

**The Maine Learning Technology Initiative:  
Teacher, Student, and School Perspectives  
Mid-Year Evaluation Report**



**Prepared by the**

**Maine Education Policy Research Institute**

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the University of Maine System

**March 2003**

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## Table of Contents

EXECUTIVE SUMMARY.....	i
INTRODUCTION.....	1
IMPLEMENTATION OF THE LAPTOP PROGRAM.....	1
THE EVALUATION DESIGN.....	3
DATA COLLECTION ACTIVITIES TO DATE.....	5
PRELIMINARY FINDINGS.....	6
CORE AREA ONE: TEACHERS AND TEACHING.....	7
How are teachers using the MLTI laptops?.....	7
What is the impact of the Maine Learning Technology Initiative on teachers and teaching?.....	10
What, if any, obstacles are teachers encountering as they implement the Maine Learning Technology Initiative?.....	13
Summary of Teachers and Teaching.....	18
CORE AREA TWO: STUDENTS AND LEARNING.....	19
How are students using the MLTI laptops?.....	19
What has been the impact of MLTI on students and their learning?.....	24
What obstacles, if any, are students encountering as they use laptops and technology?.....	30
Summary of Students and Learning.....	32
CORE AREA THREE: SCHOOLS AND COMMUNITY.....	33
What are the administrators' perceptions of the impact of the program?.....	33
What obstacles have schools and administrators encountered in implementing the MLTI?.....	34
What is the impact on parents and community learning?.....	36
Summary of Schools and Community.....	38
CONCLUSION.....	39
APPENDICES.....	40
Appendix A: Year One Evaluation Plan.....	41
Appendix B: Copies of Survey Instruments.....	44

## Executive Summary

One of the strategies Maine is using in preparing youth for the future economy is a statewide program to provide every seventh and eighth grade student and their teachers with laptop computers, and to provide professional development and training for helping teachers integrate them into their classroom instruction. The goal of the Maine Learning Technology Initiative (MLTI), according to the Task Force on Maine's Learning Technology Endowment, is to:

“...transform Maine into the premier state for utilizing technology in kindergarten to grade 12 education in order to prepare students for a future economy that will rely heavily on technology and innovation.” (Task Force on Maine's Learning Technology Endowment, 2001, p. vi).

This report presents some early evaluation evidence on the effectiveness and impact of the implementation of the Maine Learning Technology Initiative (MLTI). The goal of the Year One evaluation, which is being conducted by the Maine Education Policy Research Institute (MEPRI), is to provide policymakers and practitioners with information that will assist them in determining whether or not, and to what degree, the vision and goals of the MLTI are being achieved. The Year One design is focusing primarily on the students who entered seventh grade in September 2002, and their teachers and schools.

The evaluation plan is using a mixed-methods approach to evaluation. *Surveys*, some of which are web-based, are being used as a primary means of gathering data from large samples of students, educators and parents. *Case studies* of representative schools and student groups are being conducted. *Interviews, focus groups, classroom observations and analysis of school level documents such as memos to parents and school policies, including analysis of student work*, are essential data collection strategies.

The MEPRI evaluation team has focused the Year One evaluation on obtaining answers to three key questions in three core areas. The core areas are Teachers and Teaching, Students and Learning, and Schools and Community. The three questions are:

- 1. How are the laptops being used?**
- 2. What are the impacts of the laptops on teachers, students, and schools?**
- 3. Are there obstacles to full implementation of the MLTI?**

The early evidence in the core area of Teachers and Teaching indicates that a majority of teachers report using the laptop in lesson development and classroom instruction. Teachers are locating more up-to-date information, accessing information more easily and quickly, presenting lessons, and creating student assignments. These uses are having positive impacts on their teaching. Teachers are finding that their lessons are more extensive, use more up-to-date resources, and provide more opportunities to explore knowledge and information in more depth. They see the potential for using the laptops and technology in more sophisticated ways, but feel that some technical problems and the lack of technical support sometimes limit their use of the laptops. In addition, teachers feel they need more time and professional development for this to occur. This includes time to explore and learn how to use the technology, and professional development activities designed to help them integrate the technology more extensively in their curriculum development and instruction. Despite these concerns, teachers report that the laptop program has had many positive impacts on their teaching. Overall, many teachers remain enthusiastic about the Maine Learning Technology Initiative and look forward to learning more through sustained training efforts.

With regard to Students and Learning, the early evidence indicates that the Maine Learning Technology Initiative has dramatically increased the use of technology within classrooms. Students have reported using their laptops to research information, complete assignments, create projects, and communicate with teachers and other students. As the students begin to use the laptops more within their classes, they report an increase in interest in their school work and an increase in the amount of work they are doing both in and out of school. The nature of student learning in classrooms may be changing because students have the tools to pursue, organize, analyze and present information more readily at hand. Although some students continue to experience technical problems, most are excited about using the laptops in their classes.

Although it is too soon to fully assess the impact of MLTI on the School and Community, early evidence indicates positive changes. Parents report that their children are more focused and more interested in school. Schools have faced some added expenses in the implementation of the program, but through creative solutions many schools are finding ways to minimize these costs, and possibly even save money as the laptops replace materials such as reference books and

calculators. Finally, even more positive changes resulting from MLTI are anticipated by school principals and superintendents, although these impacts cannot yet be measured.

Thus, the evaluation team concludes that the evidence to date indicates that significant progress has been made in implementing the MLTI. And although it is early in the implementation phase of the initiative, the mid-year evidence indicates that the laptop program is having many positive impacts on teachers and their instruction, and on students' engagement and learning. Some obstacles still exist in fully implementing the program, but significant strides have been made in a very short time period toward achievement of the goals of MLTI.

# **The Maine Learning Technology Initiative: Teacher, Student, and School Perspectives**

## **Mid-Year Evaluation Report**

**March 2003**

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### ***Introduction***

This report presents mid-year evidence from the Year One evaluation of the Maine Learning Technology Initiative. The Maine Learning Technology Initiative (MLTI) is a statewide program that, according to the Task Force on Maine's Learning Technology Endowment, is intended to:

“...transform Maine into the premier state for utilizing technology in kindergarten to grade 12 education in order to prepare students for a future economy that will rely heavily on technology and innovation.” (Task Force on Maine's Learning Technology Endowment, 2001, p. vi).

The initiative was established on the premise that technology and innovation will play key roles in Maine's economic future. Nearly 70% of business and information technology (IT) professionals nationwide report that their companies are concerned about the Digital Divide because they, and the U.S. economy in general, need more IT talent. According to the Children's Partnership (2002), by 2010, jobs in the computer and mathematical fields are expected to increase by 67%. However, Maine currently ranks 44<sup>th</sup> in the United States in the number of high-tech workers. New Hampshire, on the other hand, ranks 28<sup>th</sup> and Massachusetts ranks 4<sup>th</sup>. In terms of average high tech wages, Maine ranks 43<sup>rd</sup>, while New Hampshire and Massachusetts rank 14<sup>th</sup> and 3<sup>rd</sup> respectively.

### ***Implementation of the Laptop Program***

One of the strategies Maine is using in preparing youth for the future economy is a statewide program to provide every seventh and eighth grade student and their teachers with laptop computers, and to provide professional development and training for helping teachers integrate them into their classroom instruction. A pilot project using this strategy was undertaken in Spring 2002, in which seventh grade students and their teachers in nine Exploration Schools were provided laptops. A program of professional development for teachers

that introduced teachers to the laptop and basic computer skills also began during this time and is continuing, with increasingly sophisticated training focused more specifically on teachers' academic content areas. In the fall of the 2002-2003 academic year, the first full implementation phase of the MLTI began. In this current phase, over 17,000 seventh graders and their teachers in over 240 schools across the state have received laptop computers. Concurrently, the Department of Education has initiated a professional development network consisting of several new roles and regional positions.

Each of the 243 middle schools in the state nominated a Teacher Leader who then received training that would enable them to serve as a leader within their school for the MLTI. These Teacher Leaders now serve as contact and support personnel for the classroom teachers in the buildings where they teach.

A second role that has been created is that of Regional Integration Mentors (RIM). A RIM is a teacher within each of the nine superintendent regions in the state who, in addition to their regular teaching responsibilities, assists MLTI staff in the development of a statewide network of professional development related to technology integration in middle schools and within each region.

The most recent roles created in the MLTI professional development network are Content Mentors and Content Leaders. Content Mentors are specialists and statewide leaders in specific content areas; mathematics, science, language arts and social studies. Content Leaders are content specialists within each of the nine superintendent regions. These individuals serve as resources, along with the RIMs and teacher leaders within each region, to help organize, establish, and maintain the MLTI professional development network within each region and the state. These positions have been created to facilitate greater integration of curriculum and technology and as support for the transformation of teaching and learning in Maine's classrooms.

This report presents some early evidence on the effectiveness and impact of the implementation of the Maine Learning Technology Initiative (MTLI). These findings are the result of work which began in June 2002 when Commissioner J. Duke Albanese, Maine Department of Education, asked the Maine Education Policy Research Institute (MEPRI) to conduct the first year evaluation of MLTI.

MEPRI was created in 1995 by the Maine State Legislature. It is a non-partisan research institute funded jointly by the Maine State Legislature and the University of Maine System. The

Institute conducts education policy research for the Legislature, and under grants and contracts, conducts a variety of studies and evaluations on education topics. Each year it publishes a Condition of Maine K-12 Education report, a report which documents changes in over 50 education indicators, and a Legislative District Education Report which describes school systems within each legislative district.

### ***The Evaluation Design***

The goal of the Year One evaluation design is to provide policymakers and practitioners with information that will assist them in determining whether or not, and to what degree, the vision and goals of the MLTI are being achieved. The Year One design is focusing primarily on the students who entered the seventh grade in September 2002, and their teachers and schools. Hopefully, evaluation resources will be available so that the progress of this student cohort and their future teachers may be followed through high school graduation. This long range evaluation is needed to determine the depth and breadth of the impact of the MLTI on student learning and achievement.

Because collecting extensive evaluation evidence from all students, teachers, and schools participating in this initiative is cost and time prohibitive, a matrix sampling strategy has been used in the Year One evaluation for identifying different types of middle schools, student populations, educator populations, and communities. This permits different questions to be answered using representative samples. In addition, this strategy minimizes the intrusion of data collection strategies into the operation of schools, and the teaching and learning process. The eighth graders in the Exploration Schools are also a focus of this Year One evaluation. The purpose of including this group in the sample is to determine the continuing impact of the spring 2002 Exploration School pilot program.

The evaluation plan is using a mixed-methods approach to evaluation. Using multiple evaluation and research methodologies and varied sources of evidence provides a more comprehensive framework for triangulation of evaluation evidence, and increases the validity, reliability and generalizability of findings. *Surveys*, some of which are web-based, are being used as a primary means of gathering data from large samples of students, educators and parents. *Case studies* of representative schools and student groups are being conducted. *Interviews, focus groups, classroom observations and analyses of school level documents, such as memos to parents, school policies, and including analysis of student work*, are essential data collection

strategies. The evaluation team is also attempting to track the impact of the Year One program on student achievement and school level performance. However, more time will be needed to draw reliable conclusions on these aspects of MLTI.

Based on an analysis of available information and interviews with MLTI project staff and developers, the evaluation team concluded that changes resulting from the MLTI are anticipated in at least three major core areas: (1) Teachers and Teaching; (2) Students and Learning; and (3) School and Community. The evaluation is designed to address core long-term evaluation questions in each of these areas. These are listed below:

***Teachers and Teaching Core Questions:***

*What is the impact on teaching behaviors and instructional practices?*

*What is the impact on the content and rigor of curriculum and instruction?*

*What is the impact on teachers' own professional development?*

***Students and Learning Core Questions:***

*What is the impact on students' skills in acquiring and constructing new knowledge?*

*What is the impact on student achievement?*

*What is the impact on Maine's digital divide?*

***School and Community Core Questions:***

*What is the impact on school structure and leadership?*

*What is the impact on school culture?*

*What is the impact on families and communities?*

Obtaining answers to these core questions will require a multiple-year evaluation. However, the evaluation team recognizes that policymakers and others need evidence to inform their deliberations during the first year of the initiative. Accordingly, the team has focused the Year One evaluation, and this mid-year report, on determining how, and to what extent, pre-conditions or forerunners for long-range achievements are occurring in the Initiative. In other words, are the laptops being used at this early stage in such a fashion that will lead to greater student learning and achievement in the future? For example, greater engagement in the learning process increases student learning, so one foci of the Year One evaluation is to determine if student engagement has increased with the laptops, and if so, how, and why. Thus, for this mid-

year evaluation report, the evaluation team has focused on obtaining answers to three key questions:

- 1. How are the laptops being used?**
- 2. What are the impacts of the laptops on teachers, students, and schools?**
- 3. Are there obstacles to full implementation of the MLTI?**

An evaluation design matrix listing data collection strategies for the Year One evaluation appears in Appendix A.

***Data Collection Activities to Date***

To date, the MLTI evaluation team has undertaken several activities, including the administration and analysis of a series of surveys, site visits, interviews, classroom observations, and monitoring of other MLTI activities. More specifically, the data collection to date has included the following:

1. Surveys of four groups:

<i>Groups</i>	<i>Number Surveyed</i>	<i>Number Returned</i>	<i>Response Rate</i>
Students	17223	8007	46%
Teachers	2231	731	33%
Principals	238	154	65%
Superintendents	185	40	41%

2. Site visits to 9 exploration schools and 7 additional middle schools.
3. Interviews with:
 

152	Teachers and Teacher Leaders of 7 <sup>th</sup> , 8 <sup>th</sup> , and multi-grade classrooms	34	Technology Coordinators
106	Students in 7 <sup>th</sup> , 8 <sup>th</sup> , and multi-grade classrooms	29	Parents of 7 <sup>th</sup> and 8 <sup>th</sup> grade students
39	Principals and Assistant Principals of participating middle schools	4	District Curriculum Coordinators
35	Superintendents		
4. Classroom observations in 23 7<sup>th</sup>, 8<sup>th</sup>, and multi-grade classrooms.
5. Participation in 10 regional meetings of Teacher Leaders, Technology Coordinators, and Principals, and other MLTI related meetings.
6. Reviews of local evaluation data collected by RIMS (from Teacher Leader Surveys) and 5 middle schools.

Surveys have been both web-based and mailed. Superintendents and students were asked to respond to web-based surveys. Teachers received a mailed survey which was also available online. Principals received a mailed survey in November and a web-based survey in March. Surveys were designed to collect a breadth of information on the use and impacts of the laptops. Copies of the survey instruments appear in Appendix B.

Site visits, interviews, and observations have been designed to provide more in-depth information on specific uses and impacts. Protocols for interviews, and observations conducted during site visits to the 9 Exploration schools and seven additional middle schools, were created and used by the staff of MEPRI to insure consistency in the data collection process.

The information contained in this mid-year report is based on an analysis of several data sources, but principally on an analysis of survey results and interviews. Some information has also been taken, where appropriate, from the MLTI website, Maine Learns ([www.mainelearns.org](http://www.mainelearns.org)), which invites teachers and parents to post success stories related to MLTI.

### ***Preliminary Findings***

This section of the report provides mid-year evidence addressing three key questions :

- ❖ How are the MLTI laptops being used?
- ❖ What is the impact of using the MLTI laptops?
- ❖ Are there obstacles to full implementation of the MLTI?

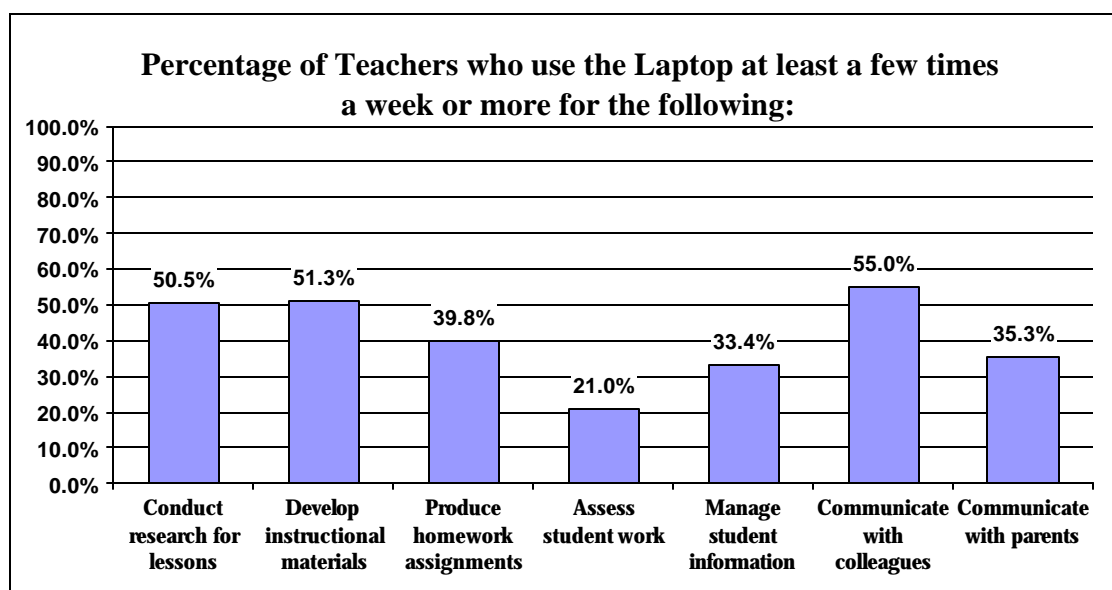
Responses to these questions are derived from an analysis of data pertaining to each of the following Core areas: (1) Teachers and Teaching, (2) Students and Learning, and (3) School and Community. However, before turning to this evidence, an important cautionary note is in order. The evidence presented here is taken primarily from surveys and interviews conducted during the first five months of the implementation of the program. The reader is reminded that conclusions are necessarily tentative and that evidence collected during the second half of this implementation year will provide a more definitive assessment of the effectiveness and impact of the laptop program on teachers, students, and schools.

## CORE AREA ONE: TEACHERS AND TEACHING

### *How are teachers using the MLTI laptops?*

By early December 2002, teachers indicated that they were using laptops in many different ways, but most often in conducting research for lessons, developing instructional materials, and communicating with colleagues. As may be seen in Figure 1, approximately 50% of teachers who responded to a survey in December indicated that, on a six point scale of *never* to *every day*, they use the laptop for these purposes at least a few times a week or more. Many teachers reported that they realize that these early uses merely scratch the surface of the possibilities for this technology, but they have been enthusiastic about these beginnings.

**Figure 1**



One of the most frequent uses of the laptops by teachers is in communicating with colleagues. Approximately 55% of the teachers surveyed reported that they use their laptop to communicate with colleagues at least a few times a week. For many teachers, the ability to communicate in a more efficient manner has opened new doors and allowed teachers to exchange curriculum and instructional information in new and exciting ways. The availability of this learning tool has also encouraged and enabled teachers to form support networks as they learn to integrate technology. Those involved with the program find that they are collaborating more frequently and with a larger pool of colleagues. One teacher reported on the Maine Learns website:

*“I am currently working on a unit with a teacher in Milan, Italy. We are going to have our students collaborate on a project of some sort.”*

Teachers reported in interviews, for example:

*“I network with colleagues throughout the state. I am a new learner again, hungry for all that I can learn to use this new tool.”*

*“Seeing the collaboration which has gone on is great. This has been student to student, student to teacher, and especially teacher to teacher. People have been very willing to share and learn from each other.”*

Teachers also reported that they were using their laptops to prepare for their classes through developing instructional materials (51%) and conducting research for lessons (51%).

Teachers reported that they are accessing current information that, in many cases, is not available from textbooks.

*“I know that this year in science, I’m using [the laptop] instead of my textbook. My textbook has no information on standards that I’m supposed to be addressing, no environmental concerns, no ecology, nothing about plants and animals . . . So I’m using it [the laptop] in lieu of that, having students do self-directed projects on a given theme.”* (Teacher interview)

Teachers are also finding that the laptops can help them to convey information to students. For example, one teacher reported:

*“Like for research for example, before you had to go to the library, you might have one or two resources you could use, for everybody. You pretty much had to assign everyone the same topic. Now, I just did a research project and I probably ended up with at least twenty-five different topics and a host of different incredible resources...”* (Teacher interview)

In addition, because students have a wealth of information at their fingertips, teachers are expecting students to access content, and not simply rely on teachers to provide the answers.

*“...I let them go looking for information and they find their own. And they bring to class more information than I would have been able to generate myself and give them. What they bring to class is so much deeper and more than what I would have brought in.”* (Teacher interview)

Many teachers reported using the laptops to create homework assignments. However, in the early December survey only about one in four teachers reported using the technology in assessing student work. One teacher reported using the laptops to document student performance as a part of their local comprehensive assessment program. As reported on the Maine Learns website:

*“...Grade 7 students have been working to document the learning of other students in the school as part of the local assessment plan. They have begun to videotape students in different classrooms reading, writing, or doing math. Today the first QuickTime movies were saved to CD. Imagine video evidence of student learning—live exemplars to show the learning.”*

Generally speaking though, this teacher appears to be more of the exception, than the rule. Many teachers reported that they are just beginning to learn how to use the technology, and consequently, they have not yet tapped into this more advanced use for the technology. Teachers’ use of technology to capture and assess student performance data will be monitored more closely during the second half of the year.

Again, teachers view these early uses of technology as first steps in a long process of technology integration. This new opportunity has challenged all teachers, from the novice;

*“Every day is a challenge with laptops as it is all so new – first time I have really had access to a computer.”* (Teacher interview)

to the more advanced;

*“Constantly looking for new ways to use the computer in the classroom. It is really a new way of thinking – teaching style has changed. The typical projects are becoming obsolete.”* (Teacher interview)

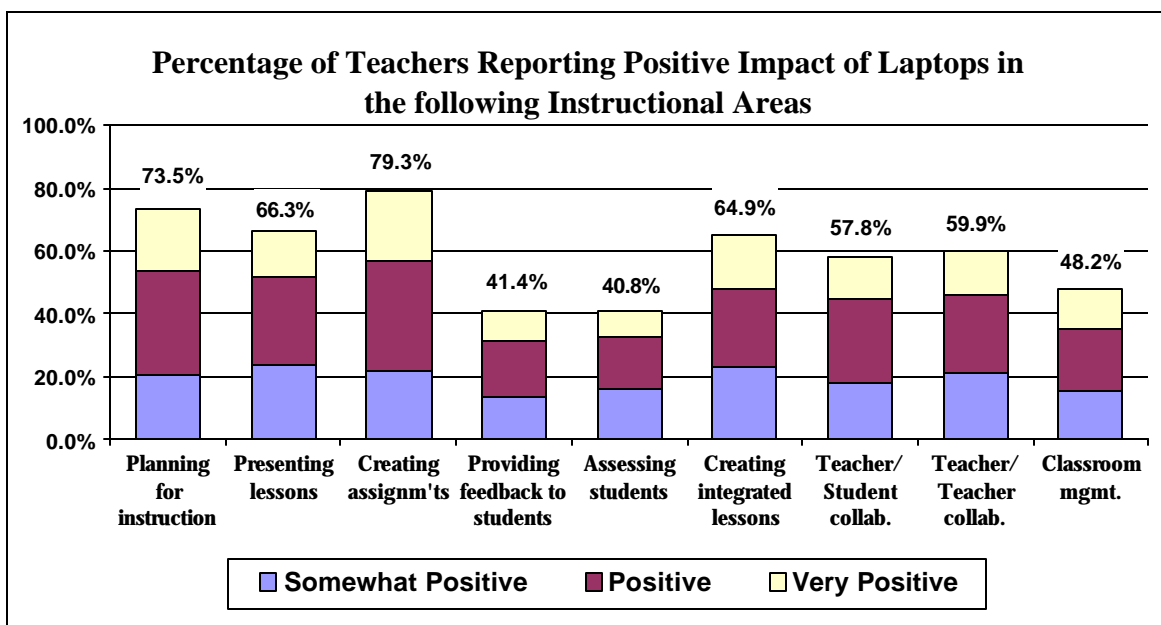
One of the items on the teacher survey asked teachers to rate their skill level in the use of laptops for instruction on a five point scale ranging from *novice* to *expert*. Not surprisingly, those who rated themselves as *advanced* or *expert* laptop users (28% of the respondents) indicated a more frequent use of the laptop for instructional purposes than did those who rated themselves as *novice*, *beginner*, or *intermediate* users. For example, 51% of all teachers responding reported that they use their laptop to conduct research for lessons a few times a week or more. In the subgroup of advanced technology users, 74% of teachers reported that they used their laptops for this purpose. This group of teachers also reported significantly higher uses of laptops to produce homework assignments (60% versus 40%) and to assess student work (36% versus 21%). This evidence reinforces the idea that the process of incorporating the laptops into daily practice is developmental, and implementation and expertise will, in all likelihood, increase as teachers become more comfortable with the technology. This shift in teachers’ beliefs and practices over time as they continue to experiment and reflect on how it is working is consistent with the pattern of implementation of educational reforms in general. Additionally, these findings correlate with national studies conducted by Apple Inc. (Classrooms of Tomorrow

Research, 1995), which demonstrate that teachers experience five stages of development and change in their teaching beliefs and practices as they learn to integrate technology.

***What is the impact of the Maine Learning Technology Initiative on teachers and teaching?***

Given how teachers reported using the laptops in the early part of the school year, have they seen any positive impacts on their teaching? Figure 2 represents the responses of teachers to a survey item that asked them to rate the impact of the laptop technology on various aspects of instruction on a seven point scale ranging from *very negative* to *very positive*. As may be seen in Figure 2, many of the teachers surveyed indicated that the laptop was impacting their instruction in several positive ways.

**Figure 2**



Teachers are seeing the greatest impact of the MLTI on their work in planning and presenting lessons, creating integrated lessons, and creating assignments. Teachers reported that having the laptop as a tool enables them, in many cases, to expand their own knowledge and increase their efficiency. As teachers noted in interviews,

*“I have used a database to collect information about states. I use the Internet once a week in conjunction with the Kennebec Journal to find U.S. / world sites. And I have used the Secretary of State kids’ page to teach government.”*

*“When we [teachers] start thinking about creating units I can go to the different sites and start looking for support materials or resource materials. For the unit on the Constitution, that’s just what I did and within a half an hour we had some really good materials.”*

*“The laptop is such an integral part of all my management routines that I can’t imagine life without it. I use the web to find rich teaching resources.”*

Additionally, two-thirds of the teachers (66%) reported that they are seeing a positive impact on presenting lessons. Students are enthusiastic about the laptops, and look forward to lessons in which the technology is included. Often teachers believe they are better prepared with more up-to-date information. One teacher remarked in an interview,

*“The best things are seeing other lessons and ideas as well as having the students see updated and often virtual sites showing exactly what I’m trying to teach them. In other words, the laptops have been critical in many instructional situations.”*

Teachers feel the laptops are very helpful in developing integrated lessons and extending learning. In many teacher interviews, teachers have described how they have been able to locate materials and information to use in developing interdisciplinary units—to help students see connections between different pieces of information and knowledge.

Teachers also often mentioned that fast and easy access to information benefits both the instruction they provide and students’ efforts to learn. For instance, one teacher reported on the Maine Learns website:

*“There are some days I just realize how helpful the laptops are... For years, I’ve had kids test local water bodies and then analyze the data and draw conclusions. This meant lots of work back in the classroom—doing the testing and graphing, finding and printing copies of scientific data they can use for their analyses, and finally writing the conclusion in essay form. In the “old days,” by the time we got to the essay writing, the most important part of the whole unit, the kids had often lost momentum.*

*“This year, after we did the sampling, we returned to class and it quickly became clear that 1-1 wireless access changed everything from there on out. They opened up a document, set up a small spreadsheet, entered data, clicked on “make chart,” and poof, there it was.”*

*“Then I sent them to one of two great websites. Here they found the scientific data with which to compare their own numbers. No photocopying on my part; instead instant, easy, and independent access to accurate information. Finally, they typed up the essay in their document. With the laptops, graphing and accessing data is so fast it got us to the real heart of the lesson with energy to spare.”*

One teacher leader responding to a questionnaire from her RIM put it this way:

*“We write. We did before we got these machines but now there’s an immediacy and fluidity to our exchanges [teacher to student] that only these tools provide. We research. We did before, but now we use ‘NoteStar’ and ‘RubricMaker’ (my*

*kids have made their own). ...There's success to be had here that builds comfort, confidence, and courage for bigger and more abstract things later."*

Once again, a higher percentage of teachers who ranked themselves as *advanced* or *expert* technology users indicated that the laptops were having a positive impact on various areas. For example, 74% of all teachers responded that MLTI had a positive impact on planning for instruction. However, 88% of "advanced" or "expert" technology users reported this same impact. These advanced or expert technology users also reported significant positive impacts on teacher to teacher collaboration (78% versus 60% in the less experienced group of teachers), teacher to student collaboration (75% versus 58%), and assessing students (57% versus 41%).

Having immediate access to online resources has allowed teachers to expand the resources they use in the classroom and extend learning. From planning for instruction to presenting lessons, teachers are reporting a significant positive impact on their teaching because they have access to much more information, access is immediate and the laptop provides the tools for distributing and presenting information to students.

Interviews with teachers revealed consistent information about teachers' use of their laptops to find new resources, integrate these new resources in the curriculum and present new lessons. But in addition the interview responses of many teachers indicated a more profound change in their concept of themselves as a teacher and their definition of the act of teaching.

*"I think the biggest thing is teachers moving from being the keeper of knowledge to the facilitator of what's happening in the classroom."* (Teacher interview)

*"I see the teachers becoming more facilitators and directors, instead of having to have the information, the answers. More and more the kids are becoming the owners and the directors of their learning. They have options of where to go [to get information]."* (Teacher interview)

*"I guess my mind shift has moved from being someone who thought that memorization, knowing facts, those sorts of things, to knowing where to get those things. It's been a real shift of thinking for myself and my colleagues."* (Teacher interview)

These data suggest that the introduction of one-to-one wireless laptops that allow students easy and immediate access to a broad range of information may result in a change in the definition of the role of teacher that emphasizes guiding students' inquiries and assisting them in evaluating new information. More data will need to be collected to confirm this possibility.

### ***What, if any, obstacles are teachers encountering as they implement the Maine Learning Technology Initiative?***

Although the Maine Learning Technology Initiative has brought many positive changes, teachers also indicated that they have experienced some significant obstacles in implementing the laptop program. One area involves technology, software, and technology support. As one might anticipate with implementing a laptop program as extensive as the MLTI, some early problems have been technical in nature. For example, many schools experienced trouble staying connected to the network, and sometimes the computers functioned slowly due to the amount of traffic online at any one time. Some computers would also “freeze” at times, forcing students and teachers to restart their computers. A variety of other glitches occurred due to compatibility problems with existing peripheral equipment (i.e., printers, projectors, etc.). Although the magnitude of these technical problems seems to have been reduced over time, these types of problems appear to persist in some schools. For example, in January some teacher leaders were still reporting to their RIMs about technical problems. Some teachers wrote in an e-mail survey to their RIMs:

*“Yes! And we are still experiencing them...computers are freezing up, especially on the Internet. Students have lost their files. The printers are locking up about 6 or 7 times a day. Each of the 7<sup>th</sup> grade teachers have a laser printer in their room and we are having to shut them down about 6 times a day and reboot them so the printers will print the papers from the laptops.”*

*“Technical difficulties with [the] Norton [Anti-virus program], I still am unhappy with Norton’s as it pops up while you are typing and messes up your flow. Some battery packs do not seem to hold their charge. We still do not have e-mail accounts. The machines seem sluggish, which I suspect is a combination of lack of RAM and a 3 tiered system in the machine (admin., teacher, and student).”*

*“We still have not used the backup utility due to technical difficulties and we still have problems printing, some problems with AppleWorks presentation mode (it often unexpectedly quits while in use), and difficulty staying on the network.”*

Some students also noted these problems. One 7<sup>th</sup> grade student said in an interview:

*“These computers aren’t completely stable, because I had a project that I saved on the server and on the desktop and both of these things got messed up with the file. It’s a software problem. Appleworks is trying to fix it.”*

Another student said:

*“I think Appleworks really needs to work on their stuff, because it’s really hard when you work so hard on a project and you lose it. Especially when you have a week to finish it and it’s half your grade.”*

Several teachers, students, and parents voiced concerns about the lack of a floppy drive or way to back up work, other than sending it to oneself by e-mail. This is seen as a real draw-back in some cases. If some students have access to e-mail at home, they can e-mail it to themselves and continue to work from home. However, those who do not have access to e-mail at home cannot do this, and can only work while at school. One multi-age group teacher said in an interview:

*“If there was a floppy drive, we could then load the files on the floppies and transport them back and forth that way.”*

In addition to these technical problems, the lack of sufficient technical support also appears to be causing problems in some schools. Typical comments made to members of the evaluation team or reported on surveys include:

*“The 7<sup>th</sup> grade staff was getting very frustrated with all the problems we were having, to the point of not doing any more projects on these laptops without some sort of back-up so kids’ work would not be destroyed. Hopefully, things will work better once we have e-mail... Students were frustrated when their computers would freeze or their work was lost. Many days our tech person was needed at the high school so when things went wrong, we just had to wait until she could come back. Lately things have settled down and she is able to be here more often.”*

*“Our technical coordinator is overextended—one person for a K-8 district with five schools... We’ve set up a weekly time for this person to be at our school.”*

*“It just is an added burden to the technology staff to keep up with the added computers in the building.”*

And one superintendent, in a discussion during a regional meeting of superintendents, put it this way:

*“Having enough technical support has been an issue. The laptops have become a priority for our technology people. All other technology related projects have come to a halt.”*

Thus, some technical problems still appear to persist in the initial implementation phase of the program. Some may be resolved over time, which at first blush would suggest that the need and extent of technical support might also be reduced over time. However, this may not be the case. Already busy technology coordinators will see their workload only increase next year when 8<sup>th</sup> graders and their teachers receive laptops.

Significant obstacles are also occurring in two other related areas: time and professional development. Teachers’ report that they need more time to learn how to use the technology most

effectively in their instruction, and that they need more extensive and customized professional development opportunities. Typical comments by teachers in interviews include:

*“I am challenged to spend twice as much time outside school to research, learn, and study computer software. Finding resources which are trustworthy and easy to use is a challenge.”*

*“[We] need more release time for more inservices on laptop programs and their use, and observe classrooms where laptop use has been highly successful in discipline integration (like Geography).”*

*“[We need] time to explore. We want to get a website up, but we haven’t had time to do that. So everything’s on hold, because of the time factor . . . I’m ready to jump in, but we’ve had a very intense fall and so with that, compounded with everything else, forget it.”*

This problem of a lack of time is echoed by many teachers throughout the state. Teachers note that a number of other initiatives are demanding an immense amount of time. Because many teachers are in the initial stages of learning to use the technology, they are not yet able to use this tool to increase their efficiency with these other initiatives. Teachers feel that they need time to explore the capabilities of the laptops. As stated by one teacher,

*“Time, or the lack of it to be more exact, is an ongoing issue for school staff. With the usual workload that I have as a middle school teacher trying to keep up with curriculum (learning results), planning, teaching, assessing, record keeping, I have little or no time left for exploring laptop programs and Internet possibilities.”* (Teacher interview)

One teacher leader remarked in an e-mail survey distributed by his RIM:

*“We have had NO time for staff development, as all of our time has been spent working on curriculum development and Local Assessment. We have had no time for laptop development.”*

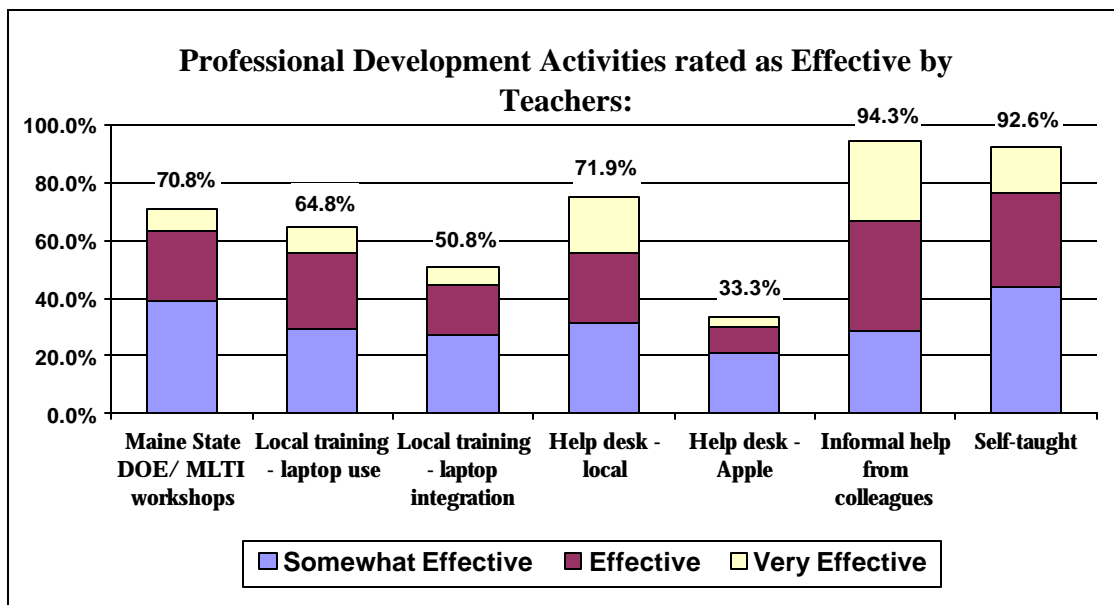
Teachers indicated that making the laptops available earlier in the program would have enabled them to find some of the necessary time to explore laptop capabilities.

*“Teachers should have had laptops much earlier in order to prepare for the upcoming year. Eighth grade teachers should be preparing NOW for next year’s classes.”* (Teacher interview)

A closely related obstacle is in the area of professional development. Figure 3 reports teachers’ ratings of the effectiveness of selected forms of professional development. In some cases, a substantial number of teachers reported that the type of professional development activities listed in figure 3 were not available, or they were available but that the teacher did not attend. Keeping this in mind, the data in figure 3 shows that most types of support and

professional development have been helpful, and that teachers feel that informal help from colleagues and self-instruction are most effective. Interview data confirms the value that teachers place on professional development related to the integration of technology in teaching. As stated by two teachers:

**Figure 3**



*“Please keep the training coming- it is very necessary that we keep abreast of the iBook’s potential capabilities. Training time is paramount!”*

and

*“It is hard to learn integrative uses for the laptops as we have not had any training since the two day training session offered by the state this summer.”*  
(Teacher interview)

Some teachers did report that the week long 2002 summer institute held at the University of Maine was very helpful, because the main focus was technology and the institute gave them time to focus on this topic, and to share and learn with other colleagues from all over. One multi-age teacher said in an interview:

*“They had different programs, that they were demonstrating, allowing folks to explore, learn. They gave us time to work with team members from our building. ...It was very helpful.”*

Some teachers are still in need of basic training to enable them to feel comfortable trouble-shooting problems in the classroom, while others are ready to move on to more advanced training. Teachers feel that it is important that professional development be offered so that they

can learn at their own developmental level. One teacher explained the difficulty of learning in an environment including learners of varying ability,

*“Since each person entered laptop use with a different level of technology expertise/ comfort, it was intimidating to be at the baseline as a learner without ‘paper’ support / how to while the tech geeks soared and dialogued leaving others in the dust.”* (Teacher interview)

As shown in Figure 3, many teachers indicated that they have learned a great deal about technology from colleagues (94%) and on their own (93%). But many teachers feel that they have little time available to explore possibilities and plan in ways that will enable them to use the technology to its full potential.

Teachers also indicated that the amount and quality of support they receive has a great impact on their success in MLTI. This support begins at the state level, but also includes regional and local support. One way some teachers believe that the state could assist teachers is by providing more print resources. As two teachers noted in interviews:

*“We have no hard copy for a lot of what was covered. Experimenting is okay if you have that kind of time. BUT if you don’t, you need something to look things up in or go for help!”*

*“I think if we want people to learn certain skills, they are going to have to jump through the ‘hoops’ of going through things in a step-by-step way so that everyone has a common knowledge. It would be very handy to have a problem-solving, how-to guide that has certain things highlighted. Something to fall back on.”*

The Regional Integration Mentors (RIMs) are seen as being helpful by many teachers, but like the technology coordinators, the heavy workloads of RIMs are limiting their potential impact on teachers and classroom instruction. When asked about the kind of activities he was able to organize in his region, one RIM reported in an interview:

*“Not much this year, as it has been very difficult to do much outside of my own building. There are so many needs internally that to plan much outside of my building has proven to be quite difficult.”*

And another RIM, when asked during an interview what would increase her effectiveness, said:

*“Well, at the risk of being too obvious, more time. The idea that someone can run a school with 146 laptops and run a region with hundreds more across 26 schools is not very realistic.”*

Related to problems of time and professional development, teachers indicated that the success of the program depends in part on the level of support and encouragement provided by local administrators and technical support personnel. Teachers reported that they spent a great

deal of time in the early months of the program dealing with technical glitches, and some schools continue to face these challenges. If technical glitches are not resolved, teachers and students may lose confidence in the technology. As one teacher explained in an interview,

*“As well as everything that I’m hearing from other people, the technical difficulties, lack of support, tech support, internally, even having I feel like a strong technological background, I’m still running into roadblocks; they won’t turn on, the spinning wheel of death, it’s freezing; last spring was a much smoother adventure. This year I don’t feel that the support is here, and I feel comfortable with the computers, yet it has been frustrating for me as well.”*

Support also comes in the form of equipment and supplies that enable teachers to take full advantage of the possible uses of the laptops. Teachers are finding that without projectors, networked printers, software, and other supportive technology, they are unable to successfully integrate the laptops into the existing curriculum.

### ***Summary of Teachers and Teaching***

To summarize, the early evidence in the core area of Teachers and Teaching indicates that a majority of teachers report using the laptop in lesson development and classroom instruction. Teachers are locating more up-to-date information, accessing information more easily and quickly, presenting lessons, and creating student assignments. These uses are having positive impacts on their teaching. Teachers are finding that their lessons are more extensive, use more up-to-date resources, and provide more opportunities to explore knowledge and information in more depth. They see the potential for using the laptops and technology in more sophisticated ways, but feel that technical problems and lack of technical support sometimes limit their use of the laptops. In addition, teachers feel they need more time and professional development for this to occur. This includes time to explore and learn how to use the technology, and professional development activities designed to help them integrate the technology more extensively in their curriculum development and instruction. Despite these concerns, teachers report that the laptop program has had many positive impacts on their teaching. Overall, many teachers remain enthusiastic about the Maine Learning Technology Initiative and look forward to learning more through sustained training efforts. Many school staff view this as revolutionary change, as noted by teachers during interviews,

*“I think the computers are the best thing that has happened to education in the last 20 years. I hope this initiative will continue to be used and improved.”*

*“As we evolve within the program and stretch its limits, its application will only be limited by our imagination.”*

## **CORE AREA TWO: STUDENTS AND LEARNING**

Core Area Two deals with the essence of MLTI: Is the laptop program having a positive impact on student development, learning, and achievement? The evidence from teachers, and students themselves, provide preliminary assessments of impacts.

### ***How are students using the MLTI laptops?***

A web-based survey was developed to gather data about how students are using their laptops. All 7<sup>th</sup> grade students participating in MLTI, along with a small number of 8<sup>th</sup> graders who received laptops as a part of the Demonstration School pilot program, were notified by their teachers that the survey was available and the web address was provided. A total of 8007 responses representing 46% of all students surveyed were received. An initial analysis of these returns revealed some duplicate responses; that is, a few students responded more than one time to the web-based survey. Although not large enough to alter the findings, some caution still must be used in interpreting the responses.

Prior to the laptop initiative, computer access was limited due to the low number of computers available in most schools. Additionally, students and teachers reported that making time to visit the computer labs was difficult and restricted the use of computers within the classroom setting. According to findings from the web-based student survey, computer use in school prior to the Maine Learning Technology Initiative comprised only a small portion of the students' educational instruction time. Of those students who responded to the survey, only 10% reported that they used computers in school at least five hours a week or more before receiving their laptops. However, since the initiation of the laptop program the number of students reporting that they use computers in school at least five hours a week or more has increased to 65%. As some students stated in interviews:

*“Last year we had to go to the computer lab down the hall and if there was a class going on there, you were out of luck, you couldn't do your research. With these [laptops] you just open up your laptop and boom, the Internet is there.”*

*“Last year we just had desktop computers . . . and we would have to go all the way down to the lab and then all the computers would be full and you had to wait, and it's a lot better this year because we all have our own.”*

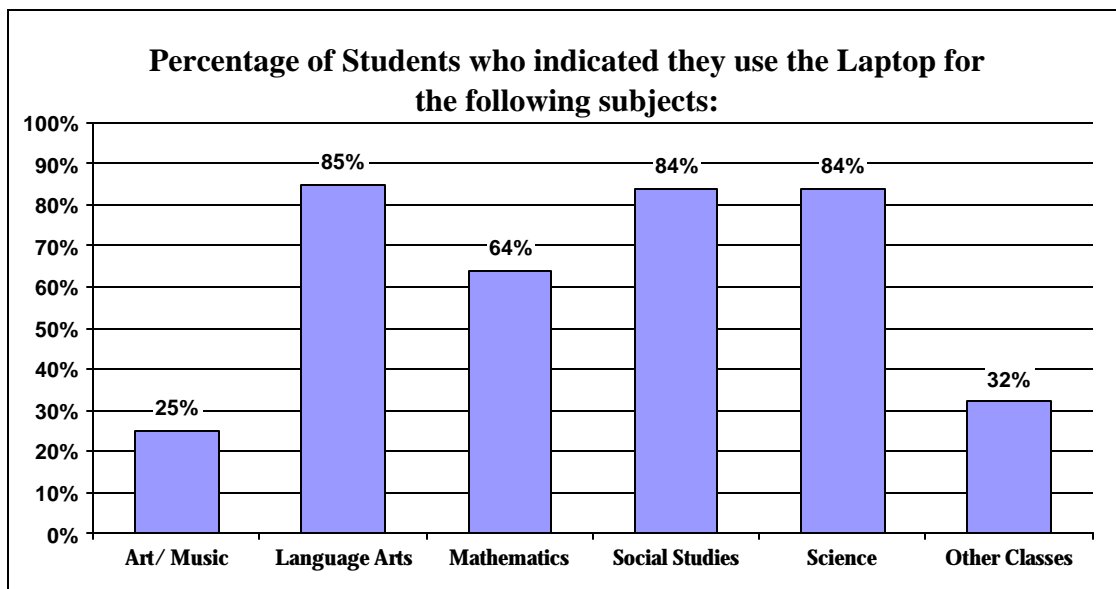
*“And plus we can take them from classroom to classroom. Like in our science classroom last year we only had one computer, and it didn't work very well either. But [the laptops] work well.”*

In addition to no longer needing to access technology through the computer lab, the utilization of laptops within the classroom has lessened the need for students to share limited print and other resources in their classrooms and library. Instead of having to share one copy of encyclopedias or dictionaries, every student now has access to these resources via their laptop. One teacher remarked in an interview:

*“One of the things I see as most beneficial is that it’s quick. There is no hesitation. There’s no ‘wait, I need to go get a dictionary.’ ... I don’t have to prompt them to go to the media center to find media, they just do it.”*

Figure 4 reports the percentage of students who indicated that they use the laptops in selected content areas. As may be seen from the figure, students are using the laptops in most of their classes, albeit in varying degrees. Students are using their laptops most often in Language

**Figure 4**



Arts, Social Studies, and Science. It appears from teachers’ comments in interviews that these subjects provide an easier avenue initially for incorporating laptop use as a result of the up-to-date information provided on the Internet for social studies and science, and because of the word processing capabilities utilized in language arts. One teacher described her experience on the Maine Learns website in these words:

*“As part of a Social Studies unit on the election, students were given the task to work as publicists for one of the gubernatorial candidates and create a slideshow about the candidate. They used their laptops to research the issues, endorsements, and biographical information. At the end of the week students were able to watch*

*slide shows on the various candidates. And the really cool part for me was correcting their slide shows in the comfort of my own home - they e-mailed their completed project to me!"*

One student remarked in an interview:

*"Well, I think that the information is a lot more up-to-date so that if you needed facts for Maine population, for example, it's probably a lot more up-to-date if you were to go on the Internet than it would be to go into a textbook that was made in like 1980."*

Students are also reporting that they use laptops in their mathematics classes, but the evidence in figure 4 reveals that the laptops are used less frequently in this content area. Teachers reported that available Internet resources in mathematics generally are neither as extensive nor as rich as in other subject areas. In response to an interview question about subjects where the laptops are not used as frequently one teacher responded:

*"I would say that the math program right now that we have. I know they [laptops] do have the graphing calculator in it, but at this point it's really not . . . our math program is really hands on. . . We could have done it as more of an option, using the computer as a tool to try it as a graphing calculator, but its never been a curriculum based piece at this point."*

*"In math there has been no real change. I've not been able to find software that is really relevant to my teaching."*

Still, some teachers find the laptops and technology helpful in mathematics. For instance, as some teachers reported in interviews:

*"There's a website called Cool Math for Kids where there are some various math activities around facts and skill work and whatever. And they've been able to go on those websites. They do things independently and enjoy that exploration process from an instructional standpoint."*

*"In my class, the kids are just blossoming because a lot of students don't have access to computers at home or access to the internet at home, and in Math I've been using the different educational websites for reinforcement and for guided practice and they really like the hands-on and enjoy that."*

Another said:

*"We've used AppleWorks Spreadsheet to make tables and graphs. The seventh grade bought graphing calculator software and that was used directly in a math unit we just finished because it didn't have applications for graphing calculators. So we just adapted what was being used for handheld calculators to this software . . . And that's been really useful for students and I see that we'll use that more as we do more work with equations and graphing numerical data. But I think that's been pretty cool to use and also kids are seeing from the demonstrations some*

*really neat three dimensional graphics that you can create using the coordinate grids. I think its sort of expanding their horizons a little bit.”*

As noted by students during interviews:

*“In math we’ve learned about fractions before but when we go on the fractions on the Internet then we find that they help give us new things to learn about.”*

*“Our math teacher taught us how to use Microsoft excel spreadsheet to do math problems. So we can always use excel to do problems and stuff like that.”*

The MLTI project staff has recognized teachers’ perceptions of a lack of Internet resources for content areas such as Mathematics and, as a result, has hired Content Mentors for each of the core subject areas. These Content Mentors are in the process of conducting workshops throughout the state on the integration of technology in the classroom. The state’s Content Mentor for Mathematics, for example, recently held regional workshops for mathematics teachers. Teachers have responded positively to these workshops as the following comments from the workshop evaluation forms indicate:

*“Having content specific groups was most helpful. The fraction tools will be used Monday in my classroom. I emailed the 6<sup>th</sup> grade teacher with these sites so she can access them as well! Isn’t technology great – she emailed me back during class and said that she was checking out the websites!”*

*“I really was needy for websites that were workable for classes that I teach (not just play sites). This workshop really gave me a wealth of information . . . Students will be using their laptops much more and in a constructive format in the classroom.”*

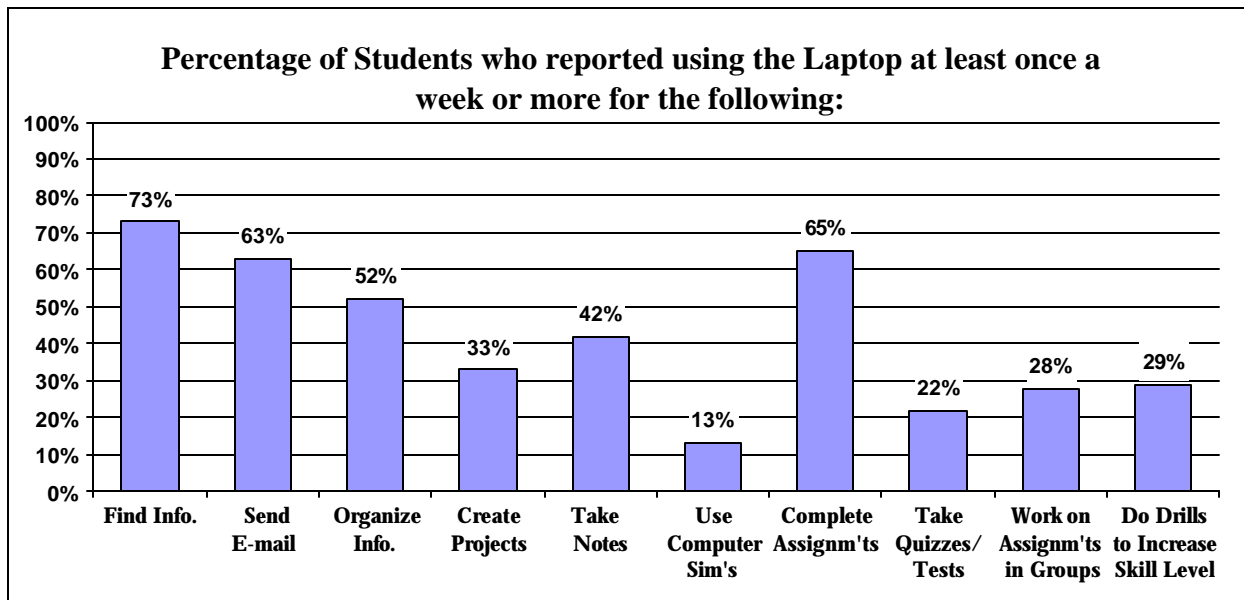
*“I learned that the laptops can be a time saving device that supplements and enhances a curriculum already in place. I think there are many, many possibilities for use in math. I was doubtful before this workshop.”*

*“The iTeach Math site is superb! The lesson on comparing fractions and percents allows the student to visually see the relationship between all three. The use of the pies and bars Fraction Model has a variety of learning tools for students to expand their understanding of fractions.”*

In terms of usage, the laptop program has engaged students in using laptops in a variety of ways. Figure 5 displays students’ responses to a survey item that asked them to indicate how often they used their laptops for a variety of purposes. At least two-thirds of students surveyed reported that they are using their laptops to find information and complete assignments. These

responses coincide with teacher surveys, which found that students are using their laptops primarily to word process (60%) and to conduct research (56%).

**Figure 5**



Two examples from student interviews are:

*“We use them to make projects, like iMovie, we’ll make movies on them for social studies. And for science we use them a lot to go on the Internet and find information for notes . . . and in reading we go on the Internet and go to news sites and check articles.”*

*“We had a project where we had to research famous Maine politicians and we use that [the laptop] to help find out facts. For example, we had to find biography and U.S. history at the time that they served.”*

In addition to using the laptop to find information, students reported using their laptops to communicate via e-mail with teachers and classmates. Since the laptops were introduced in the schools, students are now able to e-mail both their teachers and fellow classmates when working on projects or if they have questions outside of the classroom. Almost two-thirds of students reported that they use their laptop to communicate via e-mail at least once a week or more.

The immediate e-mailing capability has also helped some teachers provide continuity in their instruction, even when they have had to be away from the classroom. One teacher reported on the Maine Learns website:

*“Another great way to use the laptops – I was out sick with my children for a couple of days. I e-mailed what was happening for the day to my students. I even*

*set up times to be available for immediate responses to e-mails to answer any questions. It was great!”*

Another described the benefits of e-mail in a similar fashion on the Maine Learns website:

*“Whenever I am out of the classroom for a day I am always thinking, ‘What am I going to find when I get back? Am I going to need to redo lessons?’ This was the case when I need to stay home with my daughter one day in October. Fortunately for me I was able to e-mail my students to let them know that I would be on-line during their class and they could e-mail me with their questions.”*

During an MLTI regional meeting a principal reported:

*“I do journaling with some of the kids, so I see e-mail as a way to do this.”*

The web-based student survey evidence also indicated that students were using their laptops in other ways, including organizing information (52%), taking notes (42%), creating projects (33%), and doing drills to increase their skill level (29%). One student said in an interview:

*“I use it mostly for research and then probably presentation comes after that. And also when we have tests coming, we sometimes have the option to take it on the computer because there’s an Internet site where they print it off and you can just take it off the computer. That way we can get our grades right away because the teacher prints it off and gives it back to us.”*

Another said:

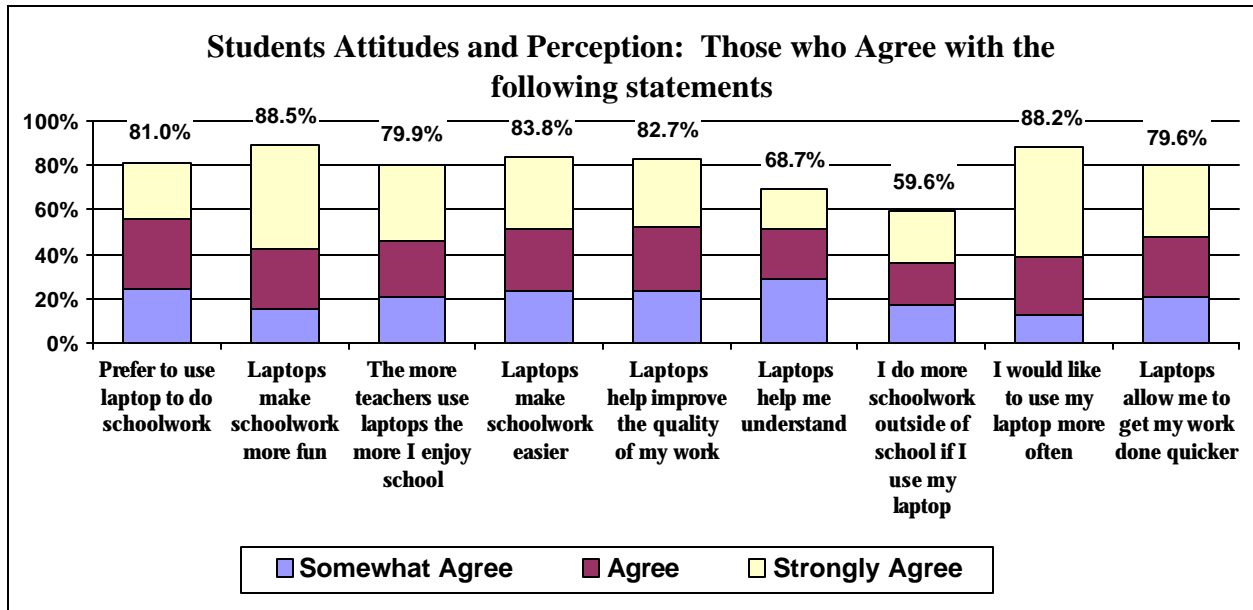
*“We went on these online games that helped us with the parts of speech because we weren’t exactly grasping it from the textbook.”*

Overall, students appear to be utilizing the laptops within many of their core subject areas. While the students are using the laptops primarily for finding information, word-processing, and communicating with teachers and other students, it appears the implementation of the laptop program is beginning to open up new ways of learning for many students.

### ***What has been the impact of MLTI on students and their learning?***

One item on the web-based student survey asked students to rate their level of agreement with nine different statements pertaining to the impact of the laptops on learning using a six point scale that ranged from *strongly disagree* to *strongly agree*. Figure 6 displays the percentage of students who indicated they *somewhat agreed*, *agreed*, or *strongly agreed* with each statement. It is clear from their responses that students would like to use their laptops more often (88%), that students believe that laptops make schoolwork fun (89%), and that they are a preferred tool for doing school work (81%).

Figure 6



When asked this type of question during an interview, one student remarked:

*“I like Social Studies more because last year was before we had them we just kind of used the textbooks, but now we get to go on the Internet and actually, you know, some speeches that we have we can find on the Internet and on WorldBook and that makes it a lot more interesting.”*

Another said:

*“Actually it improved my reading because me, I don’t like to read. And when I got the laptops I just loved reading the stuff online because it’s pretty interesting, more than the textbooks.”*

Another student remarked:

*“Well, I think that it makes them [classes] a lot more interesting because before we had to use mostly outdated textbooks and so the laptops are a lot more up-to-date and actually it does help you motivate, motivates us a little bit because it’s a lot more interactive.”*

In addition to an increased interest in school, many students are reporting that the presence of laptops makes their schoolwork easier to do, and helps them to improve the quality of their work. Almost 85% of students felt this way, and roughly 69% of students stated that laptops help them understand their classes better. One student said in an interview:

*“We all had to write a Native American story about their creator. We had to write a legend about it...It’s just a lot of fun to do these things because you can be more creative when you have your own laptop right here.”*

Another student said:

*“Well, I think that it makes them[classes] a lot more interesting because before hand we had to use mostly outdated textbooks and so the laptops are a lot more up-to-date and actually it does help you motivate, motivates us a little bit because it’s a lot more interactive.”*

Interviews with teachers support students’ agreement that the laptops are having a positive impact on learning. One teacher leader reported to her RIM:

*“I have noticed increased attention to task and an excitement about learning new computer skills.”*

One teacher described the impact this way:

*“My kids are really excited about writing time. I can’t say that that’s always been the case. Something’s different this year. I’m finding, just looking at my first round of short stories, the average story is 5 pages! They’re just willing to go further. It’s so much easier to revise . . . there are lots of fun things to engage them . . . there are just a lot of connections, and they’re feeling their creativity because they have a great tool.”* (Teacher interview)

Another teacher wrote on the Maine Learns website of his success:

*“Students were given time at home to prepare essay question answers for their Maine History test covering the age of exploration and the first colonies. Since we are not yet allowing iBooks to go home, copies of notes were printed to bring home with their books to help them prepare for the test. On the day of the test as the questions were passed out, one of the seventh graders asked if they could use their iBooks to type the test. I indicated that I expected they would. The eighth graders asked for equal treatment and asked to go to the computer lab so they could type theirs also. The results: 9 Exceeded standard (A+ or A); 7 Met standard (A-, B+, B, or B-); and 2 Partially met standard (C+ or C). Two of the papers were 8 pages in length, size 12 font, double spaced for 5 questions. All were still writing at the end of 90 minutes when I ended the session.”*

While the laptops appear to have a positive impact on students’ work within school, some students are also reporting some positive affects at home. When asked in interviews whether or not they are using their home computer more or less since acquiring their laptops, many students responded they are using their home computers more often to research information on the Internet and to type their papers for school. Some students state that this increase is due to the fact that they now have a better understanding of how to use their computers and the Internet.

*“I think that I use it [home computer] more now because it’s easier for me to understand technology a little bit better now because I’m more familiar with it.”*  
(Student interview)

Also, more than half (60%) of those students who responded to the survey stated that they do more schoolwork outside of school if they are able to use their laptop. While many schools have yet to allow the laptops to go home, almost 90% of students stated that they would like to use their laptops more often. One student in particular, when asked in an interview whether or not he would like to take his laptop home with him, even if it meant receiving more homework replied, *“Yes, because we could still finish it quicker!”*

Although the majority of students have not been able to take their laptops home yet, the use of these tools within the classroom has helped to a certain degree to diminish the effects of rural isolation for many students. Students and teachers alike now have the ability to connect to information, resources, and people outside of their own region, state, and country via e-mail and the Internet. Without leaving the classroom students have the opportunity to make “virtual” tours of museums around the world, observe collections of marine sciences data, or hear authors discussing writing and literature. Examples of comments from students and teachers are:

*“In Geography we are doing the Middle East, like the mosques and stuff like that. We go on WorldBook and it shows you images and you get to look around the mosque. And we wouldn’t normally be able to do that.”* (Student interview)

*“We have used them to research Maine artists in preparation for going to the Farnsworth Art Museum. The laptops have enabled students to view contemporary Maine artists through museums, personal artist websites, and the Maine Arts Commission. This allowed all students to see the art first hand. I never could have afforded all the slides and books to do this without the laptops.”* (Teacher interview)

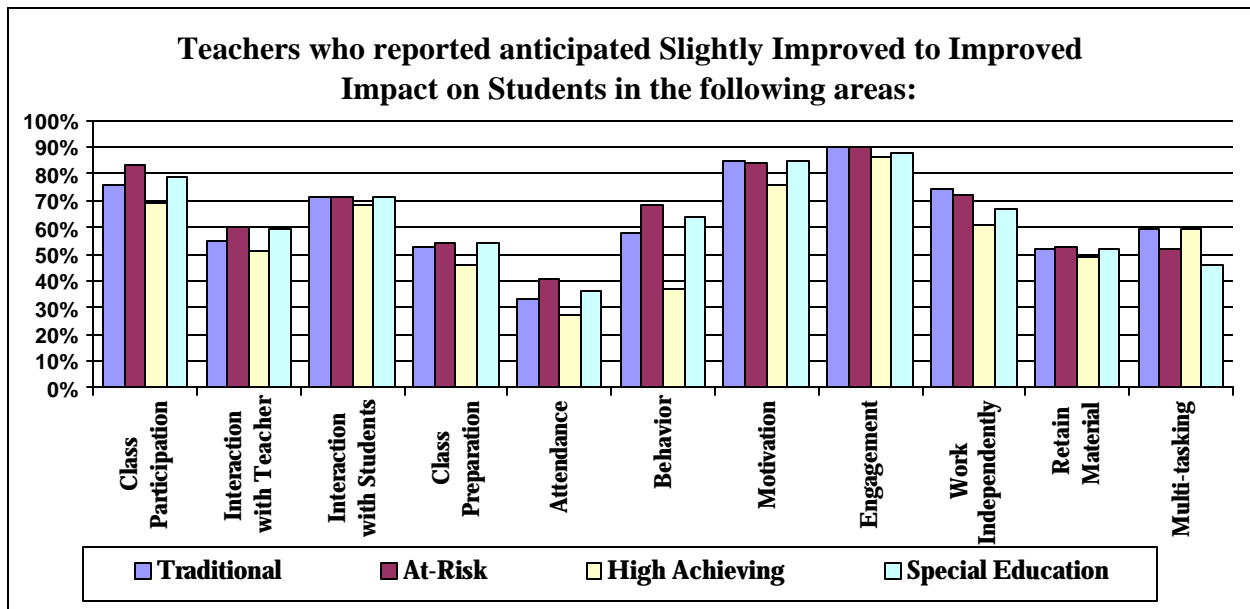
*“Some days you just say, ‘This is the greatest thing that ever showed up in my classroom,’ last week we were talking about the declaration of independence, we went to a site where you can look at the picture of the real one, and you can look at the edited version that John Adams and Ben Franklin edited. When you are studying language arts, you edit your work, well, here is one of the greatest documents in history and you can take the kids there and show how it was also edited.”* (Teacher interview)

Another important impact of the laptops is that the interactions within the classroom also appear to be shifting. Teachers are reporting that the interactions occurring between students and teachers and between students and students have been enhanced. According to the teacher survey, roughly 50% of teachers responded that the laptops improved students’ interactions with them, and approximately 70% of teachers stated that interactions between students have improved. As some teachers put it in interviews:

*“I think they [the students] feel empowered because they can show me things on the computer that I don’t understand. Often the students know the answers that I don’t in terms of just the day to day workings of the machine or how to get the machine to do things. That reverses the role of the student and teacher which is fun for them and me too. It also fosters cooperation between the kids . . . it has created a lot more opportunities for interaction between peers.”*

*“I don’t know how to do an iMovie either but I’ve got five kids in my class that do, and they’re teaching other kids and they teach me.”*

**Figure 7**



In addition, teachers reported that they expect all types of students to experience these positive impacts of the laptops. Figure 7 represents teachers’ ratings of the anticipated impact of the laptops on eleven different learning-related behaviors for four different groups of students described briefly as; traditional, at-risk, high-achieving, and students in special education programs. According to the survey results, teachers anticipate improvements in all areas. Over 70% of teachers expect positive impacts for all students in class participation, motivation, and engagement. They anticipate the greatest improvements for at-risk and special education students. Interview data indicate that some teachers are already observing these changes:

*“If you look at some of the needier kids, there’s definitely been a marked improvement between on-task behavior, active participation. You know, that’s a big thing. You’ve got kids that just tend to sit there and that active participation has gone up. Definitely by 75-80%.”*

*“Yeah, I think there are a lot of kids that would be at-risk that I’ve seen improve due to having a laptop . . . sometimes they’re the ones that are excelling on the laptop and can help with the instructors too. I see a lot of that with the kids helping each other.”*

*“And the thing that I like, not only does it teach to the individual but it especially the special needs kids, because it really, for most of them, levels the playing field, for these special needs kids. We’ve got some kids that have some pretty severe needs and they can do some stuff that’s right up with the other kids.”*

One teacher, when asked about the impact of the laptops on students with disabilities, responded:

*“I have a student in class who has asbergers syndrome as an example but he is able to use the laptop. He has difficulty with writing. He doesn’t particularly like the process of writing but he likes the laptop better than he likes his pen or pencil. He produces more because of the laptop.”*

Another teacher commented during an interview:

*“So I think it puts kids more on a level field. If you’re not a good writer you don’t always have to write. There are other ways to accomplish the same goals. I find kids with disabilities to be much quicker in picking up the technology pieces than your standard traditional high achieving kid. They are the ones who teach me...oh no Ms. Smith [name changed]...this is how you do this. They are very quick.”*

However, it is not merely the special needs students that are improving as a result of the laptop program. As one teacher noted in an interview:

*“I did a research project last year on on-task behavior. I did a language arts exercise, both using worksheets and laptops, and then I did a math exercise using worksheets and laptops. I did an observational study of on-task behavior, found out different criteria, identified different on-task behaviors, and measured them between one and the other. It was clear that they [the students] were much more on task when they were using the laptops. They then had an examination after both [the worksheets and the laptop assignments] and they did much better after using the laptops.”*

While teachers expect high achieving students to experience more moderate improvements, relatively speaking, some parents reported positive impacts on their high achieving children. One parent explained that while her son has typically done really well in school, the implementation of the laptop program has helped him to keep busy when he finishes his homework and is waiting for the rest of his classmates to catch up.

*“He’s a very bright child who a lot of times in standard classrooms can be done his work and so with the laptop there is always something quiet that he can be doing. . . The laptop gives him the power of, ok you’re still working on that, but I can go back and finish my homework now while you’re doing that. There’s that versatility there where he can go and not get in trouble and that was a real issue for him because he is a little information sponge.” (Parent interview)*

Another parent described on the Maine Learns website the impact on her son in these words:

*“My son been so fortunate to have been ‘in the right place at the right time;’ namely, heading into 7<sup>th</sup> grade when this initiative got underway... Simply put, my 7<sup>th</sup> grade son is loving his laptop. Thus far he’s created two slide shows for projects in Spanish and in Language Arts, assisted his tech coordinator in gaining Internet access for students at home, done virtually ALL of his homework since November on his machine, and in general, enjoyed every discovery he’s made as a new Apple user (he uses a PC at home as well). His laptop talks, plays snippets of good music and stores all his files for easy access, at his fingertips. He can do homework in waiting rooms, on long car rides, on his mother’s boring shopping trips—anywhere! He feels good about his accomplishments in a way I haven’t seen for the past 7 years. He’s learning more material, and he’s learning it faster. He’s excited about learning. Bravo!!!”*

Students, teachers, and parents alike are reporting many positive impacts that the MLTI is having on students and their learning. The utilization of the laptops has provided the students with opportunities to gather knowledge not otherwise available with standard textbooks and other classroom materials. Faster, easier access to communicate more readily with teachers and peers has made learning and going to school, and even homework, a more pleasant experience. These observations about the impact of the laptops on student learning are generally true for all students including those students who teachers define as at-risk and students with disabilities. There is also evidence that the nature of learning within the classroom is changing with students taking more responsibility for their own learning. While it is still too early to determine the long term impacts that the laptop program may have on student learning, the early findings support the notion that students are more interested and engaged in school, a condition that is generally accepted as essential to learning.

***What obstacles, if any, are students encountering as they use laptops and technology?***

Although students are very excited about the laptops, almost half of all students (45%) responding to the survey indicated having had a problem with using their laptop within the last two weeks. Many of these problems have been noted earlier in this report. Students report that slow Internet connections and difficulty charging their laptops sometimes has an impact on their work. In interviews students reported:

*“I’ve had trouble getting onto the Internet. Sometimes when I try, this rainbow circle comes up spinning and won’t stop.”*

*“Well sometimes when there’s a lot of people on the laptops trying to get on the Internet or the email to check something from your teacher, the server builds up...so it starts to freeze and it gets slower.”*

*“Sometimes once you do get on [the Internet], sometimes it just goes extremely slow. But other than that I don’t see any major flaws.”*

*“At one point there was a problem with my battery. It turned out it was dead, that it wasn’t charging when it was plugged in to charge.”*

In reference to slow Internet connections, students are responding that they are still able to keep up with the class assignment and that oftentimes teachers have back up plans in place. In interviews students reported:

*“We usually save it constantly so if that happens [Internet freezes] we can just force quit out of it or restart it.”*

*“Well, the teacher usually has a backup plan. Like if we are supposed to read the story on the Internet then they will hand us out the paper version.”*

*“I think I can catch up as long as you follow what the teachers tell you and save every once in a while. Then you can just force quit out of what you are doing and reopen it and then it’s right there.”*

Another obstacle which some teachers and students are experiencing involves take-home policies and Internet access. Since a considerable number of schools have yet to allow laptops to go home, and some homes lack Internet access, some teachers are finding they must allow more time during the school day and in their classes for students to complete assignments which use the laptops and Internet. As one teacher put it:

*“Certainly not everybody [has access to a computer at home] which is kind of an issue at this point, in a way, in terms of assignments and homework and expectations that way. Anything involving the Internet I stay away from just because there are enough students here that don’t have either a computer or computer with Internet access at home that it limits those possibilities.”*

These problems, reflective of the “digital divide”, should diminish once more students are permitted to take the laptops home to complete homework.

### ***Summary of Students and Learning***

Overall, early evidence indicates that the Maine Learning Technology Initiative has dramatically increased the use of technology within schools. Students have reported using their laptops to research information, complete assignments, create projects, and communicate with teachers and other students. As the students begin to use the laptops more within their classes, they report an increase in interest in their school work and an increase in the amount of work they are doing both in and out of school. The nature of student learning in classrooms may be changing because students have the tools to pursue, organize, analyze and present information more readily at hand. Although some students continue to experience technical problems, most are excited about using the laptops in their classes.

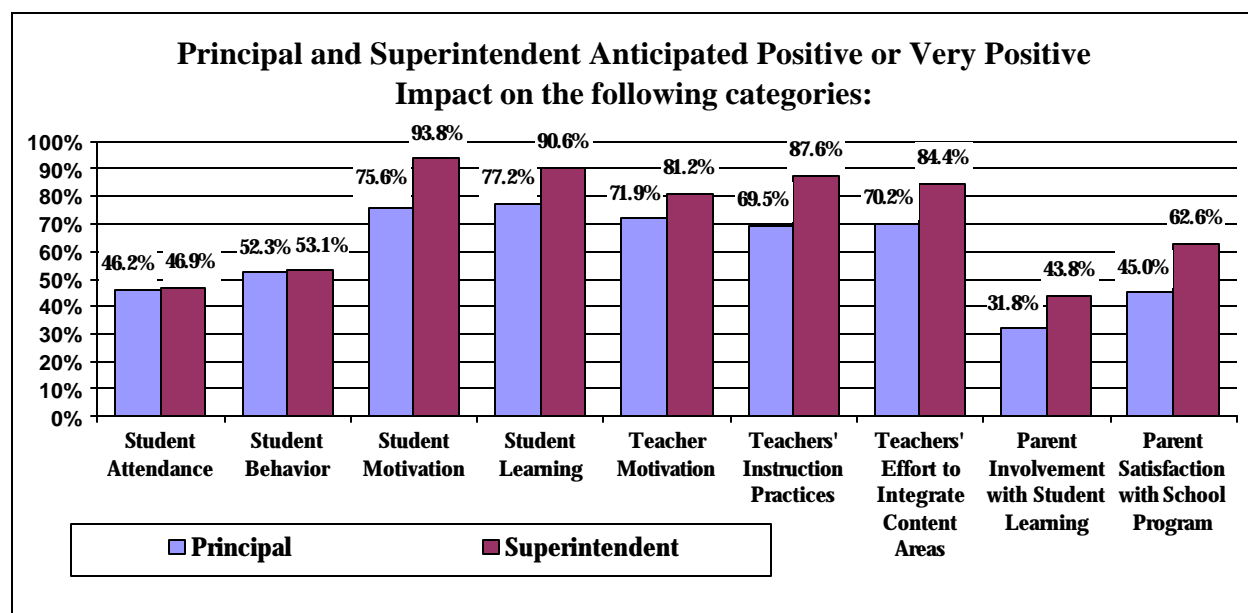
### CORE AREA THREE: SCHOOLS AND COMMUNITY

This evaluation is designed to focus on the impacts of MLTI on the overall school and community. The infusion of technology at the seventh grade level is expected to have some impact on other grade levels, school policies and the community’s perception of the school. At this early point in the project, the evaluation design is still very much focused on teachers, students and administrators. Later efforts will expand the scope of evaluation activities to include a more comprehensive assessment of parents’ perceptions and experience and that of the broader community. But some preliminary evidence is available.

#### *What are the administrators’ perceptions of the impact of the program?*

Figure 8 presents the responses of superintendents and principals to survey items regarding the anticipated impact of the MLTI program on a number of specific areas. As can be seen by the figure, approximately 50% of both principals and superintendents reported that they anticipate a positive impact on student attendance and behavior. Approximately 90% of superintendents anticipate a positive impact on student motivation and learning while approximately 75% of principals anticipate a positive impact on these areas.

**Figure 8**



In addition to the anticipated impact of the MLTI program on students, superintendents and principals also rated the anticipated impact on teachers and teaching, and parents. Regarding teaching, nearly 90% of superintendents anticipated a positive impact on teachers’ instructional practices with principals anticipating this positive impact at a slightly lower rate (70%). Just

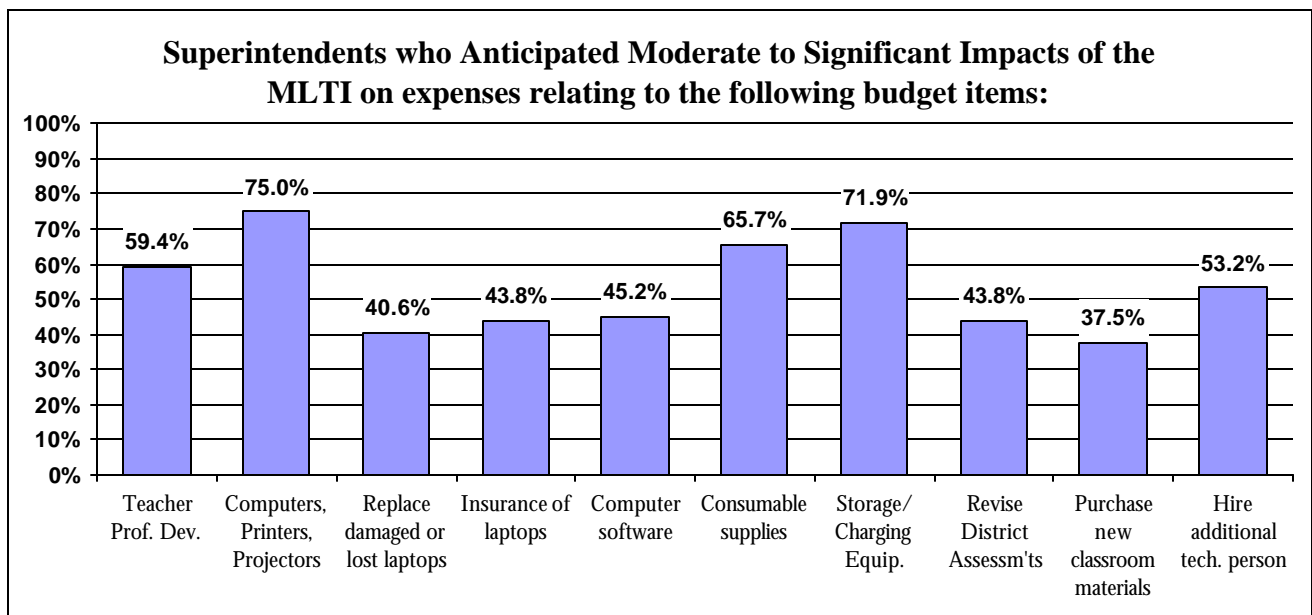
under one-third of principals reported an anticipated positive impact on parent involvement with student learning. Consistently, superintendents reported an anticipated positive impact on the nine specific areas at a higher rate than principals.

***What obstacles have schools and administrators encountered in implementing the MLTI?***

As previously reported, administrators believe the laptop initiative has many positive impacts on students, teachers, and their schools. At the same time, survey results indicate that administrators perceive some significant problems in implementing the program. One issue impacting schools and districts as a result of the MLTI is that of unanticipated costs. Figure 9 describes the percentage of superintendents who anticipate a moderate to significant impact on the district’s budget due to specific items needed for the MLTI program to be successful. Many of these items are primarily startup costs, such as purchasing computers, printers, and projectors, storage/ charging equipment, as well as revising district assessments. Other items may need to be added to the budget on a yearly basis. These items include replacement of damaged or lost laptops, insurance of laptops, and consumable computer or printer supplies.

Other major categories of unanticipated costs are areas that spending might be expected to increase dramatically at first, but then decrease steadily as the program continues. However, expenses in these areas in all likelihood will not decrease, and in fact, may increase. These are in the areas of technical and professional development support. As noted earlier, many schools lack

**Figure 9**



the level of technical support staff needed in helping teachers use the laptops more extensively in their instruction. Additionally, while RIMs and teacher leaders are seen by teachers as helpful, they have insufficient time to meet teacher professional development needs. Unless corrective measures are taken, these problems will only increase next year when the 8<sup>th</sup> grade phase-in of the program begins.

Evaluators have observed that some administrators have found a number of creative ways to deal with some of these added costs. For example, some schools are creating student support groups to address the need for increased technology support. Student volunteers or student helpers are the first line of support in some classrooms. They have had training to deal with use of various applications and basic troubleshooting techniques. Teachers and other students alike have come to rely on them for solving minor technical problems, which has resulted in less frustration at the classroom level, and enhanced the ability of both teachers and students to continue with little interruption when problems do occur.

At a meeting sponsored by MLTI, one Teacher Leader commented on his strategy for providing technical assistance to classroom teachers:

*“I go to three different classes and allow fifteen minutes at the beginning of class for any questions related to hardware or software. On Fridays anybody can come to my room for help. I’ve started a student technology team, one in each room.”*

In addition to finding creative ways to address the issue of added costs, some schools are finding that they are able to increase student resources without accruing a large expense. One example of this is the inclusion of WorldBook on the laptop. As one parent remarked:

*“They have a WorldBook. They were going to the Science Museum. They were going to see the Lewis & Clark movie. The assignment two days before that was to do research on Lewis & Clark and find out what their route was. It wasn’t this huge event. I didn’t have to truck everybody to the library and look it up because we don’t have a set of encyclopedias at home. He was able to get all that information from his laptop.”* (Parent interview)

A principal echoed this statement:

*“And let’s face it, before when you wanted kids to find out answers you had to book them to the library or the computer lab or sit them down with encyclopedias and there was only so many of those things to use. Now every kid has a set of encyclopedias. Every kid has got a WorldBook encyclopedia at his or her disposal, every student.”* (Principal interview)

Another example of how the laptops have helped reduce the costs of needed student resources involves the use of graphing calculators in math classes. One principal explained:

*“We used to have to go out and buy these calculators for kids, these graphing calculators and they were expensive. And we all used to have to buy them and we have to worry about them going some place. You know what we did? We bought the graphing calculator program. They’re on every single computer now. And they are not going away. For the following year every kid now has a graphing calculator. Kids couldn’t afford to do that and the school department couldn’t afford to do that for a hundred kids.” (Principal interview)*

The cost of insuring the laptops when they are allowed to be taken home by students is an important policy issue and obstacle that has not yet been resolved by many schools. The laptops are covered on the school’s existing insurance as long as they are on school property; however, they are not covered once they are taken off school property. Recently, the Maine School Management Association (MSMA) has contracted with the Fireman’s Fund property and casual trust insurance company to offer insurance on the laptops outside of school for \$25 per year to members of the MSMA property and casual insurance, and \$30 per year for non-members. As of the end of February only 23 schools had picked up the additional insurance.

In the survey of principals of 7<sup>th</sup> graders conducted in the fall of 2002, 55% indicated that they would be sending the laptops home, 36% indicated they would not send them home, and 8% were undecided at that time. The evaluation team is currently compiling data regarding how many schools have opted to purchase some form of insurance, and those who have not; and also who is responsible for paying for the insurance, the school or the parents. To date, surveys have been received from approximately 57 schools. Of this limited sample, 35% of the principals have indicated that students currently are allowed to take their laptop home. This data is still being collected and it will be summarized in the year-end report.

Another obstacle to taking the laptops home is the problem of providing filtered Internet access at home, and how that would be controlled. A \$4,800,000 gift has been earmarked to provide home Internet access to all students who need it via the MiddleMaine server. By using the MiddleMaine server, the students would have the same restricted access at home that they currently have while accessing the Internet at school.

***What is the impact on parents and community learning?***

Relatively speaking, much less is known at present about the impact of the laptop initiative on parents and communities. In many cases it is too early to determine the impact, but the next phase of the Year One evaluation is focusing on collecting more systematic evidence in

these areas. What little evidence that is available to date indicates some parents are seeing rather dramatic changes in their children. As parents reported during interviews:

*“He feels good about his accomplishments in a way I haven't seen for the past 7 years. He's learning more material, and he's learning it faster. He's excited about learning. Bravo!!! He feels technologically ARMED for the future...”*

*“Generally, he is a better student now. He is a smart kid, he has always been a pretty good student, but he made honor roll the last couple of times, and I don't think he has done that before. It's a self-perpetuating kind of thing; I think he is going to make the honor roll every marking period this year.”*

*“I think he's taking more risks. I think he's doing things like using, even like dialogue, because it's not a big deal to put things in quotes or make tabs or to structure it or to move things around. Just in that one instant, using the laptop as a word processor...it's huge because if he had to go back to pen and paper again the short stories would be very short.”*

As one teacher noted:

*“One of my student's parents said to me that she was so excited because it [laptop program] leveled the playing field. Her daughter would never do any projects at home because she didn't have a computer to have it nicely done, didn't have money for the fancy poster-board that added glitz to the project, or the magazines and things to clip and paste. So her daughter just never did any projects because she was so embarrassed. Now the only thing that is limiting her daughter is her own ability and desire to produce quality work.”*

Many parents who were skeptical about the laptop program, at first, appear to have changed their attitudes once they see first hand how their child is using the laptop and how excited and engaged they are with their schoolwork and with school in general. In fact, 89% of principal respondents to a mailed survey indicated that parents in their community were conveying a slightly positive to very positive attitude about the laptop program.

A major factor affecting parent's perspectives is the fact that most students have not yet been able to take the laptops home. In interview sessions, teachers have reported that some parents feel that they are out of the loop, so to speak, because they are unable to see some of the work that their children are doing at school. Some teachers have started to e-mail parents who have that technology, so that the communication between teachers and parents is quicker and in some cases, in a more timely fashion. But, unfortunately, teachers are not able to do this for all their students.

### ***Summary of Schools and Community***

Although it is too soon to fully assess the impact of MLTI on the school and community, early evidence indicates positive changes. Parents report that their children are more focused and more interested in school. Schools have faced some added expenses in the implementation of the program, but through creative solutions many schools are finding ways to minimize these costs, and possibly even save money as the laptops replace materials such as reference books and calculators. Finally, even more positive changes resulting from MLTI are anticipated by school principals and superintendents, although these impacts cannot yet be measured.

## Conclusion

Evidence collected to date, consisting primarily of survey, interview and observation data, indicate that MLTI is having a very positive impact on teachers and teaching, and students and learning. Generally speaking, it is too early to assess the impacts on schools and community, but some preliminary evidence suggests several positive impacts in these areas also.

Teachers are making rapid progress in incorporating technology into instruction. They report being able to quickly access current information and locate websites that are beneficial to their students' learning. Teachers are becoming more sophisticated presenters of information and communicating more easily and frequently with students, parents and colleagues. Some teachers report the perception that the role of teacher is changing from being dispensers of knowledge to facilitators or guides to information. Laptops and basic technical skills have enabled students to find the information they need, often with minimal teacher assistance. And teachers, who rate themselves more advanced users of technology, are experiencing even greater success.

Students are enthusiastic about using laptops. They find school and learning more interesting and prefer using laptops for most school tasks. Teachers report that students are more motivated and attentive to tasks. According to teachers, students, including those who are at-risk and those in special education programs, are writing more and are more willing to share their work in presentations.

School administrators report some implementation and cost problems, but also report they believe MLTI will have positive impacts on student learning, and teacher instructional practices. Parents agree that the laptops are having positive impacts on their children.

Thus, the evaluation team concludes that the evidence to date indicates that significant progress has been made in implementing the MLTI. And although it is early in the implementation phase of the initiative, the mid-year evidence indicates that the laptop program is having many positive impacts on teachers and their instruction, and on students' engagement and learning. Some obstacles still exist in fully implementing the program, but significant strides have been made in a very short time period toward achievement of the goals of MLTI.

## **Appendices**

## **Appendix A**

### **Year One Evaluation Plan**

## Year One Evaluation Plan

Tasks	Products
1. Development of evaluation plan	Written evaluation plan
2. Development, administration, & analysis of larger sample surveys.	
a) Principal surveys (initial, mid-year, end-of-year)	Copies of surveys Summary of survey results
b) Teacher surveys (mid-year, end-of-year)	Copies of surveys Summary of survey results
c) Student surveys (mid-year, end-of-year)	Copies of surveys Summary of survey results
d) Parent surveys (mid-year, end-of-year)	Copies of surveys Summary of survey results
e) Superintendent surveys (Fall & Spring)	Copies of surveys Summary of survey results
3. Collection of evidence from RIMs, teacher leaders, content leaders and DOE personnel	Documentation of process and evidence
4. Development of evaluation database	Description of electronic database design and product
5. Development and implementation of case studies	
a) Selection of case study sites	Selection process and criteria
b) Case study site visits	Documentation of site visits
c) Examination of documents	Documentation of review process
d) Case study documentation	Case study reports
6. Development of web-based survey program	Web-based survey program
7. Development of small scale RFP research studies	
a) Identification of study questions	Written list of study questions
b) Selection of researchers	Documentation of selection
c) Research studies	Research reports

Tasks	Products
8. Development of mini-studies of DOE/MLTI professional development curriculum projects	Documentation evidence
9. Collection and review of site generated documentation & evaluation evidence	Documentation of collection and review
10. Review and analysis of national relevant evaluations and research evidence	Documentation of review and analysis
11. Development of Years 2 – 6 Evaluation RFP	Copy of RFP
12. Review of evaluation plan and activities	Bi-monthly meetings of the evaluation team with the DOE/MLTI steering committee.
13. Preparation of evaluation reports a) Mid-year b) End-of-year	Written report Written report

## **Appendix B**

### **Copies of Survey Instruments**

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Principal Survey, September 2002

To confirm accuracy of our records, please print your name and e-mail address.

Name: \_\_\_\_\_

School Code and School Name

School e-mail address: \_\_\_\_\_

1. How long have you been principal **at this school**? ? First year ? More than two years  
? Second year
2. How many 7<sup>th</sup> grade students are enrolled in this school? \_\_\_\_\_
3. Were laptops from the MLTI distributed to **all** of your 7<sup>th</sup> grade students by September 16, 2002? ....? Yes ? No  
 a. If not, were they distributed to some of your 7<sup>th</sup> grade students by September 16, 2002?.....? Yes ? No  
 b. If not, when do you expect **all** 7<sup>th</sup> graders to have a laptop? .....\_\_\_\_\_ (Date)
4. Is your school district planning **locally initiated** (not MLTI) professional development for the integration of technology into the curriculum for the 2002-2003 school year?.....? Yes ? No

If yes, please provide a very brief description. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

5. Has or will your school offer informational sessions for parents regarding the use of the laptops?.....? Yes ? No
6. Do you have a written policy concerning damage to laptops? .....? Yes ? No
7. Are students allowed to take laptops home?.....? Yes ? No  
 a. If not, is there a plan to let them take laptops home later in the year?.....? Yes ? No
8. Are students allowed to use e-mail? .....? Yes ? No
9. Can student e-mail be accessed by teachers or administrators?.....? Yes ? No
10. Has your school developed a written vision statement for the potential impact of MLTI?.....? Yes ? No  
 a. If not, are you working on this process?.....? Yes ? No

	Very Negative	Negative	Slightly Negative	Indifferent	Slightly Positive	Positive	Very Positive
11. Please indicate which of the following best describes the attitudes of teachers in your school regarding the potential impact of MLTI.	1	2	3	4	5	6	7
12. Please indicate which of the following best describes the attitudes of parents in your community regarding the potential impact of MLTI.	1	2	3	4	5	6	7

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Principal Survey, September 2002

13. Do you have regular multigrade classes that include 7<sup>th</sup> graders in your school?  
(not including specials) .....? Yes ? No  
a. If yes, please indicate the grade configuration(s) *Check all that apply.* ? 6-7 ? 7-8 ? 6-7-8 ? Other

14. Rate the impact that you anticipate MLTI will have on the following:

	Very Negative	Negative	Slightly Negative	No Impact	Slightly Positive	Positive	Very Positive
<b>a.</b> Student attendance	1	2	3	4	5	6	7
<b>b.</b> Student behavior	1	2	3	4	5	6	7
<b>c.</b> Student motivation	1	2	3	4	5	6	7
<b>d.</b> Student learning	1	2	3	4	5	6	7
<b>e.</b> Teacher motivation	1	2	3	4	5	6	7
<b>f.</b> Teacher instructional practices	1	2	3	4	5	6	7
<b>g.</b> Teachers' efforts to integrate content areas	1	2	3	4	5	6	7
<b>h.</b> Parent involvement with student learning	1	2	3	4	5	6	7
<b>i.</b> Parent satisfaction with school program	1	2	3	4	5	6	7
<b>j.</b> Criteria used to evaluate teaching performance	1	2	3	4	5	6	7
<b>k.</b> Other:	1	2	3	4	5	6	7

15. Does your school plan to conduct a local evaluation of the MLTI based on any of the above items, *a* through *k*?.....? Yes ? No  
a. If yes, please check the areas that will be evaluated locally.  
    ? **a** ? **b** ? **c** ? **d** ? **e** ? **f** ? **g** ? **h** ? **i** ? **j** ? **k**  
b. If yes, would your school be willing to share this information with the Maine Education Policy Research Institute (MEPRI), which is currently evaluating the MLTI?.....? Yes ? No ? Maybe

16. Would you be willing to have your school participate as a case study school, which might include having evaluators visit your school to interview teachers and students?.....? Yes ? No ? Maybe

Additional Comments:

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
 Superintendent Survey, September 2002

*This survey is being conducted by the Maine Education Policy Research Institute (MEPRI) as part of a statewide study of the impact of the Maine Learning Technology Initiative (laptop program). This work is being sponsored and conducted on behalf of the Maine Department of Education. Data from this study will be reported out on a statewide and regional basis only, and no information will be reported that identifies schools, districts, or individuals.*

*You are being asked to participate in the survey as a leader of a school district that is participating in the laptop program. Your participation in the survey is voluntary and your responses will be confidential. Your views about the laptop program are important, and we hope you will take a few minutes to answer the questions below.*

*Thank you for your participation.*

District Name: \_\_\_\_\_

1. Please indicate the total K-12 resident enrollment in your district (as of 10/1/02): \_\_\_\_\_
2. Please indicate the total number of 7<sup>th</sup> grade students enrolled in your district/ union (as of 10/1/02): \_\_\_\_\_
3. What percentage of students (district-wide) is eligible for free/ reduced school lunch program as of 10/1/02? \_\_\_\_\_%
4. For the following categories, what impact do you expect the MLTI to have on your district budget for this year (2002-2003)?

	No Impact	Small Impact	Moderate Impact	Significant Impact
a. Expense for teacher professional development	1	2	3	4
b. Expense for computers, printers, or projectors	1	2	3	4
c. Expense for replacement of damaged or lost laptops	1	2	3	4
d. Expense for insurance on laptops	1	2	3	4
e. Expense for computer software	1	2	3	4
f. Expense for consumable computer or printer supplies	1	2	3	4
g. Expense for storage furniture and/or charging equipment	1	2	3	4
h. Expense to revise district assessments	1	2	3	4
i. Expense to purchase new instructional materials	1	2	3	4
j. Expense to hire additional technology support personnel	1	2	3	4

- 4a. Please give your best estimate of the total additional cost in dollars **per 7<sup>th</sup> grade student** for items a through j above for this year (2002-2003) : \$ \_\_\_\_\_ per 7<sup>th</sup> grade student

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
 Superintendent Survey, September 2002

5. Are there any plans within your district/union to offer locally initiated professional development for teachers on integrating technology into the curriculum during the 2002-2003 school year?

yes  no

If yes, please provide a brief description:

6. Please indicate below if the time spent on professional development related to technology being offered this year within your district/union has changed from last year, for teachers in the following grade levels:

	Decrease in time spent	No change	Increase in time spent
5th grade teachers	1	2	3
6th grade teachers	1	2	3
7th grade teachers	1	2	3
8th grade teachers	1	2	3

7. How does your district/ union plan to meet the cost for repair or replacement of student laptops for damage that might occur outside of school?

- insurance with cost absorbed by the school or district/ union
- insurance with cost absorbed by parents
- insurance with cost shared by school or district and parents
- school or district/ union will self-insure
- other (please specify): \_\_\_\_\_

7a. If parents will support the cost of insurance, does your district/ union have a plan for students whose parents cannot afford this expense?  yes  no

If you checked yes, please briefly explain this plan.

8. Are there any plans to change school or district-generated assessments (not commercial or MEA) that are administered to 7th or 8th grade students this year as a result of the MLTI?  yes  no

8a. If yes, will students be asked to use laptops or computers to perform some part of these assessments?  yes  no

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
 Superintendent Survey, September 2002

9. Which of the following best describes the current attitudes of the following groups in your district/union regarding the MLTI?

	Very Negative	Negative	Slightly Negative	Neutral	Slightly Positive	Positive	Very Positive
a. Teachers	1	2	3	4	5	6	7
b. School board members	1	2	3	4	5	6	7
c. School administrators	1	2	3	4	5	6	7
d. Parents and community members	1	2	3	4	5	6	7
e. Students	1	2	3	4	5	6	7

10. Rank the impact that you anticipate the MLTI will have on the following categories:

	Very Negative	Negative	Slightly Negative	Neutral	Slightly Positive	Positive	Very Positive
a. Student attendance	1	2	3	4	5	6	7
b. Student behavior	1	2	3	4	5	6	7
c. Student motivation	1	2	3	4	5	6	7
d. Student learning	1	2	3	4	5	6	7
e. Teacher motivation	1	2	3	4	5	6	7
f. Teachers' instructional practices	1	2	3	4	5	6	7
g. Teachers' efforts to integrate content areas	1	2	3	4	5	6	7
h. Parent involvement with student learning	1	2	3	4	5	6	7
i. Parent satisfaction with school program	1	2	3	4	5	6	7
j. Other: _____	1	2	3	4	5	6	7

11. Please describe any concerns you have about the MLTI program. (e.g., costs for schools/district, sustained funding, time, training needed, etc.)

Thank You.

**Section I. Demographic Information**

School Name: \_\_\_\_\_

Grade Level (circle one): 7<sup>th</sup> Grade      8<sup>th</sup> Grade

Gender (circle one): Male      Female

Are you able to take your laptop home?     Yes       No       Don't Know

If yes, how often do you take your laptop home?

- Once a week
- Two or three days a week
- Every day

When can you take your laptop home? (*Please check only one*)

- Only when I have been given a laptop project to do for homework
- As often as I want

Did you have a computer at home *before* you got your laptop?     Yes       No

If yes, how long have you been using a computer at home? \_\_\_\_\_ years

If yes, do you have access to the internet at home?     Yes       No

Have you ever taken a computer technology class at your school?     Yes       No

**Before you received your laptop**, how often did you use a computer **at school**?

- 0 hours per week
- 1-4 hours per week
- 5-10 hours per week
- more than 10 hours per week

**Now that you have your laptop**, how often do you use a computer **at school**?

- 0 hours per week
- 1-4 hours per week
- 5-10 hours per week
- more than 10 hours per week

What grades do you normally receive in school?

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> Mostly A's | <input type="checkbox"/> Mostly A's and B's |
| <input type="checkbox"/> Mostly B's | <input type="checkbox"/> Mostly B's and C's |
| <input type="checkbox"/> Mostly C's | <input type="checkbox"/> Mostly C's and D's |
| <input type="checkbox"/> Mostly D's | <input type="checkbox"/> Other _____        |

In which subjects or classes do you use computers? (Check all that apply.)

- |  |                                      |
|--|--------------------------------------|
| <input type="checkbox"/> None                            | <input type="checkbox"/> Math        |
| <input type="checkbox"/> Language Arts (reading/writing) | <input type="checkbox"/> Science     |
| <input type="checkbox"/> Social Studies / History        | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Art/Music                       |                                      |

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Student Survey, November 2002

**Section II. Laptop Skills**

Rate <b>your own skill</b> in using the following:	<b>Never Used</b>	<b>Beginner</b> (I am just learning how to use this)	<b>Intermediate</b> (I am comfortable using this)	<b>Advanced</b> (I can help teach others)	<b>Don't Know</b>
Word processing	1	2	3	4	5
Email	1	2	3	4	5
Internet search engines (ex. AltaVista, Infoseek, Yahoo)	1	2	3	4	5
Spreadsheet software (ex. Excel)	1	2	3	4	5
Presentation software (ex. PowerPoint)	1	2	3	4	5
Paint or draw on the computer	1	2	3	4	5
Simulation software (ex. Lemonaid, SimCity)	1	2	3	4	5
Other: _____	1	2	3	4	5

**Section III. Using the Laptop as a Tool**

Circle the response that most accurately describes how often you use your laptop to do the following:					
	Never	Less than monthly	One or more times per month	One or more times per week	Every day or almost every day
Finding information for assignments	1	2	3	4	5
Sending email (communicating with friends and/or teachers)	1	2	3	4	5
Organizing information	1	2	3	4	5
Creating presentations and projects	1	2	3	4	5
Taking notes	1	2	3	4	5
Using computer simulations (ex. Lemonaid, SimCity, etc.)	1	2	3	4	5
Completing assignments	1	2	3	4	5
Taking quizzes / tests / assessments	1	2	3	4	5
Working on assignments in small groups	1	2	3	4	5
Doing drills to increase your skills in Math or Science or English, etc.	1	2	3	4	5

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Student Survey, November 2002

**Section IV. Attitudes and Perceptions**

Circle the response that most accurately describes your level of agreement with the following statements:						
	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I prefer to use a laptop to do my schoolwork.	1	2	3	4	5	6
Laptops make schoolwork more fun/interesting.	1	2	3	4	5	6
I believe that the more often teachers use laptops to teach, the more I will enjoy school.	1	2	3	4	5	6
I believe that it is very important for me to learn how to use a laptop.	1	2	3	4	5	6
Laptops make schoolwork easier to do.	1	2	3	4	5	6
Laptops help me improve the quality of my school work.	1	2	3	4	5	6
Laptops help me understand my classes better.	1	2	3	4	5	6
I do more homework outside of school if I am able to use my laptop.	1	2	3	4	5	6
I would like to use my laptop more often.	1	2	3	4	5	6
Laptops allow me to get my work done more quickly.	1	2	3	4	5	6
I am excited about the laptop program.	1	2	3	4	5	6

Within the **last two weeks** have you had any problems with using your laptop? \_\_\_\_ Yes \_\_\_\_ No

If **Yes**, please explain these problems. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Section V. Computer Infraction Policies**

Have you been instructed on what will happen if you misuse your computer? \_\_\_\_ Yes \_\_\_\_ No

Have you had your laptop taken away **for more than a class period** for any reason? \_\_\_\_ Yes \_\_\_\_ No

If yes, why was it taken away? \_\_\_\_\_  
 \_\_\_\_\_

For how long was it taken away? \_\_\_\_ days



**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Teacher Survey, December 2002

**Directions:** Please complete and return this survey by **December 6, 2002** in the enclosed pre-addressed postage-paid envelope. Your opinions are very important in completing a thorough evaluation of the MLTI. Please know that any information you provide in this survey is considered strictly confidential and absolutely no information will be given that may identify you to your school or the Department of Education.

If you have any questions, please feel free to contact **Dawn Lane at 207-228-8221** or by email [dawnm@usm.maine.edu](mailto:dawnm@usm.maine.edu), **Paula Gravelle at 207-780-5497** or by email [gravelle@usm.maine.edu](mailto:gravelle@usm.maine.edu), or **David Silvernail at 207-780-5297** or by email [davids@usm.maine.edu](mailto:davids@usm.maine.edu).

School Name: \_\_\_\_\_

How long have you had your laptop? \_\_\_\_\_ week(s)

How long have your students had their laptops? \_\_\_\_\_ week(s)

**Section I. Your Use of the Laptop as a Tool**

Listed below are some ways in which **you** may be using your laptop in your work. Please indicate how frequently you use your laptop for your work in each area listed.

<b>On average, how frequently do you perform the following tasks using your laptop:</b>	<b>Never</b>	<b>Less than once a week</b>	<b>Once a week</b>	<b>A few times a week</b>	<b>Once a day</b>	<b>Often during the day</b>
1. Conducting research that contributes to lesson plans and curriculum design	1	2	3	4	5	6
2. Developing instructional materials and / or presentations	1	2	3	4	5	6
3. Producing homework assignments	1	2	3	4	5	6
4. Assessing student work	1	2	3	4	5	6
5. Managing student information	1	2	3	4	5	6
6. Communicating with colleagues inside and outside the school	1	2	3	4	5	6
7. Communicating with parents and students	1	2	3	4	5	6
8. Other: _____	1	2	3	4	5	6
9. Other: _____	1	2	3	4	5	6

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Teacher Survey, December 2002

Please describe a way in which you have been able to integrate the laptops into your classroom activities (i.e. created a lesson, online quizzes, using iMovie in student presentations, etc.)

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**Section II. The Laptop's Impact on Teachers and Teaching**

Listed below are some areas which may have been affected by your use of the laptop. Please indicate the impact of the laptop program on you and your classroom practices in the following areas.

Impact Areas	Very Negative	Negative	Somewhat Negative	Neutral	Somewhat Positive	Positive	Very Positive
1. Planning for instruction	1	2	3	4	5	6	7
2. Presenting lessons	1	2	3	4	5	6	7
3. Creating assignments	1	2	3	4	5	6	7
4. Providing feedback to students	1	2	3	4	5	6	7
5. Assessing students	1	2	3	4	5	6	7
6. Creating integrated / interdisciplinary lessons	1	2	3	4	5	6	7
7. Teacher / Student collaboration	1	2	3	4	5	6	7
8. Teacher / Teacher collaboration	1	2	3	4	5	6	7
9. Classroom management	1	2	3	4	5	6	7
10. Other: _____	1	2	3	4	5	6	7
11. Other: _____	1	2	3	4	5	6	7

**Section III. Your Students' Use of the Laptop as a Tool**

Listed below are some ways in which your **students** may use their laptop in the classroom. Please indicate how frequently your students use their laptop in your classroom for each area listed.

<b>How often do students in your classroom use the laptop to do the following:</b>	<b>Never</b>	<b>Less than once a week</b>	<b>Once a week</b>	<b>A few times a week</b>	<b>Once a day</b>	<b>Often during the day</b>
1. Word processing of papers	1	2	3	4	5	6
2. Taking notes on the computer	1	2	3	4	5	6
3. Managing / analyzing information	1	2	3	4	5	6
4. Researching information	1	2	3	4	5	6
5. Completing assignments / taking tests	1	2	3	4	5	6
6. Doing drills to increase their competency (educational drill software, online quizzes, FunBrain, etc.)	1	2	3	4	5	6
7. Creating culminating projects to show what they have learned (web pages, multimedia projects, videos, etc.)	1	2	3	4	5	6
8. Other: _____	1	2	3	4	5	6
9. Other: _____	1	2	3	4	5	6

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Teacher Survey, December 2002

**Section IV. The Laptop's Impact on Students and Learning**

Listed below are some areas that may be impacted by the use of laptop's in the classroom. For each area please indicate the impact you think that the laptops will have/have on different student groups.

Areas	Traditional Students					At-Risk Students					High Achieving Students					Special Education Students				
	Declined	Slightly Declined	No Effect	Slightly Improved	Improved	Declined	Slightly Declined	No Effect	Slightly Improved	Improved	Declined	Slightly Declined	No Effect	Slightly Improved	Improved	Declined	Slightly Declined	No Effect	Slightly Improved	Improved
Participation in class	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Interaction with you	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Interactions with other students	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Preparation for class	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Attendance	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Behavior	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Motivation	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Engagement / interest levels	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Ability to work independently	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Ability to retain content material	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Multi-tasking	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Other: _____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Other: _____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

**Section V. Professional Development**

How would you rate your overall skill level in the use of the laptop for instruction:

- \_\_\_\_\_ Novice
- \_\_\_\_\_ Beginner (i.e. word processing, email)
- \_\_\_\_\_ Intermediate (i.e. Spreadsheets, PowerPoint, etc.)
- \_\_\_\_\_ Advanced (i.e. integrating technology into class work)
- \_\_\_\_\_ Expert (i.e. can teach staff how to operate various programs and supportive technology)

**MAINE LEARNING TECHNOLOGY INITIATIVE (MLTI)**  
Teacher Survey, December 2002

Below are listed different types of professional development and/or support for laptop use. Please indicate the appropriate response for each activity listed.

Professional Development Activity	Not Available	Available, But Did Not Participate	Not Effective	Somewhat Effective	Effective	Very Effective
1. Maine State Department of Education/ MLTI sponsored workshops	1	2	3	4	5	6
2. Local workshops/seminars on how to <b>use</b> the laptop	1	2	3	4	5	6
3. Local workshops/seminars on <b>integrating</b> the laptop into curriculum	1	2	3	4	5	6
4. Help-desk technical support provided by the district, in-school specialists, or others	1	2	3	4	5	6
5. Apple Help-Desk	1	2	3	4	5	6
6. Informal help from colleagues	1	2	3	4	5	6
7. Self-taught	1	2	3	4	5	6
8. Other: _____	1	2	3	4	5	6
9. Other: _____	1	2	3	4	5	6

**Section VI. Demographic Information**

1. How many years have you been teaching? \_\_\_\_\_ years

2. Highest Level of Education Completed: *(please check one)*

- |   |  |
|---|--|
| <input type="checkbox"/> Bachelor's Degree              | <input type="checkbox"/> Master's Degree plus credits  |
| <input type="checkbox"/> Bachelor's Degree plus credits | <input type="checkbox"/> Certificate of Advanced Study |
| <input type="checkbox"/> Master's Degree                | <input type="checkbox"/> Doctorate                     |

3. Concentration area in which you teach: *(check all that apply)*

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Science               | <input type="checkbox"/> Foreign Languages | <input type="checkbox"/> Mathematics                 |
| <input type="checkbox"/> English/Language Arts | <input type="checkbox"/> Social Sciences   | <input type="checkbox"/> Fine Arts                   |
| <input type="checkbox"/> Technology            | <input type="checkbox"/> Special Education | <input type="checkbox"/> Physical Development/Health |
| <input type="checkbox"/> Gifted/Enrichment     | <input type="checkbox"/> Library Services  | <input type="checkbox"/> Guidance                    |

4. Please list the grade levels that you teach: \_\_\_\_\_ (grades)

5. Do you teach in a multi-age/grade classroom? \_\_\_\_\_ Yes \_\_\_\_\_ No

**Section VII. Comments and Suggestions**

Please describe successes you have experienced with the MLTI.

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Please describe any challenges you have experienced with the MLTI.

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Please include any other comments that you think may help us in assessing the impact of the MLTI and laptop program.

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**THANK YOU FOR YOUR ASSISTANCE.**

Laptop Home Use Policies

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School \_\_\_\_\_

1. Are students in your school currently allowed to take the laptop computers home?

\_\_\_\_\_ yes      \_\_\_\_\_ no

2. If no ,please indicate the reason:

\_\_\_\_\_ School administrative decision

\_\_\_\_\_ No insurance

\_\_\_\_\_ Other (describe briefly) \_\_\_\_\_

3. Are laptops insured when used outside of the school building?

\_\_\_\_\_ yes      \_\_\_\_\_ no

4. If yes, please indicate the name of the insurance company.

5. Who is responsible for the cost of the insurance?

\_\_\_\_\_ Parents are responsible for full cost

\_\_\_\_\_ School is responsible for full cost

\_\_\_\_\_ School and parents share responsibility for full cost

\_\_\_\_\_ Parents are responsible for full cost, but school provides monetary assistance to those who cannot afford it

\_\_\_\_\_ Other: \_\_\_\_\_

Additional comments: