

THE POWER OF NETWORKED LEARNING

Mark Klassen is a cinematographer with a growing reputation for creating beautiful videos. His work shows a great sense of framing, movement, and perspective—all the qualities on which compelling filmmaking is built. His videos reflect a wide range of topics: musical interpretations, wedding stories, documentaries, and sports. In 2010, in fact, he found himself on the sidelines of two New York Jets playoff games, capturing snippets from the game action, the crowd that was watching, and players in the locker room, much of which was seen by millions of people the following week on the NFL Network. He's won competitions, received awards, and has a growing list of clients who seek out his skills.

Not bad for a seventeen-year-old high school senior who's never had a minute of traditional classroom instruction in his chosen craft.

Mark's education around his passion for creating video has been built on a healthy mix of apprenticeship, experimentation, and self-direction. He's learned much working at the feet of other artists in and around his home near Toronto through volunteering and internships, but he also honed his skills with the help of people far away from Ontario, people he's never met face to face, never spoken to, and probably never will—people who share his love of video and want to help him become even better. Since 2009, he's become a part of an expanding global network of cinematographers online with whom he interacts on a regular basis.

Put simply, Mark is connected through his personal learning network (PLN). Through the readers and commenters on his blog at www.markklassen.com, the 750 followers he has on his Twitter feed (@markklassen), and the over one hundred connections he's made on his Vimeo video-sharing page (www.vimeo.com/markklassen), he's immersed in an ongoing conversation about video making, about his work, and about his self-made education. Resources to help him perfect his craft abound online; he can learn about software like Final Cut Studio and Adobe Photoshop through online tutorials at sites such as www.lynda.com, all the while collaborating with others to dissect and deconstruct the work of more seasoned professionals at the many video sharing sites that he frequents regularly.

But it's his own willingness to put himself out there, to share his own work with the world, that provides the real payback.

"Sharing my work online so that other people can see it and give me feedback and advice on it has become a huge part of the way I learn," Mark says. "It's inspiring and motivating that so many people are willing to help push my thinking and my skills online. There are dozens of other artists I can count on to answer questions, share ideas, and make me see my own work in a different way. And those connections make it possible for me to gain a bigger audience, which means more feedback and more learning. A lot more people are finding me now" (M. Klassen, personal communication, January 14, 2011).

Welcome to learning in a networked world.

Right Here, Right Now

Right now, assuming we have an Internet connection, we can start to create a personal learning network—a set of connections to people and resources both offline and online who enrich our learning—at a moment's notice. With a PLN, we can learn anytime, anywhere, with potentially anyone around the world who shares our passion or interest. We can literally build global, online classrooms of our own making on the web that include networks and communities of learners with whom we interact on a regular basis. We can learn around a particular topic at a particular time, or simply tap into an ongoing stream of knowledge from which we can sip anytime we like. And we can build things together, things that can have a global impact in ways that were impossible only a few years ago. As Kansas State professor Michael Wesch describes it, we're entering a world marked by "ubiquitous computing, ubiquitous information, ubiquitous networks, at unlimited speed, about everything, everywhere, from anywhere, on all kinds of devices that make it ridiculously easy to connect, organize, share, collect, collaborate and publish" (TEDxTalks, 2010b). It's learning on demand, and for those like Mark Klassen who are already participating, it's quite an amazing place to be.

The Internet now connects us in unprecedented ways. We have social networks like Facebook and MySpace where millions of us share snippets of our lives with friends, family, and selected others. More importantly, we also have tools to go beyond the social, to connect with people we may not already know but who may quickly become mentors or collaborators, to create things with them, help change the world, or simply learn something new. These tools—like blogs, Twitter, social bookmarks, and many, many more—extend our reach into global conversations via text, audio, and video. In essence, they allow us to build global learning networks where, like Mark, we can pursue our intellectual or creative passions or needs with others who share them.

Make no mistake: it is passion that drives these connections, and that is the foundation for the *personal* learning networks we discuss in depth in this book. In our PLNs, we learn what we want or need to learn using the vast resources and people online (or off) that can help us learn it. Unlike traditional learning environments, each of our networks is unique, created and developed to our personalized learning goals that evolve and grow throughout our lives. For example, an educator's personal learning network might consist of communities of teachers sharing advice on proven approaches to curriculum and instruction, experts from various industries who interact with her classes on projects, and students from around the world invited into her classes to enrich her own students' perspectives.

It is, we think, an exciting new world of learning. As educators, however, we know these networked opportunities present us with a very big challenge. That's because schools have a long history of being the primary learning places in our children's lives. They have been an integral part, along with families and community, of a decidedly local learning network, one that still rules the day—at least for now. Students receive the bulk of their formal education from teachers who are often the sole source of reviewing student progress and suggesting paths for growth. They learn en masse with other students from their communities in the privacy of the school walls. It's a system that hasn't changed much since it was invented over a century ago.

But it is going to change. It has to, because the explosion of learning outside of school walls is too powerful to ignore. In fact you could say that at this moment, modern learning is shifting to the web. That's a big statement, we know, and we aim to prove our case. But make no mistake; the idea of schooling as we currently know it will struggle to remain relevant in a networked world. Let's be clear—that doesn't mean schools are going away anytime soon; they're not, and we're not advocating for it. We believe that schools and classrooms and local teachers have an incredibly important role to play in each child's learning. We believe in the relationships that children form with adults and in the dozens of other good things that happen every day in schools. Yet we're just as convinced that schools need to plug into this vibrant worldwide network of learning to stay relevant and to prepare our children for a vastly different learning landscape. That means schools will need to embrace a form of learning that is fundamentally different from the one they have known. This is not a case for education "reform" in the sense that we need only to make the current system perform better as measured by traditional methods, such as standardized tests. No, to prepare students to flourish in this new learning world, schools will need to *transform* themselves in important ways to become places where deep learning, inquiry, collaboration, and performance are the emphasis, not just test scores. We believe that personal learning networks are at the heart of this shift, and this book is a road map for that transformation.

It's Not About Reform; It's About Transform

We need only look outside of education to know that simple reforms are not going to cut it in a world where we can connect and create and share through the devices we carry in our pockets. Instead of reforming the education system—tweaking what we've got—we need to transform it—creating a new approach altogether. Ask politicians if the campaign and election process is being *reformed* by social networks that foster discussion and fundraising in new and important ways, and they'll tell you that this is not simply an improvement on the old system; it's a totally new system. Ask doctors, businessmen, musicians, and others about reform, and they'll tell you that the shifts since the turn of the 21st century are *transforming* their industries, that the structures and interactions within those industries are in many ways wholly new, not just tweaks on the old. They'll also tell you that the scale and the speed at which these changes and challenges are happening are unprecedented.

Take newspapers, for example. Like schools, newspapers have a successful model that has spanned hundreds of years. While the industry shifted slightly from decade to decade, for the most part the central core of the business remained unchanged: deliver well-written stories to large numbers of people in a paper format, and in return receive money from subscribers and advertisers. When the Internet arrived in the mid-1990s and threatened this model, most owners of the major papers were hesitant to respond. They tweaked it here and there, making small changes to adapt to the Internet age. Others took a different route, and instead of instituting changes, they came up with reasons why their industry was unique and would not be affected. A few who had been in the industry for decades told stories of how doomsayers had predicted the death of newspapers when radio came along, and then again when television arrived on the scene. "We'll be fine," they said. After all, it's a model that worked from the time of Ben Franklin to the time of Ben Bradlee.

But then it didn't work at all (see Roblimo, 2005). In a matter of a few years, the Internet began siphoning off readers and advertisers, subscriptions slowed, profits fell through the floor, and several high-profile papers closed their doors forever. From the advent of the web in the mid-1990s, newspaper circulation steadily declined from over 60 million to approximately 40 million (Ahrens, 2009; Newspaper Association of America, 2011). By the 2000s, many owners and management teams of individual newspapers pushed aside the rationalizations and excuses, making radical changes to try to survive. By then it was too late for most papers. Internet readers had already been going to other sources for years, and the opportunities for newspapers to embed their business model into the fabric of the Internet in innovative ways had passed them by. Now, for most papers, it's

a waiting game as each year their subscribers dwindle and their advertising revenues decrease. In the long run only a handful may survive, and those that do may look nothing like they look today. Now it's sites like the *Huffington Post*, *Gawker*, and *Talking Points Memo* that are creating the new models for success in the Internet world.

The moral here is not a lesson in caution but rather a lesson to the cautious. It's not that newspapers didn't understand the threat; some did. It's not that some didn't try to make the web a part of their business. Actually, several newspaper leaders tried different ways of making their old model work in a new Internet-enabled world. The lesson here is how they framed the change. Newspapers continued to try to do what they had always done—in effect, trying to *adapt the Internet to them*. They tried to take the same content, produced by the same people, in the same ways, and get subscribers and advertisers to pay for it on the web in a traditional model. They tried to tweak their model and make small changes to survive in the Internet age. They did this partially because of excuses and inertia, but mostly because their vision of the past obscured their ability to invent a radically different future. Like most who try to fit old models into new paradigms, they failed. In short, newspapers refused to transform.

We believe education is following a similar path, trying to take the old model of schooling and adapt the technology to it. It's an understandable response, but it falls far short of using the power of these networks. The wake-up call for educators is not going to come from disappointing quarterly reports and falling revenues. If we continue to follow a safe and familiar path, our clarion call for change will come from the education system in general when these networks grow and develop into rich places for learning that are an alternative to our schools instead of a part of them.

The Learning-Network Divide in Schools

Schools have been implementing Internet technologies in varying degrees since the introduction of the web in 1994, and in many classrooms technology has come to play an important role in the delivery of the curriculum and the work that our students do. Computer-per-student ratios have consistently fallen throughout the past decade, and the digital divide—the gap between people with effective access to technology and those with limited or no access—has narrowed significantly (Gray, Thomas, & Lewis, 2010). However, we've not yet embraced the fact that in the revolution of learning on the web, access is just the first step. Take a peek inside most classrooms in most schools, and you may see interactive boards and laptops; on the surface that may look different from prior generations of classrooms. On closer inspection, though, we often see that the technologies haven't built connections with other learners from disparate parts of the world or created networks with other classrooms. We have begun to close the digital divide, but a huge "learning-network divide" remains.

The reasons for this gap are many. The biggest one is that this cultural shift has occurred with dizzying speed. At this moment, the average educator between the ages of twenty-five and sixty-five was born into a world with no world wide web, no cell phones, no smartphones, and few (if any) portable personal computers. As recently as 2000, most schools were still places where the term *technology* meant the glow of the overhead projector or the teacher's desktop computer, and for funding reasons, the physical structures of many schools still do not accommodate the tools for today's networked learning environments that we describe in this book. The revolution that began with the web in the mid-1990s has exploded with the advent of small, ubiquitously connected devices in every shape and size. The kind of technological changes that took a lifetime in previous centuries have occurred in the span of a decade, and this rate of change is accelerating, not slowing down. For an interesting perspective on the speed of this change, consider Blockbuster, which went from inception, to empire, to bankruptcy in a couple of decades (de la Merced, 2010). New communication tools such as Twitter and Facebook have risen to worldwide popularity in a few years, and the iPhone changed the ways people work and play in a matter of months. Given the breakneck pace of these changes, for many adults the phrase *virtual reality* doesn't refer to online worlds filled with avatars; it refers to the scramble to keep up in the world in which we live.

Like us, our kids experience a virtual reality, too; except theirs is when they walk into school and unplug from the networks that connect them to their world. Social media are not new or frightening or scary to kids; they are part and parcel of students' day-to-day existence. Our kids were born into a connected world, and for the vast majority of them who have access to the Internet, networking with friends online is just part of being friends—a big part, actually. A survey by Mediapost suggests that 80 percent of American teens will use social networking sites in 2011 compared to only 64 percent of all Internet users, and that almost 70 percent of all thirteen- to seventeen-year-olds will use Facebook on a weekly basis this year (McNaughton, 2011). Our children are connecting outside the school walls, using technologies that most adults are just getting used to and that most schools have not implemented. Today's kids flock to Facebook, send hundreds of text messages a day from their cell phones, and stay ubiquitously linked to their friends in ways many adults have little context for. Research is showing that their interactions in these social networks are a different yet important part of their development, shaping the way they think and see the world (Ito et al., 2008).

No question, students believe that this world should be extended into our schools. When asked to design the school of the future, "communication tools" was the number one student pick, according to Speak Up 2009, a survey of almost 300,000 K-12 students (Project Tomorrow, 2010). This was followed by "digital media," "online textbooks," "mobile computers,"

and "games/virtual simulations" to round out their top five. In contrast, only 27 percent of nearly 40,000 teachers surveyed thought that collaboration tools such as blogs, social networking sites, or wikis have a role in schools, and only 25 percent of future teachers responded that their preparation courses are teaching them how to use learning network tools to facilitate collaboration between students. The number-one pick of principals for the school of the future, "interactive white boards," didn't even make the student list (Project Tomorrow, 2010).

We believe that this learning-network divide between students and educators is less about philosophy and more about exposure. In our experience, the reason most educators don't see a place for these tools in schools is because many have not had the time to figure out the role these networks have in their own lives. This book aims to narrow the divide, put educators on the same footing as our kids, and provide the recipe for incorporating these tools into every classroom.

Marrying Facebook to Fantastic Learning

Just because students understand social networking and think it would be cool to use in schools doesn't mean they know how to use these tools for learning. Most students are technological consumers but not necessarily creators. We see something similar in our youngest faculty, those who grew up during the Internet age. A twenty-two-year-old teacher who shows up this year in our schools has most likely used social networks during his time in high school and college, but that doesn't mean those networks will find a meaningful use in his classroom. In the same way that learning management in college is an important but incomplete step in preparing you for a career in business, learning how to use Facebook means that you know how to network online, but it doesn't immediately translate into powerful global learning.

Students need educators to teach them to cultivate and utilize networks for learning, and this fact creates a tremendously exciting moment to be in schools. At a time when most teachers are searching for ways to meet state standards, teach complex skills, and motivate their kids, those same students are embracing the building blocks of one of the most powerful tools for learning ever invented, and most don't even know it. Furthermore, during a time when young people know much more than adults about using online networks, our industry is one of the few in which young people and adults live and work together every day with the potential of cross-pollinating adults' knowledge of learning with teenagers' knowledge of networks. To oversimplify the equation—we need educators' understanding of good pedagogy to combine with students' understanding of and enthusiasm for online networks. Our schools need to harness each student's natural propensity for participating in online spaces and funnel that energy into building powerful networks for learning that are used in every class almost every day.

ESZTERHÁZY KÁROLY ÓISKOLA
Títel Pál Könyvtár
és Médiasztróm. Központ
Lelt.sz. 309 135

Right now, this is not happening. Most educators are just starting to recognize the huge potential for learning in these online spaces—potential that can frame the way today's children will learn as they enter adulthood. For those who really understand it, the implications of this shift are overwhelming. It means that static textbooks that are outdated the day they are printed can be replaced with up-to-date information online that is continuously refreshed and renewed. It means that teachers' professional learning will take place in online connected spaces that span the globe. It means that faculty do not need to see themselves as the only conduit for teaching content and skills, but as facilitators in a worldwide network of teachers. It means that students can take more responsibility for setting and achieving individual learning goals. In short, it fulfills some of our greatest hopes for learning while challenging many of our traditional features of schooling.

Overcoming that traditional view of education is the hardest part. Embracing these tools and changing our classrooms will require letting go of preconceived notions of school, ideas we've been carrying around most of our lives. We need to see that self-learning, informal learning, and learning not connected with school are a huge part of what we need to teach. We need to go beyond tinkering on the edges of the web in which the end result does little to change the status quo. We need to grapple with the startling reality that local monopolies of learning are an artifact of the past and that the roles of our schools and our teachers are drastically different in the Internet age.

Two Problems and a Challenge

Given the powerful benefits of using these tools in their schools, why are even the most "plugged-in" educators still committed to a reform path? We admit that the field of education has a laundry list of reasons why we can't change the current model of schooling to incorporate the remarkable forms of new learning enabled by the web. (We will discuss some of these later in the book.) There are even a few among us who want to look backward instead of forward and claim that Web 2.0 technologies are just another passing educational reform—a fad that will go away like many others we have seen over the decades. There are also some who "get it" but are following the same mistake made by the newspapers, trying to take an older model of schooling and just tweak it.

But these are not the main stumbling blocks to transformation. As we talk to educators at every level of the system, they repeat two very big barriers more often than any of those mentioned previously. We have come to call these two stumbling blocks "the problems." We promise to guide you through the first if you'll take on the challenge of the second.

The Problems

More often than not, in our conversations with educators from across the country and around the world, we have come to see two main barriers

to real transformation in schools. First, even though most educators will agree that real change is afoot in the world outside of education, they don't yet have enough of a grasp of what those changes mean for their schools, and if they do grasp it, it's still difficult to see a path to real implementation of those changes. Second, even though they know change is necessary, no one is asking for it.

When it comes to the first problem—lack of understanding—much of the difficulty stems from the reality that most teachers are products of this outdated system, one that they sincerely believe delivered to them an excellent education. It's what they know education to be, and it's very hard to see what a technologically rich, globally connected system might look like. Such a shift in viewpoint requires identifying the opportunities that learning networks offer our schools and then carving out a vision for a new learning landscape. That's hard work. Moreover, once this vision is in hand, it requires the creation of a step-by-step process for bringing it into every aspect of the system. Without some guidance around getting started, that's often a daunting task.

The second barrier standing in the way of change is that, frankly, no one is demanding that schools do anything differently right now. Few parents expect teachers and students to begin using social networks in teaching and learning, especially in schools with excellent reputations. Most teachers are not demanding that these tools be available in the classroom, since they are not personally using them in their own learning. School leadership is not advocating for this type of learning in the classroom, and colleges and universities are not demanding that we replace SATs and advanced placement courses with evidence that students are plugged into a global learning network. If we surveyed our students, they would probably prefer to use these tools, but they are not going to demand their use en masse in some form of modern "social networking uprising."

In addition, outside assessment systems imposed on schools are not making a clear connection between the use of these tools and student learning. State leaders and regional superintendents reviewing No Child Left Behind adequate yearly progress (AYP) results will often turn to more traditional tools to improve achievement. Individual school principals faced with poor state test results are more likely to implement after-school remediation programs that cover the same material in the same way than to incorporate a global network of teachers and change the existing classroom. Even individual teachers may not see evidence that their understanding and use of these networks is connected to their evaluation.

Finally, despite many signals that what we're doing in schools is no longer working for a growing segment of the school population—international rankings that show the United States lagging behind in the most basic of skills, employer complaints that college graduates are entering the workforce without the ability to read and write effectively, and the lack of problem-solving and critical-thinking skills by students at every level—most responses to the

crisis are constrained within the traditional model of schooling (OECD, 2010). Few schools are looking to create different classrooms. Although learning networks could enable many schools to reach their individual student achievement goals, no one is clamoring for their adoption.

The Challenge

So here, in a nutshell, is our challenge: we have to find a way to do something most policymakers, educators, universities, and parents have yet to demand. We have to find ways to bring networked learning opportunities into our classrooms even while many of the traditional expectations for schools remain in place and even though the vast majority of parents still want us to prepare their children in the same way they were prepared. We have to introduce our kids to a whole new method of learning that is less about memorizing and “doing their own work” and more about content creation and collaborating with others, and doing so in the context of their passions. In other words, we have to make sure our students pass the traditional tests and can flourish in college or in the workplace while also providing them with new skills and literacies that we have not yet found a way to measure. We have to ask our teachers to learn in different ways than how they learned in their high schools and colleges in order to leverage the power of modern networks, not only for their own personal learning but to better deliver these new skills and literacies to the students in their classrooms.

No question—that will be a huge undertaking, but for the sake of our students and for our own learning, it’s a challenge worth taking on sooner rather than later. We cannot wait for the Department of Education, state agencies, or local government to mandate these types of changes. The definition of *educational leader* needs to shift from the person with the title to the person with the vision. Teachers in the classroom can exercise enormous influence over the skills their students learn and the methods they use, while still delivering a state-mandated curriculum. Believe it or not, academic department heads and principals can reshape how their people learn (and therefore teach) while still meeting state test-score benchmarks. Superintendents can groom forward-looking school leaders connected to global networks of learners who expand their vision of learning. All of that is already being done in many schools around the world by teachers, administrators, and leaders who aren’t waiting to be told to change, and we’ll share some of their stories later in this book.

Here’s the deal that we want to make with you right now. We’ll help you with the first barrier, describing the vision and giving you a road map to implementation, if you are willing to embrace the challenge of the second. If you are willing to step forward and lead into the 21st century, we will show you where to go and how to get there. If you are willing to change the way that you learn, we can teach you the tools and techniques for doing it successfully. If you want to change your classroom, we will give

you a recipe for doing just that. If you want to change your school, we will coach you in the best path to take. We will help you both avoid the pitfalls and succeed in the transformation, but we need you to have the courage to act even though no one is demanding it.

This is a big conversation—one that isn’t for the faint of heart. For anyone who cares about kids and their future, however, it’s an essential conversation that speaks directly to our responsibility as professionals to constantly improve our pedagogy and provides huge opportunities for each of us as learners ourselves.

How Can We Help?

This book is the step-by-step guide for creating globally connected schools that empower students to learn in modern ways. It takes a very challenging change process and breaks it down into components that everyone can follow. We have written this book to help both the individual educator who wants to learn differently and the administrator who is responsible for hundreds of schools.

We know that educators face the age-old problem of how to fix the hole in the boat when they are busy bailing water. Educators are busy people. The needs of students, teachers, and parents can leave little time for working out a plan to transform teaching and learning, especially when that plan needs to consider social and technological changes that evolve rapidly and continuously. With the plan we have outlined, everyday educators can use personal learning networks to effect change at every level of the school system in a relatively short period of time. Better yet, you can use the networks you create as a support system to lessen your workload and help sustain the change.

We also understand that this transformation is deeply personal. Before addressing how to create personal learning networks in schools, we want to first focus on teachers creating learning networks in their own lives. Learning something new is always challenging, but using personal learning networks for the first time is an emotional process as well as a cognitive one. Part of it involves the nuts and bolts of learning the technology, but an equally important part is putting your ideas online and interacting with people from around the globe. For this exact reason, we coach you through how to consume information as well as how to contribute, and we give you tips and pointers on how to break through some of the mental barriers that can prevent some people from fully taking advantage of this learning opportunity.

That’s not to say that this change will be easy—few worthwhile changes are—but we’ll try to make it as easy as possible. It’s like weight loss. Everyone knows that the basic outline for losing weight is to eat less and exercise more; so why aren’t more people thin? Because everyone also knows that for most people, eating less and exercising more is not easy. But what if

they had help? What if a nutritionist outlined a food plan of tasty, easy-to-prepare foods? What if an exercise specialist prepared a moderate exercise plan that only took twenty minutes a day? Finally, what if a cook helped prepare the food and a partner helped with the workout? Would that make losing weight easier?

This book is like your personal nutritionist and trainer for changing your own learning, your professional practice, and your schools. Your online network will be the cook, serving up the information that you need. While these changes still won't be easy to navigate, we hope to make it easier than you expect.

What Are the Steps?

This idea of networked learning has obvious implications at many different levels, and we'll be looking at each in depth in the coming chapters. We believe there is a bottom-up progression in order to fundamentally change the way schools operate:

1. Understanding the power of PLNs
2. Becoming a networked learner
3. Implementing a networked classroom
4. Becoming a networked school

We begin by making the case for change. In chapter 1, we describe how learning is different in a globally connected world and why school models that do not embrace this change will fail our kids in the 21st century. We sketch out a vision for dynamic, connected schools in which students use modern technologies to drive their own learning not only during their time in school, but long after they have graduated.

Chapter 2 instructs you on how to create your own learning networks. In a learning context, this starts with us as individuals—not as educators, but as learners in our own right. Until you have a practical understanding of what networked learning means in your own life, it's difficult to begin meaningful conversations around what change looks like at the next levels. This process requires us to be willing to spend some time looking inward, learning to connect and interact around the things we are passionate about. We believe that if you embrace this change in your personal learning life, you will be more prepared to implement this new model of learning in your education work. Teaching about networks requires being networked; the ability to model your own use of learning networks in front of your students might be your most important pedagogy of all.

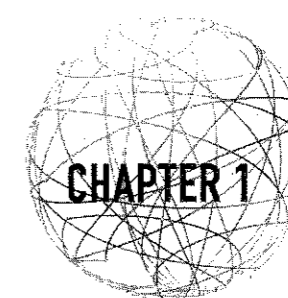
Chapter 3 discusses how to bring these changes into classrooms. Networked classrooms are the natural evolution of networked teachers. As you'll see by the stories we share in that chapter, connecting classrooms to one another for

collaboration and learning is pretty easy when you yourself are connected to a network of global teachers just waiting to join their classrooms with yours. These types of connections can facilitate diversity and can be an effective way of beginning to teach your own students the literacies of interaction online.

Chapters 4 and 5 focus on transforming into a networked school. Chapter 4 shows you how to build a coherent change process for the teachers in your school or district. We'll talk about how to fashion a compelling case for change, how to pick a team to lead the change, and finally, how to roll out an extended plan to bring about these changes. In chapter 5, we provide ideas about how to bring that change to the students by finding the money, creating the support structures, defining the right policies, and overcoming the most stringent objections to integrate networked learning in all aspects of your school environment.

Our book is both theoretical and practical. It paints an inspiring picture for modern teaching and learning using world-changing technologies, but then it walks you through concrete actions to achieve that vision. It succinctly summarizes the global forces that make change an imperative for schools, and then it details the steps that can be followed by educators to change themselves, their classrooms, their schools, and their communities.

Look at this book as a road map for navigating this unique moment in the history of education, a time unlike any other from a learning standpoint. The system of education we've known for the past hundred years is changing irrevocably, and if we choose to, each of us will play a role in what happens next. To make the most of those efforts, we have to understand at a personal, professional, and community level what change really looks and feels like. We believe in your ability to do just that, and it is our sincere hope that every one of you, after reading this book, is ready for the challenge that lies ahead.



CHAPTER 1

UNDERSTANDING THE POWER OF PLNS

Pam Moran is in what she calls the “twilight” of her career in schools. Now the superintendent of the Albemarle County Schools in Virginia, home to some 1,400 educators and 13,000 students over 726 square miles, Pam has spent over thirty years in every level of education. It’s been a wonderful ride without regrets, save one.

“I really wish I had another 20 years left in this career,” she says. “I’ve spent most of my time in schools just tinkering around the edges of learning, but nothing much has really changed. But right now, things are changing at lightspeed” (P. Moran, personal communication, January 10, 2011).

For two years, Pam has been learning about learning in a different way—by connecting to other educational leaders and teachers around the world online. She’s been tweeting on Twitter, gaining a following of almost three thousand readers. Her blog, *A Space for Learning* (<http://spacesforlearning.wordpress.com>), has quickly become a must-read for other superintendents and educators of all stripes. A quick Google search leads to many other guest blog posts, comments, and articles about her work shifting the learning environment in her district to one that is more embracing of the networks and connections that facilitate learning outside the classroom. Those experiences have transformed her view of education.

“To me, the most powerful aspect of what’s happening right now is this potential for learning that we haven’t even begun to appreciate yet,” she says. “It’s almost like we’re recreating education from scratch. In another 5–10 years, education is going to look like nothing we’ve seen in the last 500 years. I only wish I could stick around to see it happen.”

The Big Shifts

No question, we are living at a time of unprecedented change, and the web is driving much of it. As Pam suggests, the implications for learning, much less schooling, are profound. In order to fully understand those implications, we need to take a look at the fundamental shifts that are fueling our capacity to connect, interact, and learn with others in these new and different ways.

Many people have attempted to specify the ways in which the world in general is changing because of the web and the mobile technologies now exploding on the scene, but few sum it up as nicely as David Wiley, a professor of education at Brigham Young University. Wiley (2008), who is a leading thinker on the opening up of education and learning in a connected world, cites six significant shifts that are supporting connection and network building:

1. Analog to digital
2. Tethered to mobile
3. Isolated to connected
4. Generic to personal
5. Consumption to creation
6. Closed systems to open systems

These are especially relevant when trying to identify the real challenge points for K-12 schools.

First, we're moving from *analog to digital* in some very big and very fast ways. In the most obvious example, paper as a physical medium is fast giving way to the digital formats we create using technology and formats that are searchable, easier to copy and share, potentially collaborative, and more easily organized. For example, Google's attempt to scan and digitize every known book in the universe will, if successful, make those books more accessible and useful (see <http://books.google.com> for more information). In addition, the Stanford Engineering Library announced in 2010 that it was soon to become bookless (and journal-less) because providing that content digitally makes more sense for its students and is a precursor of what is to come in the near future. Tools like Google Docs, Evernote, and the Kindle are changing the way we interact and value paper texts in profound ways, and they are powerful signals of the information environments to come. We may not all feel comfortable living in a digital world, creating and sharing digital products, but there's no doubt the world is moving in that direction, and fast.

Second, Wiley points out that we are shifting from *tethered to mobile* technologies at an increasing pace. We no longer need to be at a desk to do our work, and in the near future we'll be able to do most of what we need to accomplish on just our phones. Apple's introduction of the iPad in 2010 has spurred a development frenzy in mid-sized touch screen tablets that can serve as an always-connected communication device and printing press to the world. More and more, people are beginning to eschew their computers for mobile devices (Hernandez, 2010). The number of people using mobile phones as their sole connection to the Internet has already

grown to almost 70 percent in Egypt and near 60 percent in India (Breck, 2010). As of 2010, fully three-quarters of all U.S. teens owned cell phones (eSchool News, 2010). No question, mobile technologies pose a huge opportunity (and a huge challenge) for our classrooms.

Third, Wiley makes the point that learning is moving from being a *fundamentally isolated experience to one that is decidedly connected*. We've always had the benefit of our local connections and classrooms in which to learn, but the global connections now available have created an expectation of collaboration and cooperation around learning that goes beyond our physical space. Right now, we can be intellectually close to people who are three thousand miles away, while in the same respect, we may be far away from those sitting right next to us (P2P Foundation, 2007). In these online interactions, learning is extremely social as we read, filter, create, and share with one another on an ongoing basis.

Fourth, learning is moving from being *generic to personal*; we pursue our own interests and passions. No matter our interest, we can find others online who share that interest and with whom we can form learning groups. Take the independent school teacher from Atlanta who stood up during a professional development session and named his passion to be "mountain biking on a unicycle." Strange as it might seem, it turns out there is a whole community of "municyclists" out there who share his love of that sport. Who knew? Regardless of interest, the potential to find other like-minded souls with whom to learn makes our own learning much more self-directed, on demand, and individualized.

Fifth, as mentioned previously, this new world is all about *creation, not consumption*. Certainly, we continue to spend a large amount of our learning time reading, thinking, and synthesizing ideas. Now, however, we don't just consume those ideas; we share them. As Clay Shirky suggests in *Cognitive Surplus* (2010), we are in the process of taking the roughly two hundred billion collective hours per year we spend in front of the television set (in the U.S. alone) and turning them into creative acts, some more foolish and inane than others, but creative nonetheless. We are beginning to participate in some amazing ways:

When someone buys a TV, the number of consumers goes up by one, but the number of producers stays the same. On the other hand, when someone buys a computer or a mobile phone, the number of consumers and producers both increase by one. Talent remains unequally distributed, but the raw ability to make and to share is now widely distributed and getting wider every year . . . Conversations among groups can now be carried out in the same media environments as broadcasts. This new option bridges the two older options of broadcast and communications media. All media can now slide from one to the other. A book can stimulate public discussion in a thousand places at once. An e-mail conversation can be published by its participants. An essay intended for public consumption can anchor a private argument, parts of which

become public. We move from public to private and back again in ways that weren't possible in an era when public and private media, like the radio and the telephone, used different devices and different networks. (Shirky, 2010, Kindle location 739)

Finally, Wiley offers up a sixth shift, one that might be most challenging of all when it comes to education. In just about every area of life, we are moving from *closed systems and ideas to open ones*. Most of us know the story of open source software, programs that are created by passionate coders improving on work that is freely accessible online. Programs like the Firefox browser and Apache server software have become integral to the way we use the web. Now, however, open content is becoming more ubiquitous; it is content created without copyright restrictions, freely published and shared, and available for others to use and reuse. Examples like MIT OpenCourseWare (<http://ocw.mit.edu>), which provides materials from every one of MIT's two thousand courses free online, or Flat World Knowledge (www.flatworldknowledge.com), which allows textbook authors to write and freely distribute work online, are only a small slice of what is happening. We have the chance to do what Shirky calls "planet scale sharing" (Shirky, 2010, Kindle location 2302), and it's becoming an expectation that we do just that with the information we find, create, and learn.

Rethinking Learning

All of these shifts have huge implications for us as educators. In fact, even those of us living at the heart of these changes feel some discomfort trying to think through all the ways the web challenges the traditional structures of schools, classrooms, and learning. But here's the thing: given these opportunities for connection that the web now brings us, we are convinced that schools will start leveraging the power of these networks. Here are the two game-changing conditions that make that statement hard to deny: if we have access to the Internet, (1) we now have two billion potential teachers, and soon, (2) the sum of human knowledge will be at our fingertips.

That, in no uncertain terms, is different.

Most schools were built on the idea that knowledge and teachers are scarce. When you have limited access to information and you want to deliver what you do have to every citizen in an era with little communication technology, you build what schools are today: age-grouped, discipline-separated classrooms run by an expert adult who can manage the successful completion of the curriculum by a hundred or so students at a time. We mete out that knowledge in discrete parts, carefully monitoring our students' progress through one-size-fits-all assessments, deeming them "educated" when they have proven their mastery at, more often than not, getting the right answer and, to a lesser degree, displaying certain skills that show a literacy in reading and writing. Most of us know these systems intimately. And for 120 years or so, they've pretty much delivered what we've asked them to.

But what happens when knowledge and teachers aren't scarce? What happens when it's easy to connect our passion to learn to the resources to learn it? What happens when, in the next decade or so, almost everyone gains access to these profoundly different learning spaces filled with teachers and content through the devices they carry in their pockets? What happens when we don't need schools to manage the delivery of content anymore, when we can get it on our own, anytime we need it, from anywhere we're connected, from anyone who might be connected with us? Things change.

For each of us as learners, the fundamental change is that we can be much more in control of the learning we do. It's not about the next unit in the curriculum as much as it is about what we need to know when we need to know it. It's not even about what we carry around in our heads—all of that "just in case" knowledge that schools are so good at making sure students get these days. As Jay Cross, the author of *Informal Learning*, suggests, in a connected world, it's more about how much knowledge you can access with your personal learning network. "What can you do?" has been replaced with, "What can you and your network connections do?" Knowledge itself is moving from the individual to the individual and his contacts" (Cross, 2006, p. 18). If we have access to our networks, we're a lot smarter than we used to be. In fact, "connection with others in a network is of prime importance in having access to a wide repository of knowledge," according to Vance Stevens of the Petroleum Institute in Abu Dhabi (Stevens, 2009). In other words, if we want to make the most of our brains these days, we need to connect online.

What hasn't changed is this: learning, online or off, is still social, and that's good news for all of us. If you think we're sketching a vision of students sitting in front of computers working through self-paced curricula and interacting with a teacher only on occasion, you're way, way off. That's not what we think of as effective online learning. What we are suggesting, however, is that because of the connections we can now make on the web, there is as much potential (if not more) for meaningful, experiential, constructivist learning to occur in the interactions between people online as there is in face-to-face interactions. That's not to say that face-to-face learning isn't important or valuable. It is. But so is the web. It's the melding of the two that will shape our schools in the 21st century.

It's Not as Easy as It Looks

While participating in these online spaces may appear easy, creating a PLN is in fact a highly complex intellectual and emotional task. How do we sift through the oceans of information online to find the most relevant, trustworthy content for our studies? How do we find, vet, connect, and learn with all of those great potential teachers? How do we develop the attention skills we need in order to learn effectively and the reflection skills to assess our progress toward our learning goals? That's hard work.

Yet such participation is also exactly why we need schools to transform the role they now play in our children's lives. In other words, in this "anytime, anywhere, anyone" learning world, how do schools help students become skilled at taking charge of their own learning as well? How do we help them take full advantage of the plethora of teachers and content available to them without drowning in it? We're not suggesting we just give them all a computer and access and let them run amok online. What we are suggesting is that we give them all a computer and access and teach them how to learn effectively in this always-on, global classroom that each of them can fashion for herself or himself. This type of learning includes how to make connections with others online, how to negotiate the interactions between them, how to collaborate with them in ways that go beyond just sharing existing information to the creation of new knowledge, and how to perhaps even change the world. That attitude shift is captured in one of our favorite quotes by the philosopher Eric Hoffer: "In times of change, learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists" (Hoffer, n.d.).

Schools have been working hard at making our kids *learned* because in the past, it was hard for them to do that without the teachers and resources that schools offered. Not so today. In the 21st century, students inhabit a world in which we have the ability to truly make them *learners* who are able to create and share and participate in these online spaces in ways that will allow them to take advantage of whatever opportunities currently exist and the unimaginable ones that lie just around the corner. To do that, we adults in the room need to be learners in those contexts as well. (More about that in the next chapter.)

Please hear this loud and clear: we're not talking about getting rid of schools. We are, however, talking about seriously rethinking the way they work to meet the needs of the current learning realities our students face. While knowledge and information may now more and more reside outside the four walls, we as educators still can and *should* be the learning experts in our students' lives. Schools are part of a larger PLN. Therefore, this is not the end of schools and teachers as much as it is the dawn of a new age of schooling, one that is much more relevant to students and learners of all stripes. It's a daunting moment, for sure, but it's also one that we think is filled with opportunity for all of us.

So at this moment, we are left with two vastly different snapshots of what learning looks like inside and outside of schools. One is a black-and-white photo that depicts a student sitting at her desk alone, studying from a mass-produced book, preparing a paper assessment for a classroom teacher who periodically assesses her learning, and waiting to take the culminating assessment that stamps her as being "educated." The second, meanwhile, is a full-color video of that same student learning from a local teacher how to interact with personalized content accessed through a mobile device, sharing her thoughts with dozens of teachers from around the world, and

receiving real-time feedback on the written and multimedia contributions that she offers. A bit of a contrast, wouldn't you say? And yes, we know that full-color video isn't playing in every classroom across this country or the world. We have a lot of work to do to get kids connected and to teach them how to learn well in these networked spaces, but there's no longer any doubt that we are quickly moving in that direction. Education has little time to waste to move there as well. Only by fully understanding the power of learning networks can we clearly decide which image we want for our schools.

Stephen Downes, a senior researcher for Canada's National Research Council, does a great job of summing up these big shifts in a compelling essay titled "A World to Change" at the *Huffington Post*:

We need, first, to take charge of our own learning, and next, help others take charge of their own learning. We need to move beyond the idea that an education is something that is provided for us, and toward the idea that *an education is something that we create for ourselves*. It is time, in other words, that we change our attitude toward learning and the educational system in general. (Downes, 2010, emphasis added)

We couldn't agree more.

Learning Networks

So what exactly do we mean when we say "learning networks"? We mean the rich set of connections each of us can make to people in both our online and offline worlds who can help us with our learning pursuits. While we've always had those types of people in our day-to-day lives, the Internet pushes the potential scope and scale of those networks to unprecedented heights. Today we can turn to all sorts of professionals and collaborators from anywhere in the world to help us answer our questions, connect us to relevant content and resources, or just share their own experiences with us. While these connections are surely social in nature, we think they go beyond the popular "social network" moniker that has been applied to Facebook, MySpace, and others. For the most part, in those spaces, we connect to people we already know and love, friends, or friends of friends. Learning networks are very different both in form and purpose in that we instead connect with people we don't already know—helpful strangers who share our passion for a particular topic. We make those connections not just to keep in touch—we make them to learn. In these new learning spaces, we share links using tools like Twitter or Edmodo, offer up our thoughts on one another's blogs, act as critical friends, push one another's thinking, and collaboratively create new knowledge to share with the world. These are primarily intellectual exercises, not social ones. In fact, while our interactions with these strangers can in many cases become friendly, it's not uncommon to keep these learning and social spaces very separate.

Simply put, online learning networks change the game by allowing us, in a sense, to create our own global classrooms and collect teachers and other learners around the topics we want to learn about. They allow us to self-direct our learning in exciting new ways, ways in which schools are going to find it increasingly hard to compete with. As authors Tony Bingham and Marcia Conner write, networks “provide people at every level, in every nook of the organization and every corner of the globe, a way to reclaim their natural capacity to learn non-stop” (2010, Kindle location 319).

Many of our students are starting to do this. The 2008 MacArthur Foundation report *Living and Learning With New Media* found that students certainly use the web in friendship-based ways by staying connected to the people they know in their face-to-face worlds. But they also use the web to connect in interest-based ways, which, as the name suggests, is all about their passions to learn; whether it’s fixing up that ’78 Camaro, finding ways to clean up the environment, or learning how to build an awesome new skateboard, kids are beginning to engage in these networked online spaces on their own. As the lead author of the study, Mimi Ito writes, “Kids learn on the Internet in a self-directed way, by looking around for information they are interested in, or connecting with others who can help them. This is a big departure from how they are asked to learn in most schools” (Ito et al., 2008).

That type of learning is a big departure, and it’s one that we have to understand for ourselves if we are to make sense of what roles schools and classrooms are going to play in this much more self-directed learning world. This is not the linear, one-size-fits-all, all-in-one-place learning system. In these online spaces, content and knowledge are much more decentralized and distributed, are found in many places instead of one, and are also much more individualized. As our students come to expect these customized, highly personalized learning interactions online more and more, our systems’ inability to provide the same type of experience in the classroom will no doubt continue to challenge the relevance of school in their eyes.

We think this shift is a huge opportunity, however. Schools can do more than remain relevant; they can become even more important in our students’ lives, if we are willing to deeply rethink our role in these contexts. Again, we’re not suggesting this will happen overnight. We are suggesting, however, that every school system has to begin to move in these directions, toward enabling every student to self-direct his or her own learning and make sense of the complexities and opportunities that all of us now face. It’s a huge task.

It all starts with understanding deeply how these learning networks work. George Siemens, a professor at Athabasca University in Edmonton, Calgary, and a leading thinker about these shifts, suggests that our connections to one another and to relevant content in a global context are absolutely essential to becoming educated these days. These passion-based connections help us filter through the incredible amount of information the

web holds today, and within these networks, we now are creating knowledge together, testing theories and ideas, collaborating on solutions or actions, and sharing back most everything we learn in the process. It’s a highly transparent process that, while uncomfortable for many adults, is more and more the expectation for our students and their learning.

Today, according to Siemens (2007), “learning is a network formation process of connecting specialized nodes or information sources.” It is not about memorizing facts. He argues, much like Jay Cross, that knowledge actually resides in these networks, and that an integral part of the learning process is to be able find and synthesize the most current information and recognize connections between ideas that may be found in many different places from many different people. Since learning is an ongoing process and no longer an event, our ability to expand our knowledge is more important than we currently realize (Siemens, 2007).

We see this process of connecting playing out all around us online all the time. Through our interactions with the people and resources in our networks, we become a part of an ongoing flow of learning. Every day there is new knowledge to make sense of and new ways of thinking about and looking at the world. As we participate in these spaces, we become one node, one participant of many in a network that in aggregate is constantly learning. In other words, even though we may not be connected at a given moment, invariably others in our network are, and they are reading, filtering, thinking, and sharing in transparent ways that will be available to us when we do go back online.

New Literacies

To participate fully in this new learning environment, our students will need a host of new skills and literacies, as will we. The situation begs the question of all of us: “At a moment of so many shifts, am I literate?” Lots of folks are starting to ask that question, and some of them—like the National Council of Teachers of English (NCTE), the International Society for Technology in Education (ISTE), and even the federal government—are bringing some important weight to the conversation.

We suggest that the focus of any conversations around new skills should center on this defining question: how do we best begin to create, navigate, and grow our own learning networks in safe, effective, and ethical ways? The answer to that question is highly complex, but we think it starts with a combination of old and new skills and literacies. While many are touting the idea of 21st century skills, most are really 19th century skills that are being reframed in important ways for learning in these networked spaces.

NCTE has created a useful definition of what literate readers and writers should be able to do considering the changes in information and content production. As the organization suggests, “These literacies—from reading online newspapers to participating in virtual classrooms—are multiple,

dynamic, and malleable" (NCTE, 2008). What is defined as literate today may not suffice tomorrow, given the fast-paced changes in technology. As you read through these measures of literacy, try to apply them to your own practice. Be honest, because your literacy in these six contexts is crucial to the lens you bring to the larger conversation around change:

1. Developing proficiency with the tools of technology
2. Building relationships with others to pose and solve problems collaboratively and cross-culturally
3. Designing and sharing information for global communities to meet a variety of purposes
4. Managing, analyzing, and synthesizing multiple streams of simultaneous information
5. Creating, critiquing, analyzing, and evaluating multimedia texts
6. Attending to the ethical responsibilities required by these complex environments

Odds are you're not feeling very literate at the moment. While more and more teachers are exhibiting proficiency at using technology, a very small percentage of educators are actually solving problems with partners from other cultures, creating and sharing information with the world, and producing—much less deconstructing—multimedia texts. These are all expectations of literacy that, for the most part, weren't in place when we came through the school systems ourselves. But there is no question that the list captures much of what today's social learning online requires.

Although it's not specifically articulated by NCTE, there is also a larger expectation here, namely that technology, primarily the web, is simply a seamless part of how we conduct our business in schools today. Not one of those measures (aside from perhaps the last) can be accomplished without some type of computer—whether it be a desktop, laptop, tablet, or cell phone—and a connection. Most of them can happen on any of those devices. Seamless access is not a state that we have achieved in most of our schools. It's a challenge that still lies ahead.

ISTE has taken the step to define these new skills and literacies separately for students, teachers, and administrators. For instance, the most recent group of standards, written for administrators in 2009, expects school leaders to "promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration" (ISTE, 2009). We expect similar language to appear in the student and teacher standards in the next edition.

Similarly, the current *National Education Technology Plan 2010* provides some compelling language to guide our thinking about change. First, it calls for "a revolutionary transformation rather than an evolutionary tinkering" of the education system (United States Department of Education, 2010a). It advocates "personalized learning instead of a one-size-fits-all curriculum," and it calls for every student and every teacher to have an Internet-connected device. We find what they do with those devices compelling. In the "Teaching: Prepare and Connect" section, the plan states that "social networks can be used to provide educators with career-long personal learning tools and resources that make professional learning timely and relevant as well as an ongoing activity that continually improves practice and evolves their skills over time." It mentions online communities of learners and "anytime, anywhere" learning as well. (We feel compelled to note, however, that for all of the forward-thinking rhetoric offered by the plan, there is no real indication of how these ideas square with the much more traditional view of the "Race to the Top" initiative that is the centerpiece of the current educational vision.)

Finally, we'll point to the findings of the *2010 Horizon Report*, a widely respected annual compilation of education and technology issues created by a thirty-five-member panel of thought leaders in the field. The report states that because "the abundance of resources and relationships made easily accessible via the Internet is increasingly challenging us to revisit our roles as educators in sense-making, coaching, and credentialing . . . the role of the academy—and the way we prepare students for their future lives—is changing" (Johnson, Levine, Smith, & Stone, 2010, pp. 3–4). The authors articulate the many challenges and opportunities that schools face at the moment, all of which revolve around the critical connections we can now make online.

In one way or another, all of these organizations, and many others, are articulating a very simple idea: there is now an easy connection between a person's passion to learn something and the resources to learn it. It's called a network, and it needs to be a part of any literate adult or student life. Our connections ease the path to technology proficiency, problem solving, and accessing and sharing information widely. They help us do the hard work of making sense of information, and in many ways, they keep us on track in terms of how we use these tools in our lives. In other words, in order for our students to become "literate" as defined by NCTE, technology will have to become a part of our learning culture. Just like paper and pen, a device and a connection are required tools for our learning trade now, and we have to begin to change our culture to not only embrace these shifts but take full advantage of the potentials they create, which means each of us working to make the web an integral part of our learning practices.

Changing Skills

Integrating the web into our learning practices also means changing the way we learn and work as schools. For instance, as we build and begin to participate in our networks, we must be constantly assessing both the content we view and the people we meet, as opposed to having the traditional teacher vet those types of interactions. You can believe the textbook. You can trust the teacher. When texts and teachers are all over the place, however, it becomes crucial that learners of all ages be able to answer the questions “What can I believe?” and “Who can I trust?” during every interaction online. Networked learners consistently pose these two questions as they navigate their interactions.

Similarly, in an online environment fraught with so many potential distractions, how do we teach ourselves and our students to maintain a level of attention and focus that will allow them to learn deeply? Take, for instance, the idea of “continuous partial attention,” a term coined by Linda Stone to describe our desire not to miss anything on the web. It’s common to be writing a blog post (or a book) while having the latest Twitter or Facebook post pop-up, getting an email alert, or finding a hundred other ways to participate in the moment. That may be one way of parceling out our attention at any given moment, one “attention strategy,” as Stone (2010) puts it, but it’s one that many find habit forming. Others, such as authors Nicholas Carr (2010, *The Shallows*) and Mark Bauerlein (2008, *The Dumbest Generation*) have argued with some effect that all of the potential distractions that the web creates can have a negative effect on memory and deep thinking. We don’t disagree that there are potential downsides that we have yet to begin to understand.

But we also feel that these are challenges that can and, frankly, must be addressed through education and the cultivation of healthy practice, not by cutting back access. For instance, we agree with author and educator Howard Rheingold who has been exploring the idea of an “attention literacy” that is crucial to navigating these networks well. He writes:

Attention is a skill that must be learned, shaped, practiced; this skill must evolve if we are to evolve. The technological extension of our minds and brains by chips and nets has granted great power to billions of people, but even in the early years of always-on, it is clear to even technology enthusiasts like me that this power will certainly mislead, mesmerize and distract those who haven’t learned—were never taught—how to exert some degree of mental control over our use of laptop, handheld, ear-budded media. (Rheingold, 2009)

This poses a huge challenge for both individuals and the systems they work in, one that we’ll dive into more deeply in later chapters.

In the end, these types of skills must become a seamless and integral part of how we interact with information and people online, and as educators, we have to be able to model these for our students. The reality is that

networks themselves help answer these questions routinely. If you have the ability to grow your connections by choosing trustworthy and believable people to interact with in the first place, that network can help you edit and vet the new connections you make.

Network Effects

So what would our schools look like if everyone from state leaders to classroom teachers embraced learning networks? Well, frankly, each school would probably look exciting but unique. Learning networks are not a one-size-fits-all solution that works for each school in the same way. Quite the contrary, one of the reasons these tools are so powerful is their ability to serve a variety of goals. In this way, they are unlike a national or state curriculum or some of the reform initiatives that structure classroom instruction in very specific ways. You can personalize your use of these networks to meet your local goals.

Yet schools using these networks do have some things in common that result from the transformational power of these tools. Whether your language classes are talking to students in South America, your English students are blogging with the author of the novel they’re reading, or your science classes are creating a video with scientists from the National Institute of Health, schools immersed in global learning networks share at least seven common traits:

1. Students are better prepared for life and work in the 21st century.
2. Classrooms are more engaging.
3. Students are responsible for their own learning.
4. Instruction is more individualized.
5. Adults become better at their jobs and build problem-solving capacity.
6. Students are safer.
7. Schools save time and money.

First, students are better prepared for life and work in the 21st century. Participation in learning networks gives them the opportunity to practice the “seven survival skills,” defined by Harvard education professor Tony Wagner in *The Global Achievement Gap* as (1) critical thinking/problem solving, (2) accessing and analyzing information, (3) collaboration/leading by influence, (4) agility and adaptability, (5) initiative and entrepreneurialism, (6) effective oral and written communication, and finally, (7) curiosity and imagination (Wagner, 2010). As part of learning how to build these networks, students learn invaluable media literacy skills that reinforce their ability to think critically about Internet information and access

the most up-to-date information quickly and efficiently. Online exchanges have the potential to raise their oral and written communication skills; students writing about topics they are passionate about for a real audience will improve their writing level. The teachers and students with whom they interact in these networks increase the diversity of their ideas and make them better prepared to collaborate globally to answer local questions. Learning networks serve as a gateway to learning many of the skills students will need in life and work. As e-learning specialist Ellen Wagner says, "Today we assess personal mastery of knowledge and skills with how well people can leverage their interconnected networks of connections to resources, information, and subject matter specialists. Workplace success has shifted from individual accomplishment to teams, communities of practice, and collaboration" (as cited in Bingham & Conner, 2010, Kindle location 654).

Second, classrooms are more engaging. These networks give our students and teachers the opportunity to learn from people across the globe. For students, this means being able to approach challenges from a different angle, accessing information and teachers that can enhance their understanding and meet their personal needs. For teachers, these same networks can connect them to discussions about engaging content, well-designed assessments, and effective instructional strategies. Classrooms become intersections for people and ideas as they are filled with a flow of information and conversation from around the world.

Third, students are responsible for their own learning. Students learn how to learn in the Internet age by building their own networks and managing them over time. Students can build these networks to meet the expectations of the local curriculum and to learn about their interests outside of school. By interfacing with experts from around the world, students can approach the curriculum from different angles and with different teachers, and they have the opportunity to receive real feedback on real issues, feedback that increases the frequency and the diversity in their assessments. Furthermore, they take with them the skills they need to be lifelong learners, using those skills in schooling, work, and personal endeavors.

Fourth, instruction is more individualized. Students who participate in these networks begin by sharing resources from around the world, but over time they personalize their networks with the information and people that help them the most. This means that instead of a generic textbook, students cultivate a text filled with resources that fit their learning style. This approach works when working on the state curriculum or simply pursuing their personal passions.

Fifth, the connections created in personal learning networks can help every adult in the school system become better at his or her job and can build capacity in a school to developing solutions to difficult challenges. In a school that embraces learning networks, adults are actively learning all

the time, enriching both their theoretical understanding of their profession and their practical day-to-day work. This kind of learning offers the opportunity to get feedback on potential solutions, and it raises school performance and student achievement by giving daily access to tested solutions from peers in the field. Furthermore, since these networks reach beyond the local community, adults in the school have their work informed by ideas and practices from educators (and non-educators) from around the world. When schools are communities of active learners, every student benefits.

Sixth, students are safer. Kids in the lowest grades of our school systems have access to Internet connections on their computers, toys, games, and mobile devices. As much as we might wish that we could monitor their behavior all the time, the reality is that students will most likely be online doing things without our knowledge. In schools with instruction on learning networks, one of the first things students are taught is how to be safe online. Students learn how to limit the sharing of personal information and how to craft an age-appropriate personal profile that will not embarrass them later in life. They learn what kind of content is appropriate to share online in a moral, legal, and ethical sense. Students learn how to form appropriate relationships online that benefit their learning. These actions teach students how to navigate the powerful yet tricky waters of the Internet in safe, ethical, and productive ways.

Seventh, schools save time and money. Everyone knows that one-shot professional development is expensive and ineffective. It is difficult to learn something in a single day (or a few days) and successfully apply it without receiving reinforcement or support. Instead, learning networks substitute free resources from around the world and then embed a support system for implementing the work. Most importantly, teachers take ownership of their own professional development, seeking out the resources and people who can help them learn new tools, revise lesson plans, connect with other learners, and much more. Professional learning becomes an ongoing, job-embedded process, one not dependent on in-service days or prep periods. Schools that use these tools also expand their time for professional development, since these networks become a part of teachers' regular practice all year.

These seven benefits are available to every type of school that embraces this shift toward a more globally networked learning culture for students and teachers—public or private, charter or for-profit. We won't lie to you; this isn't an easy shift to make. It takes vision, planning, communication, and commitment to move to a networked learning culture. But if you do make the shift, rest assured that these approaches will work with any curriculum—state mandated, locally developed, or somewhere in between. They are implementable at any grade level, from students who are about to graduate all the way down to the smallest learners who just arrived in

our schools. They can help prepare students for rigorous state assessments, can help schools make adequate yearly progress, and can meet the learning goals of individual students and teachers. The networks bring the world to your doorstep, whether that door is in a small town with a few hundred people or the busy streets of downtown Manhattan.

Let's also be clear that this shift is not about the gadgets and the tech toys. It's not about whether your classroom has an interactive whiteboard or whether your district has purchased the most recent tablet computer. To use an analogy coined by technology journalist Matt Richtel, "some technology is Twinkies and some technology is Brussels sprouts" (NPR, 2010). Certain tools are important to leverage the power of new learning, but the most important tools for the modern schools are the teachers and administrators who learn by accessing a global network themselves.

There are very few prerequisites for your school to undertake this remarkable transformation—computers connected to the Internet and a willingness to expand the boundaries and structure of the traditional classroom. Each school will use these networks in different ways, and everyone will benefit from a more engaged, more diverse, and safer community of active learners who are ready for life and work in the 21st century.

Does It Work?

Our online networks are filled with thousands of educators who will speak to the positive effects of learning networks on student achievement and especially on student engagement. By having students connect with real people outside the classroom, the teachers we've spoken with report students learning more deeply and with more engagement than a standard in-class approach focused on textbooks and handouts.

For schools that are measured by standardized test scores and state tests, it's natural to ask for research that supports the connection between the use of PLNs in the classroom and improved learning in the traditional sense. Because of the still relative newness of the web and the somewhat limited adoption of these technologies in classrooms to date, however, that research is hard to find in any quantitative form. The research situation is clouded by at least two other factors. First, as we suggested in the opening, these new social technologies and networks open up a whole new world of important learning, one that is difficult to adequately measure on traditional assessments. In short, PLNs require skills and literacies that are difficult to tie to "student achievement" as it is currently being defined. Second, the vast majority of teachers haven't had the experience of learning in these networks for themselves, and therefore they haven't yet come to understand the real opportunities of these connected classrooms for student learning. (We'll focus on those issues much more deeply in chapters 2 and 3.)

Here is some of the initial research that has been published about learning online. In 2009, a Department of Education meta-analysis concluded that online learning was actually more effective than classroom learning—primarily because of the potentials for collaboration—and that blended approaches actually were most effective of all (United States Department of Education, 2010c). While the study did not specifically look at the personal, self-directed learning networks that we are advocating here, it lends some hefty support to the potentials of the web as an effective and important learning environment. Similarly, a 2010 study by Edvantia looked at the student achievement of West Virginia students involved in Globaloria, a social learning network created in 2006 for web-based game design and simulation practice (Chadwick & Gore, 2010). Researchers found that students involved in the study significantly improved their performance on social studies and science assessments.

The key here is the focus on collaboration. Learning networks are one of the richest ways for students to collaborate online, whether it is with a student in their class or a teacher halfway around the world. If you need research study results to justify your use of the tools in your school, the literature on collaboration will be your staunchest ally.

Looking Forward Versus Looking Backward

So all of this presents us with an interesting choice in terms of how we as educators think of those trillion-plus pages of content and two billion people connections "out there." A few will choose to look at that reality and see a threat, a world filled with bogus information or strangers who perhaps mean our students harm. They block and filter and choose not to support any potential connections made by kids online. Some see it as irrelevant, just a change in society that has little to do with learning. Perhaps they add a unit on information literacy or Internet safety in an attempt to cover these new challenges. For the most part, they react like the newspapers, unwilling to wrestle with the implications of these breakthroughs. In our travels, we've seen not only social networking sites like Facebook and MySpace or collaborative sites like Wikipedia blocked; some schools even filter the major search engines like Google and Bing. "Keeping kids safe" is usually the main reason given for putting so much of the Internet at bay, but we suspect that it has much to do with being an easy way not to have to deal with the real-world realities that the web brings, good or bad.

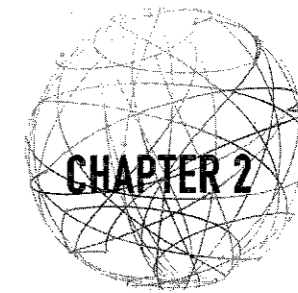
We do believe, however, that the majority of educators, when given the facts, will embrace this moment; our students have so much knowledge and so many teachers from around the globe with whom they can learn and create. The truth about the world right now is that if we have the access and the skills to do it well, we can connect with far smarter, more learned, more passionate people online than we can find in our own

physical spaces, and we can get much better, more current, more diverse information online than what we find in traditional texts. This process is filled with complexity and nuance, but we see that as a wonderful opportunity, provided we have prepared our students well enough to create and navigate those connections in safe, effective, and ethical ways. We also understand what a huge shift in thinking is required for individuals, classrooms, schools, and systems to fully take advantage of this opportunity.

To many of us, these shifts all feel daunting, too big, too much to make sense of, and too complex. Regardless of how it feels, it begs the question: what about education changes now? In this new learning world, one where content and teachers are everywhere, where passion and participation rule the day, mustn't one of our central roles become teaching our students to create their own learning groups (and networks and communities), to find and talk to strangers online with whom they share an interest so they can continue to learn without us?

These are hard questions, ones not easily answered by the addition of the new "gadget du jour." They require a deep understanding of the complex changes that are happening right now, and they also require a willingness to re-examine every aspect of our profession in that light. They require a commitment to do what's best for our children, to prepare them for their future regardless of the pressures coming from the state, from parents, and from the community. In short, as much as we may feel a deep connection to and a comfort with the structures, systems, and traditions of the schools where we ourselves were educated, we have to see the world for what it is, not what it was.

For our kids' sake, we don't have much choice.



BECOMING A NETWORKED LEARNER

There is no single moment that Tony Baldasaro can remember that made him realize he needed to radically change the way he thought about learning. But for the assistant superintendent of the Exeter, New Hampshire, school district, the 2009–2010 school year proved to be a transformative experience when it came to his own learning, the way he thought about student learning, and his role as a leader for his teachers.

A New Way to Look at Learning

"I was a competent yet introverted school leader," Tony recalls. He was willing to share his feelings about education with his close circle of friends but was uncomfortable making them known too widely. Over the course of that school year, however, things changed dramatically. "I became what I would call a transparent leader," he says, a shift that he describes as "the most transformational event of my professional life" (T. Baldasaro, personal communication, August 13, 2010).

For Tony, that "event" centered on the online global learning networks and communities he chose to become a part of that year, networks that in just a short time gave him a voice and a perspective on education that he could not have imagined a year earlier. While no one reason drove him to learning networks, he did attend a three-day workshop on the topic and "couldn't turn back." He started a blog called *TransLeadership* (<http://transleadership.wordpress.com/>) where he wrote and reflected regularly on his role as a school leader. He became active on Twitter (@baldy7) and started following and participating with other educational leaders from around the world, people who pushed his thinking and deepened his learning around the changing landscape of education each step of the way. Before long, he had literally hundreds of connections willing to share their ideas, provide feedback, give advice, and on occasion, meet up for dinner. In short, this marked the beginning of his personal learning network, which now consists of the people and resources who contribute to his do-it-yourself professional development (DIYPD, as some call it) whenever he is connected to the Internet.

"I'm still humbled by the readership of my blog and the number of