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Ten Lessons Learned: Considerations for School Leaders When Implementing One-To-One Learning

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"At first I was really excited. I thought we were going to be able to do more with them. Now, they're like a decoration. They just sit there." *Maine middle school student quoted in Wired Magazine* (Dean, 2002)

"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!!!" *Parent of a Maine 7th grader* (Maine Education Policy Research Institute, 2003, p. 30)

"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." *Maine middle school teacher* (Maine Education Policy Research Institute, 2003, p. 18)

Introduction

In 2001, the implementation of the nation's first state-wide one-to-one laptop program put Maine squarely on the instructional technology map. Governor Angus King's visionary initiative placed Apple iBooks into the hands of every 7th and 8th grade public school student, as well as their teachers. After six years, formative and cumulative research indicates the Maine Learning Technology Initiative (MLTI) has significantly improved teaching and learning for Maine's middle level students both quantitatively and qualitatively.

[Independent studies by Silvermail and Gritter \(2007\)](#) at The Center for Education Policy, Applied Research, and Evaluation have documented positive results on teaching practices and student learning. [Lemke and Martin \(2003\)](#) of the Metiri Group also reported higher academic performance and greater levels of engagement among students with one-to-one access to digital learning tools as compared to those with less access.

As the principal of Freeport Middle School (FMS) in Maine when the MLTI began, I experienced first-hand how providing one laptop per student affected teachers and students in our school. In observing and listening to my teachers, it was clear to me that the MLTI had the greatest positive impact of any educational policy or program in the past 30 years of public education. FMS World Languages teacher Zully Amaya saw a significant improvement in student engagement:

Students were 100 percent engaged. They took pleasure creating presentations and recording their voices in French or Spanish. These presentations allowed them immediate feedback on what they were learning. It gave them feedback on their pronunciation and helped them become less timid. Bringing foreign cultures into our

classroom was now just a click away. One-to-one technology most definitely spiced things up, and enhanced learning for all the students and for the teacher too!

The MLTI fundamentally and permanently transformed the way teaching and learning occurred in Maine. In addition, it has accomplished this more broadly and in the shortest time of any reform or program that I can recall. The initiative is not only changing the way education happens, it is changing the way we think about teaching and learning. FMS literacy teacher Betsy Sky-McIlvain explains:

The most exciting thing about the laptops is the access they provide for EVERY student to 21st century learning tools - digital communications, digital idea presentation, global sharing of ideas. We have new things to learn about teaching and learning with laptops: reading has changed the editing of and responsibility for writing conventions has changed. The options for demonstration of learning have changed. Students expect more instant responses to their products. No way can we continue to be traditional in today's FMS classroom!

One-to-one computing is also about increasing student motivation and learning. FMS math teacher Alex Briasco-Brin, who is also a Milliken Award winner, shares the impact of laptops on student attitudes and achievement in his classes:

Before the laptops, there was a 60 percent pass rate on the basics test. Now, it's 85 percent. Kids who didn't think they were good at math are being successful and enjoy math again or for the first time. The overall positive atmosphere of my classes has eliminated discipline problems and failing grades. No student has had a zero on a homework all year! More and more topics are being designed as discovery lessons, interactive lessons, and multiple solution answers. I could go on and on.

Additionally, one-to-one computing has proved a huge benefit for students with learning disabilities, as reported by award winning FMS special education teacher Linda Pritchard:

The largest impact laptops have had for kids with learning disabilities is the support they provide students in being independent learners. The kids feel more confident and empowered to do work on their own. Learning becomes more spontaneous for them. Laptops help support more teachable moments, those situations that just happen, unplanned. Isn't that when most authentic learning happens?

FMS tech education teacher and two time Maine Technology Educator of The Year, Dan Queior, sums up the impact of one-to-one in terms of increased efficiency and time for learning:

I don't have to 'waste' time trying to schedule the computer lab. We can make much better use of the 'teachable moment' with immediate access to computing, researching, brainstorming, etc. technologies. Students have more time for learning because they don't have to 'wait in line' for a learning tool.

Technology has also changed the way teachers and students manage, store, and share their work. Veteran FMS language arts teacher Judy Donahue explains how this happened using one-to-one access:

We are use to Drop Folders to send passages, quizzes, and graphic organizers directly to students. They are then able to type into the document rather than write. When finished, they send them back to me. In another example, *Journler* has become my easy way of saving student work, thereby creating an instant writing portfolio. Other teachers are using *Noteshare* for these functions. We're moving toward a significant reduction in our paper trail.

FMS librarian and Maine Media Specialist of The Year, Pam Goucher, shared her school-wide perspective on the positive impact of the MLTI:

For me, as a librarian, student laptop access is great because of the everyday opportunity it gives each of us (teachers and students) for a dialogue about information - where it comes from, its validity, what its intended use is, its impact, and recently, the way 'format' affects that impact or use. With one-to-one computing, this dialog can happen about anything, with anyone, anytime, anywhere.

The vital role played by the technology leader cannot be overstated. A FMS technology leader and pioneer of educational technology in Maine explains how one-to-one computing made digital technology as transparent as paper, pencil, and books in the learning process, "The 24/7 availability of laptops made technology ubiquitous for students and teachers. The result was less focus on the technology and the appropriate focus on how its use could enhance learning."

While the experience at Freeport with the one-to-one initiative has been rewarding, this has not been the case everywhere. Certainly, some proponents of MLTI may have believed that simply placing laptops into students' hands was enough; that new laptops, powerful programs, and 24/7 wireless access to the Internet for all students and teachers would magically improve learning. They learned quickly that this was not the case. Many schools reported teachers effectively engaging students in rigorous academic activities, such as carrying out sophisticated research, writing, creating high quality presentations, and collaborating with other schools. However, there were also troubling accounts of laptops sitting closed on teacher desks, being misused by students, damaged, and even remaining unpacked in their shipping cartons and locked in storage rooms.

As I heard or read stories about the successes and failures of Maine's experiment with one-to-one learning, I thought about our own experience at Freeport Middle. Our implementation had been very successful. FMS teachers embraced the possibilities, and our students accepted ownership and responsibility. Both teachers and students took pride in their work and accomplishments. We proudly welcomed visitors from around the country and beyond who wanted to learn how we did it. I began to consider what might have led to the differences in school experiences where the MLTI was the "best thing to happen to education in 20 years" and schools where laptops became "just a decoration sitting there."

Lessons Learned from Implementing One-to-one Learning

What follows are some of my suggestions, ten lessons learned, which are based on thoughts and observations of our success. This list is based on conversations with FMS teachers, students, parents, as well as other educators from across the state, nation, and around the world. All of these individuals were concerned with the role of technology in preparing students to learn and compete in the world market of the 21st century.

1. Principals must model the use of the same technology tools they expect teachers to use.

This is especially true in the case of a new and ambitious initiative such as one-to-one learning. Members of the staff will watch carefully to determine if the leader is willing to participate in the proposed changes. If they see that their leader is unwilling to "walk the talk" about integrating technology as a resource for teaching and learning, it is all but certain there will be less willingness on the part of many staff members to take risks or to do the extra work required for the new change to be successful.

Principals can model technology use in a number of ways. Using e-mail to communicate short announcements, reminders, updates, or simple scheduling and calendar items can be effective and a time saver when communicating with the staff individually, in small groups, or as a whole. The presentation capabilities of *PowerPoint* or *KeyNote* can provide staff with a visual representation of key data and information. Presentations also allow the presenter to separate oneself from the message, providing a third perspective for conversations that may be difficult or controversial. The multi-media

capabilities of technology, in conjunction with Internet resources, can be utilized to discuss any number of educational topics during staff meetings or to expand teacher knowledge during workshops.

Another powerful way for a principal to model the use of technology would be to integrate technology use into staff meetings in the same way teachers might in their classrooms. A principal wanting to explore Differentiation of Instruction (DI) might use a simple "Think-Pair-Share" activity at a staff meeting, asking teachers to think about their understanding of DI. Teachers could then pair up, and share their ideas. Afterwards, each teacher could do an Internet search of the terms and phrases and project their findings for the group. The principal could e-mail the notes of the staff meeting, along with the DI resources, so the staff would have a collection of resources to examine and discuss at future meetings or workshops.

2. Principals must be consistent in supporting the decision to implement one-to-one technology in the school.

Fence sitters watching their leader for signs of which way to tip will see leadership as indecisive and will back away from implementation, leaving only those already convinced about the initiative to work on implementing the program.

3. Principals must communicate expectations clearly.

Although the decision had been made to adopt one-to-one computing, a Maine principal learned indirectly that teachers in her school were confused about what implementing the laptop program meant. Amid confusion and misunderstandings regarding the integration of laptops into the existing school program and expectations of the staff, the principal met with the leadership team and formulated a reasonable and clear set of expectations for the staff based on questions the staff had relayed to team leaders. When the teachers understood what was expected and realized they had a voice in the implementation process, confusion and tension lessened. The teachers, realizing they had plenty of time and a significant degree of control over the ways in which the implementation of learning technology would take place, were free to focus on possibilities that would work for them and for their students. In the end, the teachers ended up using the laptops more often than the principal had expected the first quarter.

4. Principals must provide appropriate professional development, time, and resources to support effective implementation.

As they launched the MLTI, Maine's Department of Education wisely included significant statewide support for professional development through their contract with Apple Computer, through the department, and as a result of several grants from private foundations with an interest in technology and learning. In addition, many building principals understood that teachers would need individualized or small group support to feel comfortable using the new technology in their classrooms.

One principal focused most of the school's staff development funds on summer planning. This included paying teachers and other staff members, like the librarian and technology specialist, to plan and work together on using the laptops to strengthen teaching strategies for the fall. This arrangement was made through the superintendent. Although there were opportunities for regional training, some of which were required, teachers and staff also benefited from in-house training. The smaller school settings, familiar facilitators and trainers, utilization of their own classrooms really made a big difference in the teachers' comfort levels. They were much more willing to ask questions, to experiment, to examine new ideas, and to take risks.

Further, the principal gave priority to teacher requests for professional development to meetings, conferences, or workshops over the initial four years of the MLTI implementation. This showed his determination to support the staff with resources and additional time, and sent the message that the school and administration were invested in and committed to the success of the program.

5. Principals must support early adopters and risk takers.

As soon as I learned about the Governor's plan to provide laptops for students in all Maine's middle schools, I began surveying my staff. In this way, I became aware of the potential early adopters and risk

takers whom I could call on at faculty meetings to begin sharing and spreading their enthusiasm.

For example, I remember a science teacher excitedly wondering what it would be like to access information from a prestigious medical school or national health organization as her students studied body systems or diseases. She was so enthusiastic and wanted to start planning immediately. Another teacher realized that his students would be able to access current events around the world by having them search for newspapers on-line in his social studies classes. These are the kinds of teachers and attitudes a principal should acknowledge and support.

Another way to support staff members who are “on the cutting edge” is to give them opportunities to work together. Allowing staff to attend a workshop together so they can interact with new ideas and then return to share their experiences, will help them realize they are not isolated. Encouraging the interaction between fence-sitters and early adopters at special sessions, helps them feel included and supported.

6. Principals must ensure that everyone working with students who have laptops also have laptops.

One major oversight of the original MLTI program was to exclude some key educators from receiving laptops. Although every classroom teacher received a laptop, amazingly, technology coordinators, librarians, counselors, social workers, and principals did not. As you can imagine, it was extremely difficult to convince some of these individuals to fully support a program they had been excluded from. This was particularly difficult in the case of the technology coordinators, especially if they were not familiar with the computer platform selected by the MLTI. Many principals struggled with this issue in the first year or two of the program.

Each school was provided with a small number of spare laptops for repair purposes. Fortunately, in the case of our school, repairs were low enough so that we could provide laptops for the librarian and the technology coordinator. As we replaced computers that were not part of the MLTI program, we chose to purchase compatible laptops, enabling us to bring all our staff on board. As the MLTI progressed, laptops were provided for all educators.

7. Principals must mediate technical issues that threaten to compromise access for learning with access to the technology.

One of the differences between the successful schools and the schools that struggled with integration was the degree to which the technology was made accessible to the teachers and students. If, in the interest of control and safety, students and staff are blocked from using e-mail, going on-line, or from using multi-media tools to produce and publish on-line, they will see little value in having or using the technology. In issues regarding the balance between control of the technology and access for learning, the more important consideration must be access for learning.

The principal, working with the technology coordinator, staff, students, and parents, can develop acceptable use guidelines and policies, along with clear consequences for individual infractions. Additionally, students can be taught and held to high expectations for using technology responsibly. These efforts are obviously preferable to locking down the system for everyone.

8. Principals must support the expectation that student and teacher work will be done and stored using technology.

This is a key expectation that will encourage both teachers and students to view technology as an important and effective tool for learning as opposed to “one more thing we have to do.” One-to-one project managers reported that schools where students placed important school work, as well as personal data, onto their computers had, by far, the lowest rates of breakage and problems with the hardware. Data included research projects and papers, along with personal data, such as photographs, correspondence, music, and even games.

9. Principals must ensure that families and the public are kept informed about the project.

Almost all of Maine’s schools that allowed students to take home MLTI laptops, required parents and

guardians to attend orientation sessions with their child before a student was allowed to participate. The sessions were held during the day and evening hours and served to demystify the program for parents, to introduce how the hardware operated, and to let them know that they had control of what happened with the laptops. If parents did not want their children to bring them home or to connect with the Internet at home, that was a parental decision. Parents reported that this simple meeting made all the difference in their understanding and comfort with the program. This led to strong support for the program's continuation and expansion.

10. Principals must be active and public champions for students, staff, their school, and for the program.

This is perhaps the most important role the principal can play in supporting one-to-one computing. He or she must constantly articulate how the effective integration of technology is benefiting students; that is, it is connected to academically rigorous and engaging work for students. The principal needs to spotlight those teachers and projects that reflect the best practices for students. Student work should be highlighted and presented as evidence. This can be done through the fall laptop orientation, open houses, newsletters, newspapers and other media, presentations to parent groups, and reports to the school, district leadership teams, and the superintendent.

The principal should be willing to open the school to visitors who are interested in seeing how one-to-one learning takes place. Although every observer may not be in favor of implementing one-to-one learning, every visitor who observed the MLTI at our school came away with positive comments and a new understanding of the possibilities of providing each student with his or her own 21st century learning resource. I also heard from many schools that even skeptics who came to observe became believers.

Conclusions

As I reflected from my principal position on these ten lessons, it occurred to me that this article is not just about principals. It's really about the leadership needed to move a group collaboratively toward a shared vision. I use the term leadership and not "the leader" purposefully because I realized that although the principal or leader is important, he or she cannot move the school toward the vision alone.

Each of the lessons enumerated above can serve to expand and support broader ownership and buy-in by the staff of the school. Empowering others to take a role in moving the vision forward is, or should be, the goal of the leader. Whether it's modeling the use of a laptop to present information, ensuring everyone has access, setting consistent, clear, and reasonable expectations, or publicly advocating for the program, the principal's application of these ten lessons will empower teachers to be leaders in implementing the initiative in their classrooms, in collaborating with their colleagues, and in talking with parents in the community.

Although the ten lessons for implementing one-to-one learning with technology relate directly to supporting effective implementation of a specific program, it is easy to see that all of these suggestions can be adapted or generalized to apply to any initiative for school change. To take it one step further, all can be applied to make teaching and learning in classrooms more effective, engaging, and relevant for all students.

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