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Moving Education Forward through Technology Integration

Helpful insights on establishing an effective technology integration program

Preface by Tim Holt

Provided Courtesy of Atomic Learning

About Tim Holt
Tim Holt has over 23 years experience as an educator. His experiences including working in Science education, Gifted and Talented education, Research and Evaluation, and Educational Technology. He currently is the Director of Instructional Technology in the El Paso Independent School District and is the creator and author of the Intended Consequences v.2.0 blog.

About Atomic Learning
Atomic Learning is focused on promoting the practical application of technology in education by empowering educators with the training and resources they need to create 21st century-ready students.

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Preface

I was watching the entire DVD collection of "Anne of Green Gables" recently. For those of you who are unfamiliar with the story, it concerns a girl that grows up in Nova Scotia with a family that adopts her around the turn of the 20th Century. She is smart, sassy, a typical heroine from American children's literature. Kind of an "American Girl" tale, just not in the US.

She eventually grows up and becomes a teacher in a one-room schoolhouse. There she was, in her white dress, writing on her chalkboard, sitting at her desk, having the kids open their books, recite their lessons, listen to her lectures, take quizzes, all the while sitting in neat little rows at individual desks with built-in desktops. All very post Industrial Revolution.

It dawned on me, (and I hope you too) that if we had a time machine, and picked Ms. Anne up out of her schoolhouse, and dropped her magically into a classroom in almost any school today, she wouldn't feel that much out of place. The chalkboards may now be whiteboards, there may be an overhead projector, and there might be a few newfangled devices that she may be unfamiliar with, like that computin' device on the desk over there, but I suspect that Anne could make do pretty well in today's typical classroom. All still pretty post Industrial Revolution.

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The books are still there, the neat rows of desks, the quizzes, the kindhearted but largely clueless administrator, the pencils, the chalk...Anne would be able to fit in right well I suspect.

Now, does that say something good about tradition, how we have been able to keep a continuity of things for well over 100 years, or does it say more about how we haven't modified our educational settings very much over the last 100 years? I think it speaks of the latter. We are still, no matter how much money that we have thrown toward technology, teaching as if we were caught in some type of Bill Murray time warp where we keep repeating the same day, and keep teaching the same way over and over and over.

Consider a typical classroom: One would think, in these days of informational explosions and multimedia babies, that there would be large screens on the wall for showing information, LCD projectors, laptops for at least the teacher to display their lessons, workstations for kids to do research collaborative learning, and as much internet as they could eat.

Alas, no such luck. The teacher sits behind a desk,

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lectures from a podium, asks kids to do book work by themselves, and gives out pop quizzes, just like Anne did, 100 years ago. Not only has our methodology not changed much in 100 years, our rooms look the same as well. We are stuck in a time warp, where a few places on campus have moved into the future, but most of the rest of the campus has stayed with Anne back in Green Gables.

Now, think of any other major, non-education related profession that has maintained a technology status quo for so long. Would a pilot from, say, 75 years ago feel at home in the cockpit of a modern jet? Would a surgeon from the 1890's be able to operate in a modern operating room? Would a soda jerk from the 50's have any idea how to ring up a sale in a modern McDonalds? I don't think so. Those professionals have moved forward. Moved with technology and adapted their facilities and their methodologies to the times.

When will education follow suit? When will we see the time when we can drop Anne into a classroom and she runs screaming from it because the methods, the furniture, the way the children communicate is so foreign that she has no way of knowing how to teach?

Tim Holt

Adapted from *Anne of Antique Tables: Opinion*

Introduction: Preparing for a Revolution

Throughout history there have been many revolutions in education. The most notable being a shift from preparation for homestead work and apprenticeships to the stereotypical classroom of today. Education itself became an industry, with students taught en-masse, with memorization of facts as the priority. In what's referred to as "the 1950's model," reading, writing, and mathematics became the standards for educational success.

Today, another revolution is occurring, with equally profound implications. Emerging technology, which now pervades modern society, dictates that we interact and work differently than before. While core subjects still apply, they now fall within a larger realm, where communication and collaboration are increasingly critical.

Students' future success largely depends on the ability to evaluate and share information well.

It is modern technology that demands and enables vastly expanded learning opportunities. This ebook will investigate the challenges to effectively using technology in the classroom, as well as discuss key points of a technology integration program.

Introduction: Preparing for a Revolution (Continued)

The ideas presented in the following pages will help you gain the confidence and motivation to use technology not for technology's sake, but to enhance the learning experience.

Teaching the Technology Itself

Often the technology being used in the classroom will need to be understood and put to use by the students themselves. Not so long ago, schools could have likely taught the most common forms of technology—such as the basic components of a desktop computer, word processing, spreadsheet calculations and maybe even the use of email clients. Entire semesters would be dedicated to one or a handful of these items, with the goal of covering them all over several years.

The idea of applying the same model to the wide range of technology and tools currently available is mind-boggling. No attempt to cover even a modest majority can succeed. Instead, a focus on critical thinking, research, and communication skills enable learners to venture in varying directions with regard to learning. If students know *how* to learn, they don't need to be told *what* to learn. Natural curiosity, coupled with contextual requirements, determine the necessary skills and knowledge to be achieved.

As courses become more general to accommodate this explosion of technology, it is imperative that students are offered safe, reliable resources for learning. Flexibility and convenience are critical, as personal study time is at a premium and the structure of each day is fluid. Ultimately, it is important to ensure that training and information are readily available.

Keeping the Emphasis on Learning

At certain times, classroom technology should be transparent. During a math lesson, for example, the interactive whiteboard shouldn't be noticed. Instead, it should be invisible in order for the math lesson to be as effective as possible. The presented diagrams and equations should illustrate and reinforce mathematical concepts and not become a distraction.

Teachers must train with these tools in order to achieve this transparency, and that can prove as significant a challenge as teaching the students. The two common impediments to incorporating new technology are time and intimidation.

In order to overcome these challenges, teachers must consider this new approach to learning important enough to adjust their style. Considering the strain educators may face with increasing classroom demands and diminishing budgets, this shift is in and of itself a challenge.

Even if teachers are enthusiastic about the new approach, they may struggle to find time to educate themselves, create relevant lessons, and bring in the needed hardware.

One key item to keep in mind when incorporating

Keeping the Emphasis on Learning (Continued)

technology into the classroom is that *the emphasis should never be on the technology itself*. Whether it is attained through the use of versatile tools such as wikis, blogs, or any of the other numerous gadgets that create interactivity in the classroom, the ultimate goal should always be learning. Establishing and maintaining this goal involves two primary points:

Overcoming Fear

Perhaps the terror some people feel at the mention of technology integration stems from past training experiences. Cumbersome courses with huge time commitments and rigid schedules have been known to intimidate even those who are open to new ideas.

Instead of this strict, structured approach, what if each small problem was handled as it came, with little fanfare and aggravation? What if technology training was not a prolonged series of large obstacles, but a smooth process, progressing through small steps. What if lessons were readily available to streamline implementation?

With the right resources and reasonable expections, technology integration is attainable.

Keeping the Emphasis on Learning (Continued)

Creating Motivation

It is often said that the best motivator is success. When teachers succeed at bringing technology into the classroom and see the eyes of students wide with excitement about a project, they are more likely to be open to utilizing other technology in the future.

With careful planning and support, success rates can, and will, be high. Resistance can be overcome through an effective integration program.

One example of such a program is creating a special "camp" consisting of extracurricular training sessions. Teachers are encouraged to attend sessions on their own time in exchange for incentives, including classroom resources, technology funding, or even cash stipends.

Once teachers get a feel for what emerging tools can do for their students, they tend to jump in with both feet. At this point, it's important to be prepared with timely and relevant support for any arising questions ranging from conceptual inquiries to "How do I…" questions about using a particular piece of software. An on-demand, just-in-time resource that allows teachers to learn at any time is best.

Keeping the Emphasis on Learning (Continued)

A second factor in creating motivation stems from the public, and more specifically, the parents of the learners.

Public discussions regarding technology spending often include opposition from taxpayers who are unaware of the tremendous potential benefits to students. Not having experienced technology in their own educations years before, individuals sometimes fail to realize that the education system that worked well in the past now fails to prepare students for today's technology-infused interaction and work.

Keeping the Emphasis on Learning (Continued)

Demonstrations geared specifically to selling the public on the benefits of classroom technology are one approach. Imagine a collaborative project between two groups of students, each in a different city, state or country.

Now imagine a blog that documents the project's progress, and a series of video resports posted online about the challenges those students have faced and the successes they've experienced.

Sharing stories such as these with parents and the community often results in dramatic shifts of mindset about new teaching techniques.

Cyber Safety

Even the best-laid technology integration plans can come to a halt if concerns about the safety of students and teachers alike are not addressed. Bullying, identity theft, inappropriate content and predatory behavior are legitimate threats, and everyone, parents especially, will want reassurance that their children are being protected.

There is on-going debate about internet access restriction in the name of safety. More and more, it's becoming clear that efforts to keep students isolated from the open internet are failing. The variety of connected devices making their way into school and the classroom mean students will reach the content they want.

An alternative to restricting access is to teach responsibility and safety. Students cannot be constantly monitored, and are ultimately responsible for their own safety. There is a familiar expression about power and responsibility going hand-in-hand that applies here, and it becomes the school's job to teach safe approaches to the use of technology, not to limit it entirely.[1]

[1] Lepper, Joe. *Ofsted Urges Schools to Relax Internet Restrictions*. Children & Young People Now, Haymarket Media, February 2010.

Digital Citizenship & Awareness

Just as students must understand the risks of social media interaction, they must be aware of the effects of their own actions toward others. Recent high-profile examples of cyberbullying shed light on the importance of teaching respectful behavior, even in anonymity. The most basic prevention measures are awareness training and clear expectations for online behavior.

As students and teachers engage in direct communication and collaboration the matter of cultural differences arises. For many, cooperative online projects with classrooms in other parts of the country or world will be the first time they encounter people with diverse social, political or religious views. Awareness going into these situations leads to more positive outcomes and a richer overall experience.

Digital literacy means knowing which tools to use for a given project or situation. Many different mechanisms exist for media and information sharing, collaboration, blogging, entertainment, etc. A person entering the 21st century workplace must be able to select and implement technology tools appropriately.

Building a Foundation

Widely varying experience and comprehension levels among both teachers and students should be anticipated. Differing backgrounds, circumstances, and levels of interest will exist. For this reason, flexibility is paramount. Rather than single-minded, time-intensive courses covering narrow subjects, highly relevant just-in-time support covering an array of subjects should be provided. Confidence and success are improved when questions can be answered quickly and independently.

Traditionally, a computer lab help desk may have assisted a group of students studying in a particular classroom. As technology becomes an integral part of the classroom, support becomes paramount.

Today, every student and nearly every teacher will need support at some point. The way we learn has shifted, and while help desks and support staff still play a role, it's important to have 24/7 assistance available. It's also important for the training to be easy to use and relevant to the majority of topics that are likely to arise.

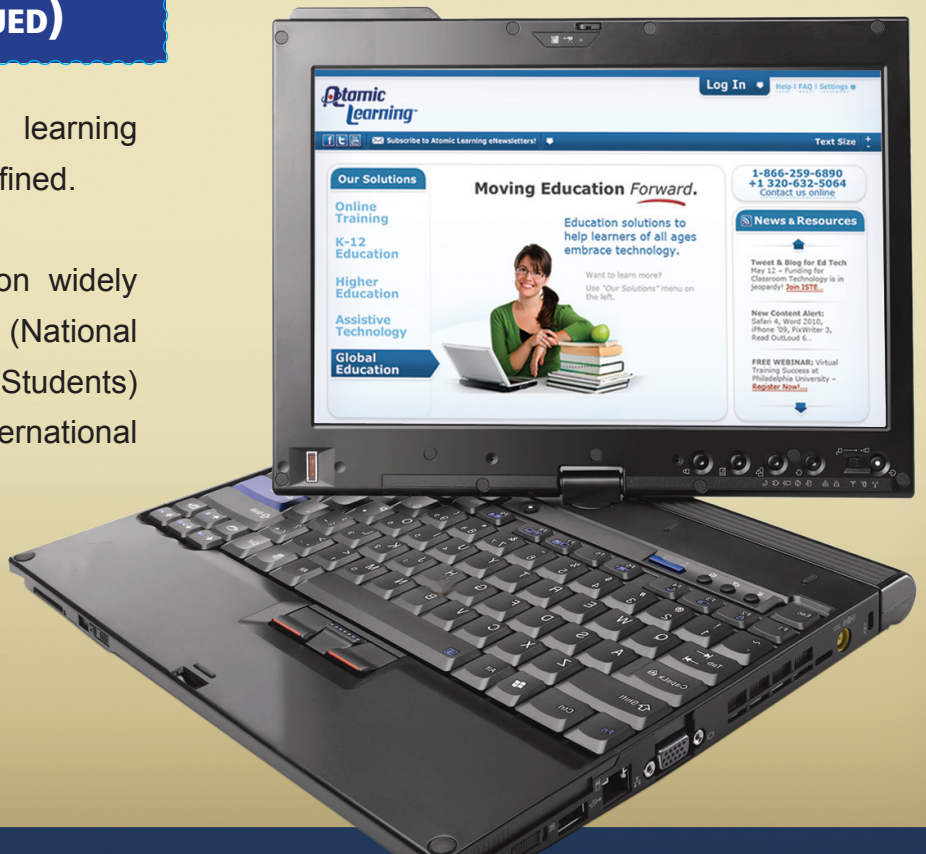
In order to know whether or not training has been successful, initial and follow-up assessment is key. By identifying the areas where training is most

Building a Foundation (Continued)

effective, a personalized approach to learning and classroom implementation can be defined.

Ideally, assessment should be based on widely accepted standards, such as the NETS-S (National Educational Technology Standards for Students) or NETS-T (for Teachers) by ISTE® (International Society for Technology in Education).

Aligning with recognized standards may also facilitate funding through grants or government programs.



Letting Change Happen

As discussed earlier, technology integration should be an ongoing process handled in small steps. It should not be thought of as a singular goal to be accomplished and checked off a list.

Technology integration occurs naturally when the stage is properly set.

By preparing your program's participants with necessary training and ongoing support, you'll build confidence and enthusiasm. When teachers are motivated and well-equipped with the right knowledge, students are engaged like never before, and they often create dynamic learning events on their own with very little direction from their teachers.

If you're looking for resources and ideas on how to move ahead with your technology integration program, there are organizations willing to help.

Atomic Learning is a trusted education partner, and is dedicated to providing educational resources that allow teachers, students and learners of all ages to embrace technology. Offering a full range of professional development resources and technology integration solutions, Atomic Learning makes it easy to prepare educators and instruct students on the skills needed to succeed in the 21st Century.

Sponsor Resources

Are you ready to move education forward?

Ebook sponsor Atomic Learning is ready to guide you through the process.

Click the links to the right to learn about a variety of tools and resources available to assist you with your technology integration program.

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