

the CHALLENGE
of MODELING
21ST CENTURY
LEARNING



TEACHER PROFESSIONAL DEVELOPMENT
for IMPROVED STUDENT ENGAGEMENT

Research by SEG Measurement
New Hope, PA

Sponsored by Atomic Learning



Teaching students to be successful in a 21st century, knowledge-based economy requires a different way of teaching. Unfortunately, many teachers do not yet possess the skills necessary to be successful in facilitating 21st century learning.

One of the many factors preventing teachers from doing so is a lack of technology training. Too often, teachers have not been provided with the necessary technology skills to create a modern learning environment. Teachers not only need to understand how to use technology in their teaching, they need to understand how to help students use technology to help guide their own learning. Teachers need to provide students with the tools to learn both within and outside the classroom (Collins and Halverson, 2009).

Teachers are the first to recognize this need. Concerned teachers are continually requesting more training and additional professional development (Prensky, 2010). This paper discusses the importance of professional development in helping teachers gain confidence and experience with technology to engage today's student.



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TODAY'S STUDENTS **ARE** DIFFERENT

Today's students are fundamentally different than those of even a decade ago. The students we see in the classroom today are digital natives; they have grown up with technology around them rather than being forced to learn the technology later in life (Prensky, 2010). Children raised on a diet of new technologies are less willing to fill out worksheets and listen to lectures patiently. Digital natives have several important characteristics:

- **They have only known a world bathed in technology** - Today's students were born at a time when they have always been surrounded by technology. Technology is not something new to be learned, but rather an integral part of their fabric. Students are accustomed to technology in their everyday lives (Prensky, 2010; Borthwick and Pierson, 2008).
- **Technology is their first language** - Born into a world dominated by technology, they do not have to learn technology as an alternate way of communicating or an alternative method for accomplishing tasks.
- **They are technologically enhanced** - They are connected to their peers and the rest of the world through cell phones, computers and technologies such as Facebook and Twitter. Much of the information they need is available on demand. They are connected online nearly all of their waking hours (Prensky, 2010).
- **Much of what they learn occurs outside the school** - The vast majority of what students are learning is occurring outside the school through their interaction with technology or formal outside of school learning opportunities (educational programs, tutoring, etc.) (Borthwick and Pierson, 2008).

With this in mind, it is no wonder that many students have little patience for the typical school environment with its slower pace, high structure and reliance on teacher-directed instruction. Technology (especially social media) is one of the primary ways in which students communicate. If teachers do not fully understand how to apply these technologies in their teaching, they will not have the basic tools to communicate with their students. Simply put, without the tools of communication, teachers will be unable to communicate with their digital native students.



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Not only are today's students quite different than those of the recent past, the world in which they operate has been radically transformed over the past several decades. The economy of the 19th century and early 20th century was based largely on the industrial factory system. Education was modeled on that system with students moved through the factory, in lockstep, as vessels to be filled or objects to be completed.

But, a modern 21st century economy shares little resemblance to the industrial factory-based economy of the past. Today's economy is a knowledge-based economy based on the manipulation and transmission of knowledge. Knowledge is increasing at an astounding rate and students need the skills to effectively find, analyze, and communicate this knowledge. And, with knowledge at their fingertips, it is the analysis, evaluation and application of knowledge to solving problems that has taken center stage.

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THE CHANGING ROLE OF THE SCHOOL & TEACHER

These changes suggest a very different role for schools and teachers. Among the most pressing challenges faced by our schools, is whether or not they will be able to effectively accommodate technology and the new model of learning that it suggests. Schools and teachers need considerable professional development and training to accommodate these changes.

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In the factory-based school model, the teacher's role is seen as transmitting his or her expertise to groups of students in the form of lecture, drill and practice and other group-centered instructional strategies. In this antiquated model, knowledge is treated largely as a fixed quantity that is spelled out in the form of standards and curriculum; teachers deliver this fixed knowledge and then evaluate whether students have acquired the knowledge taught (Collins and Halverson, 2009). The technologies required for this factory-based school model are limited; in most cases, a blackboard, and some sort of projector to clarify the teacher's presentations will do.

Educators in 21st century schools need to recognize the severe limitations of the traditional model of teaching. Knowledge has been doubling every year, and, by some accounts, is doubling at an astounding daily rate (Prensky 2009). In a world where knowledge is doubling rapidly and much of what is learned will soon be outdated, a model where students are seen simply as vessels for content and the teacher's job is seen simply as filling those vessels will simply not work.

21st century learning suggests a very different kind of schooling. Not all knowledge is transmitted in the school and learning is not exclusive to the classroom. Arguably, most of the learning that occurs today occurs outside the classroom. Therefore, the focus must shift to giving students the tools to learn. This vision of education recognizes that much of the learning that occurs is outside of the teacher's control. "If we look carefully, most of those changes in the way people acquire information are occurring outside the schools." (p. 5, Collins and Halverson, 2009). Technology has enabled students to take control of their own learning and much of that process occurs outside the classroom.

Teachers need a very different set of skills; they can no longer rely on lecture and other one-way methods of delivery, and must instead become learning facilitators. This change does not come easily and demands that teachers have the technology skills to help students use technology to learn. Professional development will play a central role in fostering these changes.

Students' ability to acquire information virtually anywhere and at any time is a game changer. Students are no longer wholly dependent on the teacher to gather information. But, the teacher is a critical resource for directing students' learning efforts and helping students to learn independently.

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THE IMPORTANCE OF PROFESSIONAL DEVELOPMENT



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Moving from a 19th century factory-based model of school to a 21st century approach to learning requires a significant commitment to professional development. Schools need the right tools for professional development to improve teachers' technology skills, teachers' ability to develop those skills in students, and use technology with students to facilitate learning. The single greatest impact on improved student achievement is increased teacher education (Borthwick and Pierson, 2008).

The research is clear. Students achieve more when taught by teachers that receive technology training. In a 1999 study reported by Schacter, students with teachers receiving any technology training during the past five years academically outperformed their peers whose teachers had not had any technology training during that period. The effects of technology training for teachers goes well beyond academic outcomes. Schacter (1999) reported that schools in which teachers were provided with technology training saw lower student absenteeism and higher teacher morale.

Owen, Farsali, Knezak, and Christensen (2005) conducted a large-scale study of technology and student learning in Irving Texas. The conclusion? Students learn more, and report being more engaged, in schools that are actively engaged in professional development for teachers focused on technology use and the application of technology to new ways of teaching and learning.

Most of the 8 million U.S. teachers do not have the skills necessary to teach today's tech savvy students. One study suggests that fewer than 7% of schools have teachers who are technologically literate enough to effectively integrate technology into their lessons (Sparks, 2006). This 2006 study by Sparks also found that 36% of the schools provide no professional development for technology and another 29% provide only 1-14 hours a year.

The 2011 Horizon Report on the outlook for education technology suggests that there has been little change in the picture presented by the Schacter (1999), Owen, et al (2005) and Sparks (2006) studies. The analysis, conducted by the New Media Consortium (NMC), the International Society for Technology in Education (ISTE) and the Consortium for School Networking (CoSN), identifies digital literacy among teachers as the number one challenge faced by education. "The challenge is due to the fact that despite the widespread agreement on its importance, training in digital literacy skills and techniques is rare in teacher education and school district professional development programs," according to the report. "As teachers begin to realize that they are limiting their students by not helping them to develop and use digital media literacy skills across the curriculum, the lack of formal training is being offset through professional development or informal learning, but we are far from seeing digital media literacy as a norm."

students
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professional
development
for teachers
focused on
technology use
and
the application of
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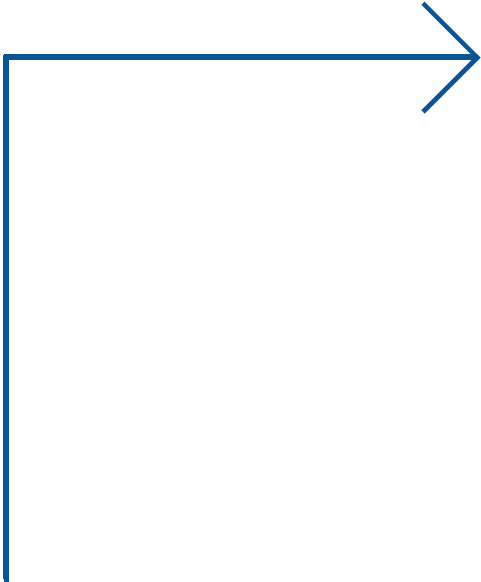
WHAT MAKES PROFESSIONAL DEVELOPMENT SUCCESSFUL

Professional development may be the single most important factor in implementing 21st century learning. Lack of knowledge about technology, its use in instruction, and mixed attitudes toward technology are significant obstacles to the successful transition to 21st century learning models. While there are many reasons for teachers' lack of technology knowledge and negative attitudes toward technology, one cause is the fact that many teachers went through teacher education programs that did not emphasize the importance of technology in education (Collins and Haverson, 2009).

Fortunately, professional development offers a solution to this lack of technology knowledge and mixed attitudes toward technology, regardless of the cause. Professional Development provides the basis for increasing teacher knowledge of technology, and expanding their repertoire of instructional practices (Killion and NSDC, 2002).

There is an emerging consensus on what makes for successful professional development. For example, Harris' (2007) review of successful professional development programs suggests that professional development is most successful when:

- Conducted in school settings
- Linked to school-wide change efforts
- Teacher planned and teacher assisted
- Provides differentiated learning opportunities for participants
- Focused on teacher-chosen goals and activities
- Exhibits a pattern of demonstration/trial/feedback
- Includes concrete goals and instruction
- Ongoing over time
- Provides for ongoing assistance and support on call



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Professional Development is critical to change this picture. Effective professional development leads to higher levels of student achievement (Schacter, 1999; Owen, et al, 2005; Sparks, 2006) . Ultimately, effective professional development can lead teachers to help students take control over their learning and maintain interest in learning. Professional development opens the door for new ways of teaching; particularly individualization of instruction, and guiding and coaching students. As an added bonus, many teachers report that technology based professional development is a motivator for continued employment and considered a benefit of the job (Owen, et al, 2005).

help students take control over their learning



ATOMIC LEARNING: MEETING THE CHALLENGE

Fortunately, there are tools available from providers, such as Atomic Learning, to help schools successfully meet this challenge and make the transition from 19th century factory-based instruction to 21st century learning through effective professional development.

Atomic Learning provides schools and teachers with professional development resources that bring needed change to the classroom. Through a library of thousands of short, online video tutorials and curriculum examples showing successful integration of technology and 21st century skills, Atomic Learning's solution provides professional development when and where it's needed. Directly aligning to the successful means of professional development recognized on page 6, Atomic Learning is:

- Conducted in school settings – Atomic Learning's solution is online to be accessed in both the school and home settings so learning is seamless and readily available.
- Linked to school-wide change efforts – The Atomic Learning library continues to evolve, focusing on emerging ed tech topics and offering the most up-to-do technology training.
- Teacher planned and teacher assisted – With Atomic Learning, teachers are empowered with the training and resources they need to ensure student success.
- Providing differentiated learning opportunities for participants and focused on teacher-chosen goals and activities – Teachers can successfully reach their personal goals with Atomic Learning's prescriptive training features.
- Exhibiting a pattern of demonstration/trial/feedback – Featuring a robust admin tools area, Atomic Learning offers the ability to upload custom content, assign training and monitor progress.
- Including concrete goals and instruction – Aligned to ISTE® NETS standards, Atomic Learning offers teacher and student assessments to gauge technology skill levels and application of technology.
- Ongoing over time – Atomic Learning's just-in-time training is available when needed through an internet connection, and the training will continue to be updated as technology evolves.
- Providing ongoing assistance and support on call – Implementation and support from a dedicated service team is included with an Atomic Learning subscription.

Atomic Learning provides an easy to use, cost-effective way to help schools and teachers acquire these technology skills. Featuring a guided, step-by-step path for tech integration through online teacher workshops and classroom-ready projects along with just-in-time training on over 205 applications, the Atomic Learning solution is relevant to district and individual technology needs.

An Atomic Learning subscription includes:

- Tech Integration Projects for seamless classroom integration
- 21st century skills concept training
- Workshops on topics such as Web 2.0, Facebook® for Educators, Effective Online Discussions, and more
- Training Spotlights on current ed tech topics to help teachers put it all together
- Just-in-time training tutorials on 205+ applications and 50+ assistive tech tools
- 21st Century Skills teacher assessment to gauge technology skills and provide training paths
- Tech Skills Student Assessment to measure students' ability to apply technology
- Evidence of Learning Worksheet for assistive technology integration planning
- Facilitated Blended Professional Development courses available
- Ability to upload you own custom training content
- Reports and Administrator Tools to assign training and monitor progress
- Sharing tools to quickly and easily integrate resources into any document or Web page
- Implementation resources and support by a dedicated service team

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