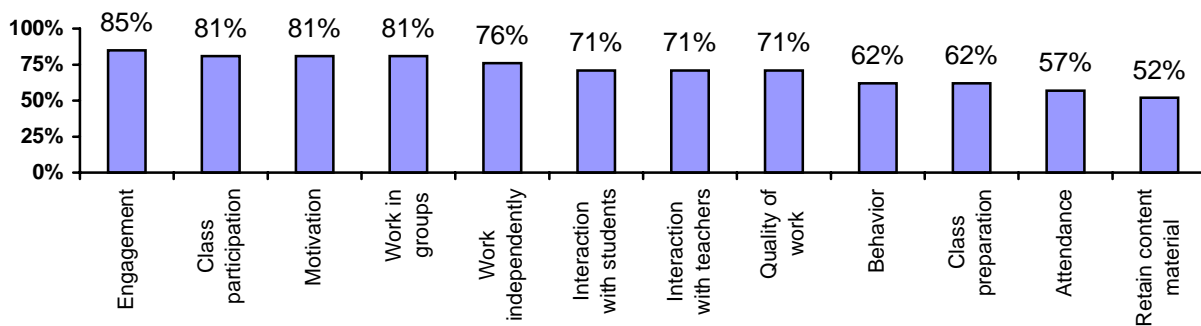
For students they define as traditional, teachers are most likely to indicate that laptops have improved engagement and interaction with teachers and with other students. In addition, more than two-thirds indicate that laptops have improved traditional students' ability to work in groups, motivation, and participation in class.

TRADITIONAL STUDENTS
A Majority of Teachers Indicate that Laptops Have Improved:

Bar chart values: Engagement 85%, Interaction w/ teachers 77%, Interaction w/ students 73%, Work in groups 68%, Class participation 68%, Motivation 68%, Quality of work 64%, Work independently 59%, Behavior 59%, Class preparation 59%, Retain material 55%.
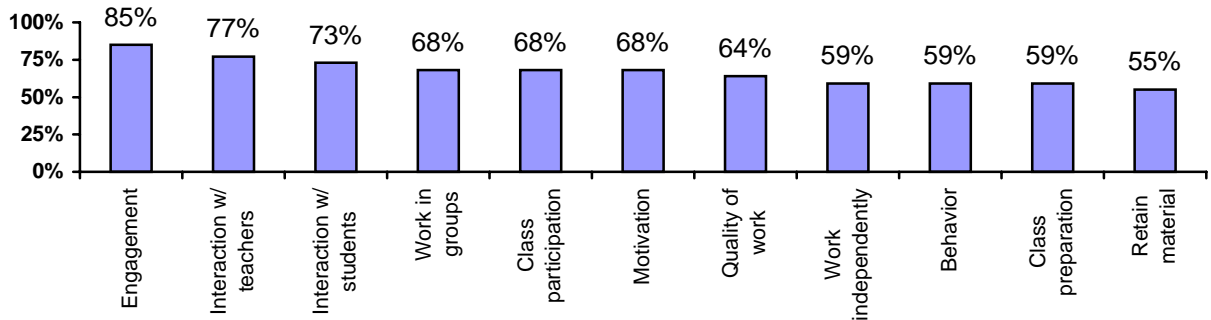
Among the three groups of students listed in the survey, teachers are least likely to indicate that laptops have helped students they consider high-achieving to make improvements. A majority of teachers, however, indicate that laptops have improved interaction with teachers and with other students, engagement/interest level, and quality of work for high-achieving students, as shown below.

HIGH-ACHIEVING STUDENTS
A Majority of Teachers Indicate that Laptops Have Improved:

Bar chart values: Interaction w/ teachers 71%, Interaction w/ students 57%, Engagement 55%, Quality of work 52%.
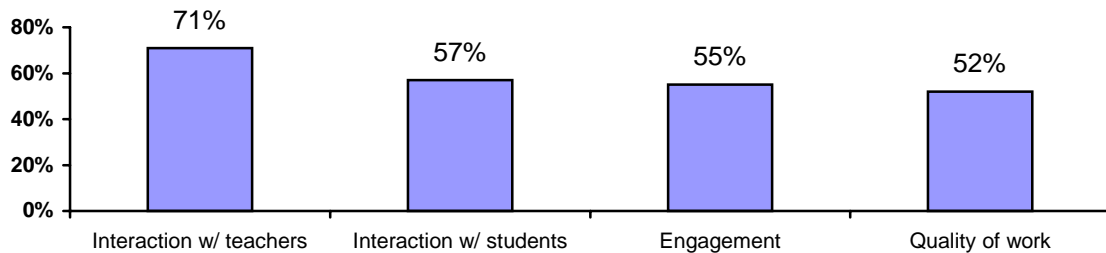
In interviews, faculty members gave more detail on the impacts of laptops on certain students. Teacher observations include:

- Many of the students who were not well behaved in class before have gotten more focused on their schoolwork.
- Many special education students have used laptops to focus better on academic work. However, laptops can also add to stress in the classroom for special education students, as they are more likely than others to get frustrated when they encounter technical problems with the machines.
- With laptops, some average students have been inspired to become high-achievers.
- Cognitively, laptops have leveled the playing field for students with different learning styles and achievement levels.

Positive Impacts of Laptops

As shown in the following chart, most teachers indicate that the laptop program has had a positive impact in all but one of the areas listed: rigor of the curriculum.

Percent of Teachers Indicating that the Laptop Program Has Had Positive Impacts On:

	Student computer literacy	Access to educational resources	Personalized learning opportunities	Quantity and quality of what students learn	Reliable assessment of student progress, work, effort	Roles of students and teachers	Rigor of the curriculum
	100%	96%	86%	71%	71%	71%	48%
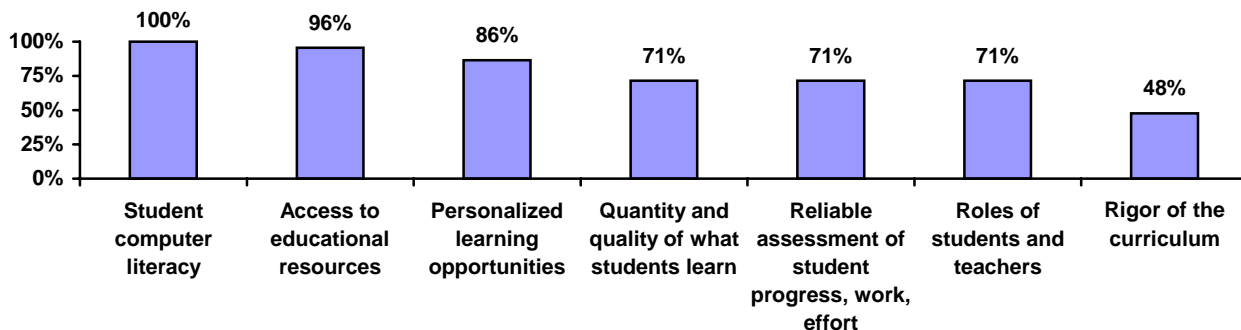
Negative Impacts of Laptops

In response to an open-ended question, about three-quarters (77%) of teachers indicate that the laptop program has had negative impacts. Survey responses do not indicate that there are serious drawbacks to the laptop program, but the three most common negative impacts mentioned are:

- Laptops provide an additional distraction in the classroom for some students. Teachers describe student use of e-mail, instant messaging, and web surfing unrelated to class work as distractions.
- Some students use laptops for non-educational purposes (e.g., computer games, using the computer as a music "boom box"). In some cases, whether or not these activities occur during class time, they may be inappropriate.
- Technology failure can have a negative impact on classes. Instances of this include individual students' machines failing and periods when the wireless Internet access at school is inoperative.

In addition, one teacher asserts that students' reading and writing skills have declined as a result of using laptops, and another says that one-to-one access to laptops has repressed students' problem-solving abilities.

Professional Development

When the laptop program began, teachers participated in an Apple training session for 2½ days. Several teachers and administrators mentioned in interviews that this was not enough training. Also, several of the current faculty members have come to PCHS since that training session, which has not been repeated. PCHS conducted a technology training "boot camp" in the summer of 2003 for eight teachers and 40 students. The boot camp focused on software training in digital film, graphics, and presentation programs, and also included sessions on research, math, and science tools.   SAD 4 technology staff members offer optional training sessions after school throughout the year. In 2003, the PCHS faculty began working with a Great Maine Schools Project coach to establish professional development goals and priorities.

Nearly one-half (46%) of the teachers surveyed disagree with the statement "I have had adequate professional development opportunities," while 36% agree and 18% are neutral (see the table on page 19). Just over two-thirds of teachers (68%) say that they have participated in professional development or training activities that have helped them integrate technology into the curriculum. Teachers who have participated in this type of professional development report that, since the laptop program began, they have spent between three and 100 hours on professional development, with a median answer of 15 hours. Teachers were asked what formats they prefer for professional development.

- All respondents indicate that they prefer training during early-release time throughout the school year;
- 64% prefer teaming with another teacher or student to learn more about technology;
- 50% prefer a series of after-school training sessions during the school year;
- 41% prefer a two-day training session at the end of summer; and
- 27% each indicate that they prefer two-day training at the beginning of summer and just-in-time training during class time.

The survey asked teachers what training they need to further integrate technology into the curriculum. Teachers asked for:
- more training in specific software programs (62%);
- content-specific training in their discipline (31%);
- training in teaching methods, such as differentiated learning (15%); and
- training in the use of peripherals (e.g., projectors and digital cameras) (15%).

In interviews, teachers expressed a need for intensive training and refresher courses in critical software programs. Two teachers suggested visiting other schools with laptop programs to see how teachers in their disciplines are integrating technology. Three teachers who participated in content-specific workshops offered by MLTI felt that they were very useful.

Policies and Procedures

Student Insurance

In order to take their laptops home, students' families must purchase an insurance policy arranged by the school. The annual premium for laptop insurance is $50 per student (with a maximum of $100 per family). The school subsidizes the premium for some families, reducing the per-student premium to $40 if the family is eligible for reduced-price lunch and $30 if the family is eligible for free lunch. SAD 4 administrators found that this policy induced some families that had not applied for subsidized lunch in the past to do so, and the proportion of students qualifying for free and reduced-price lunch increased from 50% in 2002-2003 to 55% in 2003-2004. See Appendix A for a copy of the insurance form PCHS sends to parents.

Replacement Machines and Repairs

PCHS has ten spare laptops to use as loaners when a machine breaks down. In the first year of the program, there was a point when the school ran out of loaner machines, but that has not happened this year. The school has an Apple-certified repair technician on staff, which has reduced the need to send machines away for minor repairs. This staff person has also been teaching some students to do repairs. To date, 150 computers have needed repair, and two have been lost to attrition.

PCHS has periodically experienced problems with its network, as demand for Internet access has been greater than expected. This has meant that there were periods of "downtime" during the school day when Internet access and e-mail were not working. Several teachers and students mentioned that this has interrupted lesson plans, caused frustration, and also highlights how much the school has come to rely on laptops. As of early 2004, the network has been upgraded and administrators believe that network downtime will no longer be a problem.

Rules for Students
PCHS implemented several new rules for students related to the laptop program:
- No modifications or alterations of any computer software or hardware;
- Students must come to school with laptop batteries fully charged and recharge batteries during lunch, if necessary;
- No food or drink while using the laptop;
- No Internet chat or instant messaging between 8:00 AM and 3:00 PM; and
- No use of the Internet for viewing or downloading inappropriate material.

Appendix A includes a copy of *PCHS Laptop Policies and Procedures*.

Students who break the rules have their machines taken away for an appropriate interval. The principal reports that there have only been a handful of these incidents. Several teachers mentioned that the threat of losing access to the laptop is an effective deterrent to student misuse in class.

PARENT PERCEPTIONS

Surveys were mailed to all parents of PCHS students in mid-November 2003. 130 parents returned the survey, a 45% response rate. Respondents to the survey are nearly 80% female. Parents who have more than one child in high school were asked to base their responses on their oldest child. 56% indicated that their oldest child in high school is female, and 44% indicated that their oldest child in high school is male.

Parental Education

Nearly one-quarter of parents (24%) report that no adult in their household has completed any education beyond high school, while 19% report that an adult in their household has completed a bachelor's or advanced degree, as shown below. Parents are more likely than students to report that an adult in their household has completed some college (39% compared with 29%) and less likely to report that no adult in the household has education beyond high school (24% compared with 37%). While 37% of parents report that an adult in their household has completed a postsecondary degree, only 26% of students report that they have a parent with a postsecondary degree. U.S. Census data show that 20% of adults over age 25 in Piscataquis County have a postsecondary education degree. This suggests that parents with higher levels of education were more likely to respond to the survey.

Highest Education Completed by Any Adult in Household
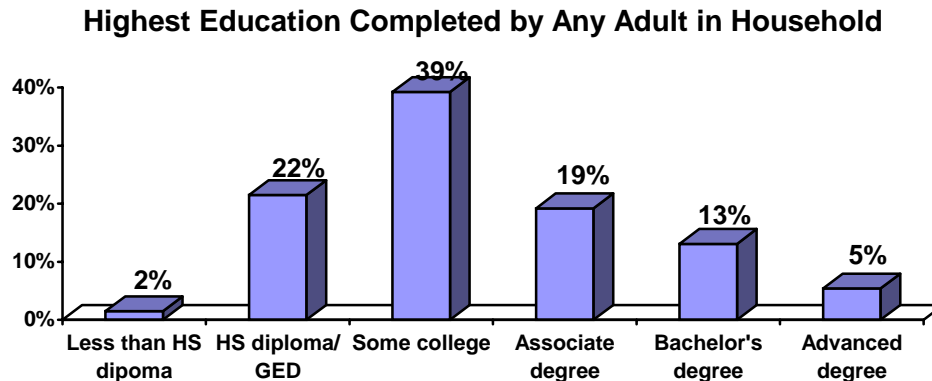
Computers at Home and Computer Skills

The vast majority of respondents, 93%, report that they have a computer at home, and 87% say that they have access to the Internet at home. Parents were asked to rate their own computer skills, and the majority rate their computer skills intermediate:

- 56% chose "Intermediate (I am comfortable using a computer)";
- 19% chose "Beginner (I am just learning)";
- 17% chose "Advanced (I can help teach others)"; and
- 9% chose "I do not use a computer."

Use of School-Related Technology

Two-thirds of respondents indicate that their child has had a laptop provided by the school for two or three years:

- 12% say that their child has had a school laptop for one year;
- 37% say two years;
- 29% say three years;
- 15% say four years;
- 5% say five years; and
- 2% say that their child does not have a laptop provided by the school.

More than three in five respondents (62%) report that they have used PowerSchool to check their child's grades. Among those who have used PowerSchool, most (70%) report that they typically use it weekly or monthly:

- 15% typically use PowerSchool less than monthly;
- 34% use it monthly;
- 36% use it weekly; and
- 14% report that they typically use PowerSchool daily.

90% of respondents say that the laptop program at PCHS has not made a difference in their own computer skills. Among the 10% who report that the laptop program has made a difference in their computer skills, several explained that they learned how to use a laptop (rather than a desktop computer) because of the program or that they have a PC at home and learned the Mac platform from their child. Other comments include:

- "Constant access through internet and email make keeping in touch with teachers and child's progress a breeze."
- "My daughter shares new/interesting skills she's learned with me. We spend time sitting together at her laptop, and look at and discuss her grades frequently."
- "Now playing catch up with my son's skills."
- "The children are anxious to show me what they have learned and I learn from them. My children love the role of 'teaching' me computer skills."

Child's Grades

The majority of parents (55%) report that their child usually receives grades of B or better, as shown in the chart below. The distribution of typical grades reported by parents (see chart below) closely matches those reported by students, shown in the first chart on page 9.

Typical Grades, Reported by Parents

Grade	Percent
Mostly As	12%
Mostly As and Bs	28%
Mostly Bs	15%
Mostly Bs and Cs	27%
Mostly Cs	2%
Mostly Cs and Ds	14%
Mostly Ds	1%
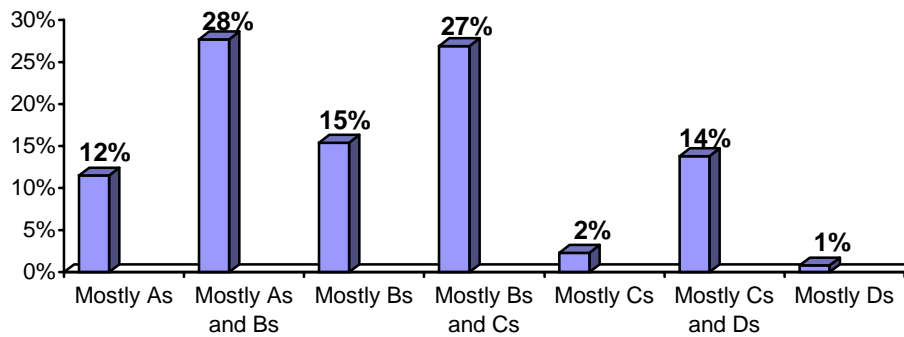
Student Laptop Activities at Home

The activities parents are most likely to report students do at home using their laptops are completing homework, working on class presentations or projects, and searching for information (see chart below).

Parent-Reported Student Laptop Uses at Home

Percent of Parents

Activity	Percent
Complete homework	77%
Work on class presentations or projects	69%
Search for info	59%
E-mail or instant messaging	44%
Organize information	42%
Work on assignments with other students	37%
Work on websites or digital films	14%
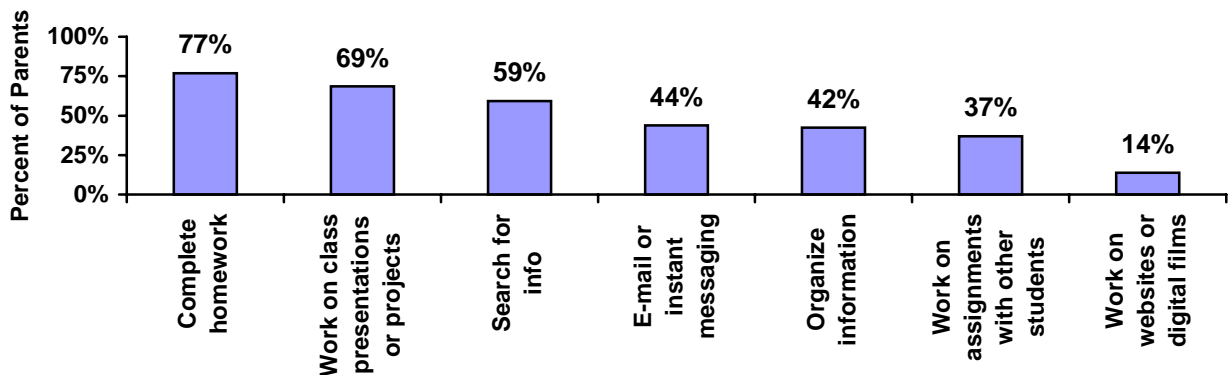
Changes in Child's School Experiences

Parents were asked whether their child's school experiences have changed in a number of ways since he or she has had a laptop provided by PCHS. The areas where parents are most likely to report improvements are motivation for doing schoolwork, level of interest in classes, and grades, as shown below. Most parents report seeing no change in school attendance, behavior at school, or interaction with teachers and other students since their child received a laptop. Less than 10% of parents report seeing a decline in any of their child's school experiences since the laptop program began.

Parent Perceptions of Changes in School Experiences

	Declined	No Change	Improved	Don't know
Motivation for doing schoolwork	6%	42%	48%	4%
Level of interest in classes	7%	44%	43%	6%
Grades	8%	49%	38%	5%
Interaction with other students	3%	54%	33%	9%
Interaction with teachers	6%	59%	27%	9%
Behavior at school	5%	74%	13%	9%
Attendance at school	3%	87%	8%	2%

Educational Impacts of Laptops

Parents were asked if the laptop program has had positive impacts in any of six areas. As shown below, improving computer skills and access to educational resources are the areas where most parents report that laptops have had a positive impact, and rigor of the curriculum and roles of students and teachers are the areas where parents are least likely to report that laptops have had a positive impact.

Percent of Parents Reporting that Laptops have had a Positive Impact on:
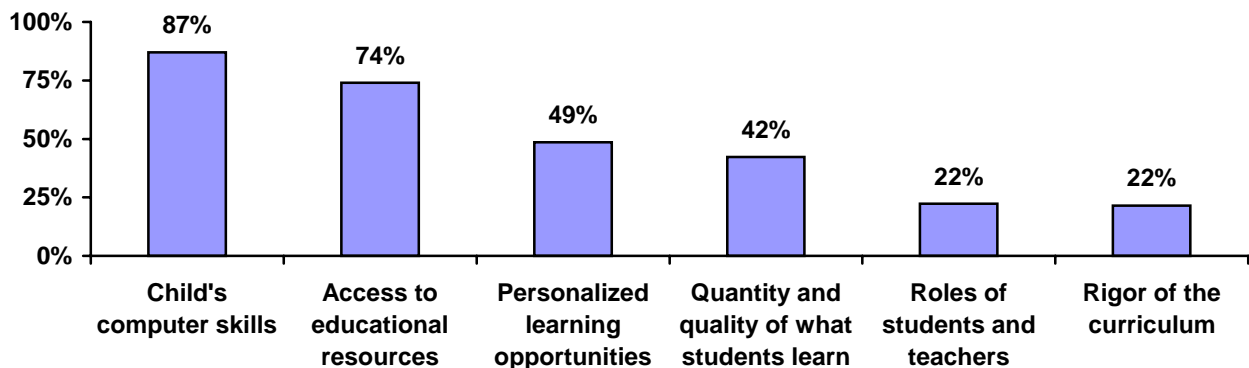
Parents were less likely than teachers, on average, to report that laptops have had any of the positive impacts listed in the survey. However, like teachers, parents were most likely to report that laptops have had a positive impact on computer skills and access to educational resources, and least likely to report that they have had a positive impact on rigor of the curriculum (see the chart on page 23 for comparison).

Changes at Home

Of the 130 parents who responded to the survey, 50 (38%) report that they have seen changes at home as a result of the laptop program. Descriptions of these changes are open-ended, and most fall into four broad categories. Among parents who report changes at home,

- 38% describe improvements in their child's skills, interest in school work, and/or level of organization;
- 32% report that their child spends more time on homework or research, or completes schoolwork more efficiently with the laptop;

- 14% report that their child spends most of his or her time on the laptop playing non-educational games or listening to music; and
- 12% report a change in the amount of family interaction as a result of laptops (five parents report increased family time/interaction, and one reports less family interaction).

Overall, three-quarters of parents who indicate that they have seen changes at home as a result of the laptop program describe positive changes, 14% describe negative changes, and 8% describe both positive and negative changes. Two respondents did not describe the changes they have seen at home.

Verbatim descriptions of the changes parents have seen at home include:
- "Both kids have a good time working or playing on computer. We limit games to less than one hour a day and after a few weeks they mostly lost interest in the games but still enjoy looking up info on the computer."
- "Does more surfing the net and email than homework or chores."
- "I see my son more because now he does not hole up in our den with the home computer, but moves into rooms with his laptop so he is near me for conversation or help."
- "Information at fingertips has removed distractions & increased usable study time. Laptop has replaced dictionary, calculator, encyclopedia."
- "It has opened a whole new world to him because we had no computer at home prior to the program. A lot of his spare time is spent at the keyboard or a video game instead of outdoor activities."
- "Less family communication; spends too much time on laptop."
- "Less homework because he can do research at any time. Spell check has made him less frustrated and improved self-esteem."
- "My child is completely thrilled with all the ways school work is being done. Helps keep her organized!"
- "Opens new avenues for family discussions and sharing information."
- "She wants to discuss things more with us and is inquisitive."

Parents' Suggestions for Improvement
Roughly one in five parents (22%) offered suggestions for new ways laptops could be used to improve the learning experience at school. The most common suggestion is to limit or prevent non-educational uses of laptops (e.g., games, web surfing, instant messaging with friends) both at school and at home. Parents also suggest:
- More instruction in software and operating systems for students;
- Making keyboarding a mandatory class;
- More training for teachers to integrate technology into all aspects of the curriculum;
- Only using laptops when it is absolutely necessary;
- Better use of the computer as an audio-visual tool;
- Replacing dissection and other science lab activities with computer simulations;
- Eliminating the laptop program and using the savings for arts and music; and
- Switching to PC-based laptop computers.

CONCLUSION

This study finds that students, teachers, parents, and administrators at PCHS report many positive changes as a result of implementing a one-to-one laptop computing program. The program appears to have very few negative aspects, none of them major issues. The clearest areas in which the program has had a positive impact are in improving computer skills, increasing access to educational resources, boosting student motivation and interest in school, and enhancing interaction among students and teachers. While most students and teachers believe that laptops have improved the quality of work and student achievement, additional data (and more time) is needed to measure and verify this. At least one more year of MEA scores, as well as an analysis of how well MEAs assess the types of skills that laptops enhance most, would help to answer this question, as would an analysis of student grades in core courses at PCHS.

There is convincing evidence that the laptop program has contributed to improvements across the spectrum of PCHS students, and has led to the greatest improvements for at-risk and low-achieving students. This suggests that one-to-one computing is an effective tool for promoting equity in high schools. While the laptop program has helped to prepare all students for more rigorous, higher-level learning and to get them more engaged in school, it appears that the curriculum and classroom practices have not fully "caught up" with all the possibilities that one-to-one computing presents. We recommend that PCHS concentrate its professional development activities in the coming year on shifting classroom practices to more fully integrate technology into the curriculum, with a particular focus on improving rigor and providing personalized learning opportunities for all students. We believe such efforts could maximize the impacts of the laptop program on teaching and learning at PCHS.

BIBLIOGRAPHY

Carter, Kim (May 2001). "Laptop Lessons: Exploring the Promise of One-to-One Computing," *Technology & Learning* www.techlearning.com/db_area/archives/TL/200105/laptops.html

Fouts, Jeffrey (February 2000). *Research on Computers and Education: Past, Present, and Future*. Prepared for the Bill & Melinda Gates Foundation. www.gatesfoundation.org/nr/downloads/ed/researchevaluation/ComputerResearchSummary.pdf

Lane, Dawn M. (April 2003). *The Maine Learning Technology Initiative: Impact on Students and Learning.* University of Southern Maine, Center for Education Policy, Applied Research, and Evaluation.

Maine Education Policy Research Institute (March 2003). *The Maine Learning Technology Initiative: Teacher, Student, and School Perspectives, Mid-Year Evaluation Report.* University of Southern Maine, Center for Education Policy, Applied Research, and Evaluation.

Ray, Doris (August 2003). *MSAD #4 PCHS Laptop Initiative Study Report*. Prepared for Superintendent of Schools, MSAD 4.

Rockman et al (September 2000). *A More Complex Picture: Laptop Use and Impact in the Context of Changing Home and School Access.* San Francisco, CA. www.microsoft.com/education/downloads/aal/research3report.doc

Sargent, Katherine I. (April 2003). *The Maine Learning Technology Initiative: What is the Impact on Teacher Beliefs and Instructional Practices?* University of Southern Maine, Center for Education Policy, Applied Research, and Evaluation.

Silvernail, David L. and Dawn M. Lane (February 2004). *The Impact of Maine's One-to-One Laptop Program on Middle School Teachers and Students: Phase One Summary Evidence.* Maine Education Policy Research Institute, University of Southern Maine.

Stevenson, Kenneth R. (November 1998). *Evaluation Report – Year 2: Schoolbook Laptop Project, Beaufort County School District, South Carolina.* University of South Carolina, Department of Educational Leadership and Policies.

WEB RESOURCES

Bill & Melinda Gates Foundation: www.gatesfoundation.org/Education/
Education Development Center, Inc.: www.edc.org
Great Maine Schools Project: www.greatmaineschools.org
Maine Learning Technology Initiative (middle school laptop project): www.mainelearns.org
SAD 4: www.sad4.com

APPENDIX A: PCHS Documents
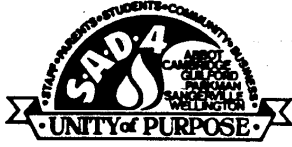
Piscataquis Community High School
School Adminstrative District #4
9 Campus Drive, Guilford, Maine 04443

Principal's Office (207) 876-4625
Fax (207) 876-4628
Guidance Office (207) 876-3577

PCHS Laptop Policies and Procedures

1. No modification or alterations to any of the software or hardware or to any of the equipment or services are permitted. In the event alterations are made, students will be charged the repair fee.
2. Students are expected to come to school with their laptop batteries fully charged and to recharge the battery, if needed, during lunch. Having a dead battery will not be an acceptable excuse for late or missing work unless due to maintenance issues.
3. Students are required to transport laptops in the appropriate closed laptop case.
4. No food or drink is allowed around the laptops.
   Food Free Zones include:
   > Science Wing
   > Library
   > Gym
5. Defacing laptops, including the use of stickers or decorations, is prohibited. Students will be charged for repair and replacement of equipment.
6. Students will be required to produce their laptops for a periodic laptop software and communications audit. There should be no expectation of privacy.
7. Students are required to bring their laptops to all classes unless specifically advised otherwise by their teachers.
8. Students are responsible for backing up all documents and files.
9. Using the internet, if students mistakenly access inappropriate information, they must immediately inform a teacher to protect themselves against a claim of intentional violation of the internet policy.
10. Sharing of laptops is prohibited unless specifically advised otherwise by their teachers.
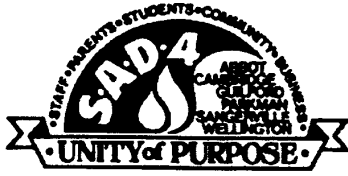
SAD #4 PCHS Laptop Project
Insurance Coverage
2003 – 2004 School Year

Student Name:_____

Address:_____

Parent/Guardian:_____

Address:_____

Home Phone:_____

Insurance Certification Information

If you are selecting the school's insurance coverage please complete the following information below:

_____I would like to participate in the school district insurance coverage. I understand that I am responsible for a $100.00 deductible.

Payment Options (choose one of three options)
1. Full Pay Lunch Status (Family Cap of $100)
_____ Four payments of $12.50/ Due Nov. 1, Jan. 1, March 1 and April 1
_____ or
_____One payment of $50/ November 1.

2. Free Lunch Status (Family Cap of $80.00)
_____ Four payments of $7.50/ Due Nov. 1, Jan. 1. March 1, April1
_____ or
_____One payment of $30/ November 1

3. Reduced Lunch Status (Family Cap of $60.00)
_____Four payments of $10.00/ Due Nov. 1, Jan. 1, March 1, April1
_____ or
_____One payment of $40.00/ Due November 1

Parent
Signature_____
By signing you are acknowledging that you are **participating** in the District Insurance plan and accepting all aspects of that plan, including timely payments and the $100 deductible.

** A family may opt NOT to participate in the District insurance. By doing so you accept FULL responsibility for the laptop should it be lost, stolen or damaged. Replacement cost to the District is $1500.00.

**Parent
Signature_____
By signing you are acknowledging that you are **declining** to participate in the District Insurance plan and accept all responsibility for the laptop should it be lost, stolen or damaged.

School Administrative District #4 Internet Disclosure and Permission Form

School Administrative District #4 has access to the world through the Internet, an electronic highway connection of thousands of computers and millions of individual users. Our connection, through the University of Maine, will allow students, teachers and staff to gather information and interact with people all over the world.

The Internet offers vast, diverse and unique resources; and by providing staff and students access to it, we promote educational excellence through resource sharing, innovation and communication. The Internet exposes users to a wide variety of cultures. Such exposure is usually an asset, but may occasionally provide ideas and opinions that are not the norm for our area. To counter this potential drawback, we are attempting to monitor news forums and have attempted to screen out areas that generally contain material that may be offensive. Even with these precautions, however, we cannot screen every piece of electronic mail or every file found on a computer linked to the Internet. Students will be instructed to avoid these activities and will be disciplined if found in violation of the guidelines

In order for your child to access the Internet, you and your child must sign this form. Such signatures acknowledge that the potential for some Internet material to be offensive has been disclosed, that you have granted your child permission to use the Internet, and that you release School Administrative District #4 of all liability for activities associated with the Internet use by him or her.

Guidelines for Internet use

Access to the Internet at School Administrative District #4 can be accomplished as supervision is available. After completing a training session, students will be able to use a variety of applications - including electronic mail, Usenet News and the World Wide Web. The use of Internet is a privilege, not a right; and inappropriate use will result in cancellation of that privilege. The following are required of all students before access will be granted:
- A signed permission form must be on file at the child's school.
- All users must complete the training provided by S.A.D. #4.
- Usage is limited to school projects and school-related materials.
- Students are expected to follow school rules and act as positive representatives of the school while on the Internet.
- All users are expected to abide by generally accepted rules of network etiquette.

The following activities are not permitted on the District #4's computers:
- Accessing material that is inappropriate in the school environment.
- Behaviors that reduce or negatively impact the safety and security of students or disrupt the educational environment.
- Unauthorized access, "hacking"; and other unlawful activities.
- Unauthorized disclosure, use, and dissemination of student personal information
- Overriding, or disabling district filters by anyone other than the District's authorized designee.
- Transmission of any material in violation of national or state regulation is prohibited. This includes, but is not limited to, copyrighted, threatening or obscene material.

The system administrators will deem what is appropriate use, and their decision regarding such use will be considered final.

Student Name: _____Student Signature: _____ Date: _____

Parent Name: _____Parent Signature: _____ Date:_____

Policy: School Administrative District #4 Internet Disclosure and Permission Form Code: IJNDB-E

APPENDIX B: Survey Instruments

I. Survey of PCMS/PCHS Students

1. Grade Level: ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

2. Gender: ☐ Female ☐ Male

3. What is the highest level of education completed by either of your parents? (Check one.)
   ☐ Less than high school diploma
   ☐ High school diploma/GED
   ☐ Some college
   ☐ Associate degree (two-year college)
   ☐ Bachelor's degree (four-year college)
   ☐ Advanced degree (Master's, PhD…)
   ☐ I don't know

4. For how many years have you had your own laptop computer provided by the school?
   ☐ One ☐ Two ☐ Three ☐ Four ☐ Five

5. Did you have a computer at home before you got your laptop at school? ☐ Yes ☐ No

6. Do you have access to the Internet at home? ☐ Yes ☐ No

7. What grades do you usually receive in school?
   ☐ Mostly As ☐ Mostly As and Bs ☐ Mostly Bs ☐ Mostly Bs and Cs
   ☐ Mostly Cs ☐ Mostly Cs and Ds ☐ Mostly Ds ☐ Other: _____

8. How much do you use a laptop **at school** during a typical week?
   ☐ Do not use a laptop
   ☐ 1 – 4 hours per week
   ☐ 5 – 10 hours per week
   ☐ More than 10 hours per week

9. How much do you use a laptop **at home** during a typical week?
   ☐ Do not use a laptop
   ☐ 1 – 4 hours per week
   ☐ 5 – 10 hours per week
   ☐ More than 10 hours per week

10. In which subjects do you use your laptop for class work or projects? (Check all that apply.)
    ☐ None   ☐ Art, Music
    ☐ Foreign Language   ☐ Language Arts/English
    ☐ Math   ☐ Science
    ☐ Social Studies, History   ☐ Other: _____

11. In which classes is using the computer most beneficial to your learning? (Check all that apply.)

☐ None   ☐ Art, Music
☐ Foreign Language   ☐ Language Arts/English
☐ Math   ☐ Science
☐ Social Studies, History   ☐ Other: _____

12. Has your computer been damaged or broken down this year? ☐ Yes   ☐ No

   If **YES**, for how long were you without a computer? _____

13. How often do you use your computer to do the following:

	Never	Less than monthly	Monthly	Weekly	Daily
Search for information	☐	☐	☐	☐	☐
Create presentations and projects on your own	☐	☐	☐	☐	☐
Work on assignments in small groups	☐	☐	☐	☐	☐
Organize information	☐	☐	☐	☐	☐
Take notes in class	☐	☐	☐	☐	☐
Communicate using e-mail or instant messaging	☐	☐	☐	☐	☐
Take a quiz, test, or assessment	☐	☐	☐	☐	☐
Complete homework	☐	☐	☐	☐	☐
Do drills to increase skills in math, English, etc.	☐	☐	☐	☐	☐
Work on websites, digital films/media, etc.	☐	☐	☐	☐	☐

14. What software do you use on a weekly basis? (Check all that apply.)

☐ Word processing   ☐ Internet/Web browser   ☐ Email
☐ PowerPoint/Presentation ☐ Graphics/Image/Multimedia   ☐ Database
☐ Simulation   ☐ Website design/editing   ☐ Spreadsheet

☐ Others: _____

15. How would you rate your computer skills overall? (Check one.)

☐ Beginner (I am just learning)
☐ Intermediate (I am comfortable using a computer)
☐ Advanced (I can help teach others)

16. How often do you typically help another student use a computer?
☐ Never   ☐ Less than monthly   ☐ Monthly   ☐ Weekly   ☐ Daily

17. How often does another student help you use your laptop?
☐ Never   ☐ Less than monthly   ☐ Monthly   ☐ Weekly   ☐ Daily

18. How often do you typically help a teacher use a computer?
☐ Never   ☐ Less than monthly   ☐ Monthly   ☐ Weekly   ☐ Daily

19. How often does a teacher help you use your laptop?
  ☐ Never   ☐ Less than monthly   ☐ Monthly   ☐ Weekly   ☐ Daily

20. How many adults are there at school that you feel you can really talk to?
  ☐ None   ☐ One   ☐ Two   ☐ Three or more

21. Would you say that the following practices occur in your classes less often, about as often, or more often now than they did before the laptop program began?

	Less often	About as often	More often
Students teach other students	☐	☐	☐
Students teach the teacher	☐	☐	☐
Students select their own research areas	☐	☐	☐
Students explore a topic on their own	☐	☐	☐
Students work in groups	☐	☐	☐
Students present their work in class	☐	☐	☐
Students engage in multiple activities during class	☐	☐	☐
Students write more than one page	☐	☐	☐
A textbook is the primary guide	☐	☐	☐
Student interests influence lessons	☐	☐	☐
Students answer textbook questions	☐	☐	☐
Direct instruction by teachers	☐	☐	☐
Quizzes and tests	☐	☐	☐
Teachers make connections across classes	☐	☐	☐

22. In terms of your ability to complete class assignments and projects, how would you rate your access to each of the following:

	Inadequate	Somewhat adequate	Adequate	Excellent	Don't use
Computers	☐	☐	☐	☐	☐
Printers	☐	☐	☐	☐	☐
Projection devices	☐	☐	☐	☐	☐
Digital cameras, scanners	☐	☐	☐	☐	☐
Other technology needs:					

23. Please indicate whether you agree with each of the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Laptops make schoolwork more interesting.	☐	☐	☐	☐	☐
Laptops make schoolwork easier to do.	☐	☐	☐	☐	☐
Laptops have improved the quality of my schoolwork.	☐	☐	☐	☐	☐
Having a laptop has improved my grades.	☐	☐	☐	☐	☐
I do more homework outside of school if I am able to use my laptop.	☐	☐	☐	☐	☐

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am more motivated to do schoolwork when I use my laptop.	☐	☐	☐	☐	☐
What I learn in school is relevant to my life now.	☐	☐	☐	☐	☐
What I learn in school is helping me to prepare for the future.	☐	☐	☐	☐	☐

24. Have you ever used your laptop to communicate or work with students or teachers at another school?   ☐ Yes   ☐ No

 If **YES**, Have you worked with others at a school: (Check all that apply.)
        ☐ in Maine   ☐ in another state   ☐ in another country

25. Please briefly describe the most interesting class project you have done with your laptop:

26. Do you have any suggestions for new ways laptops could be used to improve your learning experience at school?   ☐ Yes   ☐ No

        If **YES**, Please briefly describe:

II. Survey of PCMS/PCHS Faculty

1. What grade level(s) do you teach: ☐ 4   ☐ 5   ☐ 6   ☐ 7   ☐ 8
                                                ☐ 9   ☐ 10   ☐ 11   ☐ 12

2. Which subject(s) do you teach? (Check all that apply.)
    ☐ Art, Music   ☐ Foreign Language
    ☐ Language Arts/English   ☐ Math
    ☐ Science   ☐ Social Studies, History

    ☐ Other: _____

3. For how many years have you been teaching?
    ☐ 3 or fewer   ☐ 4 - 6   ☐ 7 - 9   ☐ 10 - 12   ☐ 13 - 19   ☐ 20 or more

4. Do you have access to the Internet at home?   ☐ Yes   ☐ No

5. How would you rate your overall skill level in the use of the laptop for instruction?
    ☐ Novice (still learning to use the machine)
    ☐ Beginner (e.g., e-mail, word processing, PowerGrade)
    ☐ Intermediate (e.g., assign projects, organize information, create your own class materials)
    ☐ Advanced (e.g., regularly integrate technology into curriculum, provide staff development opportunities for others)
    ☐ Expert (e.g., use technology for student assessment, develop learner-centered strategies)

6. How often do you use a computer to do the following:

	Never	Less than monthly	Monthly	Weekly	Daily
Conduct research for lesson plans or curriculum design	☐	☐	☐	☐	☐
Develop instructional materials or presentations	☐	☐	☐	☐	☐
Produce homework assignments	☐	☐	☐	☐	☐
Assess student work	☐	☐	☐	☐	☐
Manage student information	☐	☐	☐	☐	☐
Communicate with students and parents	☐	☐	☐	☐	☐
Communicate with colleagues	☐	☐	☐	☐	☐

7. Since the laptop program began, would you say that you: (Check one.)
    ☐ Spend **more** time planning lessons now than before
    ☐ Spend about the same amount of time planning lessons
    ☐ Spend **less** time planning lessons now

8. Overall, would you say that the laptop program has made you: (Check one.)
☐ Less efficient   ☐ Neither less nor more efficient   ☐ More efficient

9. Would you say that the following practices occur in your classroom less often, about as often, or more often now than they did before the laptop program began?

	Less often	About as often	More often
Students teach other students	☐	☐	☐
Students teach the teacher	☐	☐	☐
Students select their own research areas	☐	☐	☐
Students explore a topic on their own	☐	☐	☐
Students work in groups	☐	☐	☐
Students review their own work	☐	☐	☐
Students engage in multiple activities during class	☐	☐	☐
Students do different assignments in one class	☐	☐	☐
Students write more than one page	☐	☐	☐
A textbook is the primary guide	☐	☐	☐
Student interests influence lessons	☐	☐	☐
Students answer textbook questions	☐	☐	☐
Direct instruction	☐	☐	☐
Quizzes and tests	☐	☐	☐
Teacher evaluates student work	☐	☐	☐
Curriculum regularly connects to other disciplines	☐	☐	☐

10. Please indicate below the effect you think laptops have had on different groups of students in the following areas:

	Traditional Students			At-Risk or Low-Achieving Students			High Achieving Students		
	Declined	No Effect	Improved	Declined	No Effect	Improved	Declined	No Effect	Improved
Participation in class	☐	☐	☐	☐	☐	☐	☐	☐	☐
Preparation for class	☐	☐	☐	☐	☐	☐	☐	☐	☐
Attendance	☐	☐	☐	☐	☐	☐	☐	☐	☐
Behavior	☐	☐	☐	☐	☐	☐	☐	☐	☐
Motivation	☐	☐	☐	☐	☐	☐	☐	☐	☐
Engagement / Interest level	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ability to work independently	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ability to work in groups	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ability to retain content material	☐	☐	☐	☐	☐	☐	☐	☐	☐
Quality of work	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interaction with teachers	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interaction with other students	☐	☐	☐	☐	☐	☐	☐	☐	☐

11. Please indicate whether you agree with each of the following statements.

Since the laptop program began:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My goals for students have changed.	☐	☐	☐	☐	☐
My role in the classroom has changed.	☐	☐	☐	☐	☐
The school climate has changed.	☐	☐	☐	☐	☐
Student achievement in my classes has improved.	☐	☐	☐	☐	☐
My computer skills have improved.	☐	☐	☐	☐	☐
My understanding of how people learn has changed.	☐	☐	☐	☐	☐
My beliefs about teaching and learning have changed.	☐	☐	☐	☐	☐
The curriculum in my classes has changed.	☐	☐	☐	☐	☐
I have had adequate professional development opportunities.	☐	☐	☐	☐	☐
The school has developed effective policies and procedures for the laptop program.	☐	☐	☐	☐	☐

12. In which of the following areas do you think the laptop program has had a positive impact?
(Check any that apply.)

☐ Students' computer literacy
☐ Quantity and quality of what students learn in school
☐ Roles of students and teachers in the classroom
☐ Personalized learning opportunities for each student
☐ Rigor of the curriculum
☐ Reliable assessment of student progress, work, and effort
☐ Your access to educational resources
Please describe any others:

13. Do you think the laptop program has had any negative impacts?   ☐ Yes   ☐ No

If **YES**, Please describe:

14. In terms of meeting your instructional goals, how would you rate your access to:

	Inadequate	Somewhat adequate	Adequate	Excellent	Don't use
Computers	☐	☐	☐	☐	☐
Printers	☐	☐	☐	☐	☐
Projection devices	☐	☐	☐	☐	☐
Digital cameras, scanners	☐	☐	☐	☐	☐
Support personnel at school	☐	☐	☐	☐	☐
Technology-related professional development activities	☐	☐	☐	☐	☐
Other (Please describe):	☐	☐	☐	☐	☐

15. Please indicate whether you agree that:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My beliefs about teaching and learning align with the principals and practices of Promising Futures.	☐	☐	☐	☐	☐
At school, my thoughts and opinions about teaching and learning are heard and considered.	☐	☐	☐	☐	☐

16. Have you participated in any professional development or training activities that have helped you integrate technology into the curriculum? ☐ Yes   ☐ No

> If **YES**, Roughly how many hours have you spent on this type of professional development since the laptop program began? _____

> Please briefly describe the most useful training you've participated in and how it was delivered:

17. Please briefly describe how you see yourself using technology in the classroom in three to five years:

18. What training or assistance do you need to further integrate technology into the curriculum?

19. Which of the following formats for professional development activities do you prefer? (Check all that apply.)
> ☐ Two-day training at the beginning of summer
> ☐ Two-day training at the end of summer
> ☐ A series of shorter after-school training sessions during the school year
> ☐ Training during early-release time throughout the school year
> ☐ Just-in-time training in class
> ☐ Teaming with another teacher or student to learn more
> ☐ Other (please describe):

III. Survey of Parents

1. In what grade(s) do you have children? ☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
     ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

2. What is your gender? ☐ Female ☐ Male

3. What is the gender of the oldest child you have in the school system? ☐ Female ☐ Male

4. What is the highest level of education completed by any of the adults in your household?
     ☐ Less than high school diploma
     ☐ High school diploma/GED
     ☐ Some college
     ☐ Associate degree (two-year college)
     ☐ Bachelor's degree (four-year college)
     ☐ Advanced degree (Master's, PhD…)

5. Do you have a computer at home? ☐ Yes ☐ No

6. Do you have access to the Internet at home? ☐ Yes ☐ No

7. How would you rate your computer skills overall? (Check one.)
     ☐ I do not use a computer
     ☐ Beginner (I am just learning)
     ☐ Intermediate (I am comfortable using a computer)
     ☐ Advanced (I can help teach others)

8. For how many years has your child had a laptop computer provided by the school?
     ☐ None ☐ One ☐ Two ☐ Three ☐ Four ☐ Five

9. Have you used PowerSchool to check your child's grades, etc.? ☐ Yes ☐ No

     If **YES**, How often do you typically use PowerSchool?
          ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily

10. Has the laptop program made any difference in **your** computer skills? ☐ Yes ☐ No

     If **YES**, Please briefly describe:

11. *Thinking of your oldest child in the school system*, what grades does he or she usually receive in school? ☐ Mostly As ☐ Mostly As and Bs ☐ Mostly Bs
☐ Mostly Bs and Cs ☐ Mostly Cs ☐ Mostly Cs and Ds ☐ Mostly Ds

12. How much time does this child spend using his or her laptop **at home** during a typical week?
☐ None ☐ 1 – 4 hours per week ☐ 5 – 10 hours per week
☐ More than 10 hours per week

13. Which of the following activities does this child do at home using his or her laptop? (Check any that apply.)
☐ Search for information ☐ Communicate using e-mail or instant messaging
☐ Organize information ☐ Work on class presentations or projects
☐ Complete homework ☐ Work on assignments with other students
☐ Work on websites or digital films ☐ I don't know

14. Since this child has had a laptop provided by the school, would you say that his or her school experiences have changed in any of the following ways?

	Declined	No Change	Improved
Attendance at school	☐	☐	☐
Behavior at school	☐	☐	☐
Motivation for doing schoolwork	☐	☐	☐
Level of interest in classes	☐	☐	☐
Interaction with teachers	☐	☐	☐
Interaction with other students	☐	☐	☐
Grades	☐	☐	☐

15. Do you think that the laptop program has had a positive impact in any of the following areas? (Check any that apply.)
☐ Your child's computer literacy
☐ Quantity and quality of what students learn in school
☐ Roles of students and teachers in the classroom
☐ Personalized learning opportunities for each student
☐ Rigor of the curriculum at school
☐ Your child's access to educational resources

16. Have you seen any changes at home as a result of the laptop program? ☐ Yes ☐ No

If **YES**, Please briefly describe:

17. Do you have any suggestions for new ways laptops could be used to improve your child's learning experience at school? ☐ Yes ☐ No

If **YES**, Please briefly describe:

Great Maine Schools Project

at the Senator George J. Mitchell Scholarship Research Institute

22 Monument Square, Suite 402
Portland, Maine 04101
207-773-0505
1-800-353-1485
fax 207-773-4044
www.greatmaineschools.org