Teaching in the Nexus: Rethinking Education in a Digital World

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"Today's child is bewildered when he enters the 19th century environment that still challenges the educational establishment where information is scarce, but ordered and structured by fragmented, classified patterns, subjects, and schedules."—M. McLuhan, 1967

he ideas driving education have long linked performance and learning. But just how performance and learning are defined, executed, prioritized, and measured changes in response to culture, society, and advancements in science and technology. But those pedagogical changes don't always occur in perfect tandem with the times. In many respects, the current definition of the educational process remains an oxymoron-- driven by directives that challenge teachers to infuse two completely different paradigms of education. On one hand, state and federal mandates that promote high stakes testing continue to drive "drill-the-skill" and "teach to the minute" instruction that narrows and lock steps much of the learning process. On the other, quite different hand, 21st century skills-a merge of skills, knowledge, literacies, and learning styles deemed essential for success and lifelong learning--- call for an entirely new re-referencing of the education schema.

Check out the new Bloom's taxonomy, make a quick review of the new National Education Technology Standards (NETS) and you will quickly realize that nouns are passé' and verbs rule the day. "Things" have been replaced with active directives requiring teachers to "inspire", "encourage", "include", "design"—and (this one makes many educators gulp) "learn alongside of". Big questions form out there in full force, hovering somewhere between the twilight galaxies of 'what we know' and 'where we hope to go'. Should we—can we-- try to morph two seemingly incongruous educational philosophies? Do we selectively pitch out the pieces that no longer work for us and try to patch in the holes with more creative and engaging learning initiatives? Or, should we chuck the whole thing and, like Colorado's Adam's 50 School District, seek to rebuild from the ground up?

So many factors influence this shift of perception. What are the key points of change? And how are real teachers, in real schools, mapping grassroots initiatives to mesh seemingly incongruous objectives and ends? These big questions remain a source of lively discussion in the educational community. One thing is clear: our students' world is evolving at record speed. In order to remain relevant, formal education must commit to evolve with them.

Digital Media is Driving Change

Without doubt, digital media plays a key role in the shaping of this new learning landscape. Although fairly com-

fortable with technology inclusion in the classroom, most teachers are still struggling with the concept and implementation of meaningful technology infusion. More than 60 % of our classroom teachers admit that they struggle with technology infusion, citing everything from time restrictions to identifying the correct software to learning new 2.0 applications. But today's kids are on it-and have been, since their earliest encounters with Baby Einstein and the Comfy Easy PC Keyboard. After all, it is the only world that our students have ever known. Connecting and collaborating, on a global scaleany time, and anywhere—is simply part of the way that today's learners gather information and express themselves It has created a whole new breed of learners and communicators. many of whose interests and focus lav

beyond the classroom walls. And it holds deep implications for the future form, and role, of educators. The educational powers that be, perceiving that nothing seems to get teachers and administrators in gear faster than a generous swath of mandated testing, aim to add a technology requirement to the mix---technology competency testing is on its way down the pike. The National Assessment of Educational Progress (NAEP) is set to release a trial run this fall, targeted to be finalized by 2012. The goal is student demonstration of problem solving in technology rich environments. The directive is equally clear: infusion, rather than inclusion. Although the nuances of this may leave many educators scratching their heads, today's students are actually quite comfortable with this idea. After all, that's the way they choose to navigate outside the classroom. And that leads us to our next point.

Our students are changing

Teachers in the trenches are well acquainted with just who today's students are: kids who complete their homework on one window of their computer, send instant messages through a second window, listen to a personalized playlist on their iPod, watch television out of the corner of their eve, and text through their cell phones---all the while skimming the information skyline for their next link up. These kids live in a world of almost constant stimulation. Communication is frequent and multidimensional. In fact, today's students are often manipulators and creators of their own information and entertainment. The Digital Youth Project, an indepth study commissioned by the MacArthur Foundation, takes a close look at the way that students communicate and learn through digital media. That study, and its corresponding book, Hanging Out, Messing Around, and Geeking Out: Kids Living and



Learning with New Media, spell out a serious disconnect between the 20th century lens through which many educational institutions view the instructional process, and the world that exists "beyond the bell" for today's students.

Technology savvy students are creating a demand for learning and communicating collaboratively at school, just as they do at home. Brain research bears up this preference, indicating that today's students learn more, and remember it longer, when they learn through cooperation, conversation, conceptualization, and storytelling (Sylvester, 1999). Opening their textbooks to page 147 and working their way through a stack of worksheets doesn't excite or motivate them. It's simply no longer in tandem with the ways that students choose to work and learn. In fact, some students describe their adaptation from independent, technology based learning to traditional education formats as "powering down" (Putnam, 2007.)

Cynthia Hildebrandt, a Language Arts teacher at Creekside Middle School in Port Orange, Florida quickly realized this when she saw the kinds of technology infused projects that her students were developing at home. When she encouraged her students to share information in creative formats—through poetry, music, theater, she began to witness the impact of student created, media based information. She immediately noticed how much more willing students were to

share their ideas and work, and was inspired to "learn how to do it. too." A key to this transition, she explained, was giving her permission to learn with and from her students. There are times during the process, she explains, when teacher and student switch roles. She worked steadily alongside her students to build and infuse communication and technology skills into literature and writing. Ultimately, she and her students developed and presented training workshops for other members of the faculty and student body. It's transforming the way that Mrs. Hildebrandt sees teaching. "What I see here is a lot more than learning software. When I see what they (students) know, well, it just amazes me. I see that everything today is so fast, and so visual. And I think that students are missing out in the classroom, because it's just not being done there. I look at working this way, and I feel like I see where we need to go." (Riddle, 2009b, pp. 129-130).

Literacy is evolving

In 1915, my grandmother was the schoolmarm of a one room school-

house in Baldwin County, Alabama. Her mission was straightforward: to develop in her students a level of literacy that enabled them to successfully engage and maneuver through life. For those (mostly rural) students, that meant teaching them to read, to write, to work with numbers, to read maps. My mission, in 2009, as a teacher in a (mostly rural) school is not so very different from hers. But the task of developing literacy in my students has broadened considerably. Driven by our multimedia world, the concept of literacy has expanded. We hear a lot about "new literacy", but what is it? The North Central Regional Education

tion. Visual literacy is not a new idea. It's been around since cave dwellers chronicled their hunt on the walls of Lascaux, and it was the way the masses continued communicate until the fifteenth century. (Think about the rich symbolism ingrained in Medieval and early Renaissance art.) Gutenberg's printing press not only made literacy available to the common man, it shifted it firmly into a left brained process. The current influence of mass media, driven by technology, is pulling it back to the center, wrapping literacy in a balance of skills that marries reading and writing with creative, conceptual communication. Take a look at the text and chat room lingo our students favor-an amalgam of words, 6

symbols, icons, and shortcuts. Their advent into a world where "the thoughts the thing" is well evidenced by this preference. We use these communication shortcuts, too. Consider your last road trip. You probably used a map and scanned the icons on the road signs for food and gasoline stops. You may have even passed the time trying to decode some of the creative license tags you spotted

creative license tags you spotted along the way. It's the efficient way to perceive information---after all, we process visual information 60,000 times faster than we do textual information. Besides, we learn faster, and remember more, when we combine textual and visual information. Medical research also indicates that we can "grow" our brains, strengthening, and even forming new, neural connections when we work with information in a range of formats. (Merzenich, 2005).

Today's students must learn how to interpret and communication information through a variety of digital and print based media formats, using imagery, online applications, audio, video, and traditional texts. And we must teach them how. New learning standards reflect these broader views, incorporating technology, visual, and communication literacies into benchmarks for traditional subject disciplines.

Students at Samsula School in New Smyrna Beach, Florida begin building and integrating multiple forms of literacy at an early age. Over the course of their time there, it becomes the way that these students think about literacy and learning. Walk into the school media center and you will find students involved in a variety of partnered and small group activities. Primary students gather information by listening to stories, reading age appropriate texts (online and print), and studying images. They organize and analyze information through diagrams, charts, and other graphic organizers. They use computers not only to interpret, but to communicate, through digital photography, video, and software that enables them to converge imagery and text, to enhance or emphasize visual messages through the use of layers, filters, and digital story telling. The students' skills and intent grow more sophisticated in the intermediate grades as they broaden their research skills and tackle problem based, interdisciplinary learning projects. Eventually, they begin to take charge of their own learning, using the technology, communication, and information literacy skills to find, organize, and synthesize information creatively and competently. The goal, from the onset, is to nurture a seamless "cloud curriculum" from which students can pull skills and information—moving from modeling to nurturing, from proficiency to fluency, in order to arm students with the skills and savvy essential to lifelong learning. Ten year old Josh explains it this way: "When you're learning like this, you don't realize that you're learning. You just think that you're having fun. But sometime in the future, you realize that you were learning while you were hav-

Laboratory, building off of the

work of the International ICT Panel, identified eight essential categories of literacy in today's knowledge-based society. An amalgam definition of those literacies might read something like this:

Reading and writing, listening and speaking, analyzing and communicating, through a range of socially contextual symbols, including text and images, in any combination relevant to the individual or culture.

Rather than merely "new", today's literacy is multidimensional, incorporating many different ways of receiving and expressing information. Visual literacy is central to such communicaing fun. And you know, it feels good!" (Adobe case study and video, February 2009)

The role of the teacher is expanding

This conceptual, informational age, and the children who have been born into it, casts a new light on the role of the teacher. Long accustomed to our traditional role as the "Purveyor of Information" (a role we deeply cherish), we suddenly find ourselves displaced in that particular arena. We no longer have a corner on the knowledge market. This makes many teachers decidedly uncomfortable. I understand that feeling. But we are living in a world where there is no going back. The plain truth is, that, in order to remain relevant, our role must be redefined. But how? The response to that query seems to be organic in nature—a response of educators who are voluntarily shifting their roles from "primary purveyor of knowledge" to "managers", "frameworkers", and "enablers." This new breed of educators chooses to keep learning and communication relevant and rigorous within the context of the world as it is today, with an eye forward to the ultimate goal of developing true Digital Citizens.

Does it mean that teachers throw away the book, dumping Shakespeare for Shakira, and replacing rigorous academics with some form of "dumbed down" edutainment? Absolutely not. The core disciplines remain the same. But the way that we choose to teach those disciplines must remain ever adaptive. Learning is still curriculum based, but creative and technological applications are woven through the curriculum. In a world where information is thin, and stand-alone skills don't work, the proficiency and guidance of an intelligent, thoughtful teacher is more valuable than ever. Magda Kahn illustrates this marriage of rigorous academics and rigorous creativity well. (I spent a day in her

classroom and can definitely state that she accepts only the very best from her students.) An ESL instructor at Groves High School in Garden City. Georgia, she was inspired by a digital storytelling workshop offered by the Massie Heritage Center in Savannah, Georgia. Ms Kahn quickly admits that her technology skills were basic. "I learned a great deal by working through the digital storytelling process myself,' she says. " I began to understand the power of technology and its relevance to learning. My big challenge was finding a way to translate it to the classroom." She identifies two hurdles: her lack of technical expertise, and the constraints of current educational requirements. "My philosophy (about technology inclusion) is 'We're all in this together'," she explains. "If I'm trying to take my students through a step in the technological process, and I get lost, I ask them to help me through it. I have to be willing to learn with them. Sometimes, I will ask each student to identify a function on the toolbar or menu, spend some time exploring it, and prepare a short expository presentation on that skill. That way, my students meet the ESL goals of written and oral language, while we all become more proficient at technology." (Riddle, 2009a, p.22)

Robert Miller and Donna Cady coteach a 4/5 combination class at Port Orange Elementary School in Port Orange, Florida. They both agree that frame working and management is tantamount to success in their 21st century class. "We spend a tremendous amount of time on planning and management," Robert says. "You have to have a well planned infrastructure. After you have established that, you have to be willing to take the risk of turning learning over to the students. We give the objective, describe the outcome, and work with the students to establish the criteria. After that, we grow, observe, amend, and expand with them---managing, editing, and

learning throughout the experiences." (Riddle, 2009c).

How will our schools respond to these changes?

Commissioned studies such as the Digital Youth Project, enGauge's 21st Century Skills in the Digital Age, and Cisco's Multimodal Learning through Media, present clear evidence of what captures the attention and drives learning for today's students. Yet the school bell, the seven period day, segmented learning, and orderly rows of student desks still frame the stage for student learning in schools where "essential skills" remain narrowly defined by



high stakes testing. Our educational system is caught between centuries. The simple truth is that we will be able to move toward meaningful solutions only after we agree upon our goals. Despite this divide, some savvy educators are establishing a nexus-- creating ways to acknowledge students' interests and learning preferences and to engage them in transforming the world of information into applicable knowledge.

Melanie Holtsman and fellow technology coach Dayle Timmons are leading the way for technology infusion at Chet's Creek Elementary School in Jacksonville, Florida. As one of the school's two technology coaches, Melanie designs and models creative ways to involve teachers and students in technology infused learning. "We're making strides with students," explained Melanie, "but we are most excited about the changes we are making with teachers, because that's where the real change happens." Innovative learning initiatives like the Principal's Book Club, pairs a work of literature with cross curricular learning, technology tools, and skills. Melanie and Davle are on hand to assist teachers and students through the process. She works with individual teachers and classes to embed technology, collaboration, and problem solving into everyday learning. The idea behind technology infusion, explains Melanie, is to make learning more purposeful. "And the big surprise for many teachers is that these activities aren't necessarily harder than traditional teaching techniques. They make the connection with working smarter. not harder. I see them adapt what they learn for new purposes, and share their ideas and skills with one another. Teaching and learning are always about collaboration-between teachers, between teachers and students. between teachers and administrators. We are always trying to encourage each other to think bigger about what we are doing in the classroom. Collective wisdom causes us to think deeper." The greatest change brought about by technology infusion? "Teachers get excited about learning," says Melanie. "When that happens, it rejuvenates the whole system." (Riddle, 2009d).

Another strategy in motion enables teachers to make learning and teaching more transparent through 2.0 technologies, although most teachers involved in this are doing it on their own time. Nurturing this development may require many districts to loosen the restrictions that they currently put on IT access in the schools. The creative time required is also in contradiction to many district's teach-to-theminute and scripted teaching policies. Despite this, a number of teachers post blogs, wikis and web sites, upload student videos and share ideas through forums like Google pages, Nings and Twitter. It's effective. "That's how I learned," Melanie said. "I began to follow a teacher in New Zealand. She

laid out her work very simply-'This is what I did, this is how I did it. This was the result.' She made me think I could teach that way, too. She gave me the courage to be a risk taker, and make my work transparent. Teachers tend to live in their own little world. but there is so much we can learn from each other." (Riddle, 2009d) Robert Miller and Donna Cady's class keeps their own website of student work, including videos, glogster projects, literature circle wikis, and student-tostudent educational videos inspired by Brain Pop. "Technology is a tool, not a toy. But there is no doubt that infusing technology is self motivating for the students," said Mr. Miller. "The fact that they get to do something new is infectious. Once they get past the learning curve, they seek each other out. That's when you begin to see real student centered learning take place." (personal interview with Miller, April, 2009) Robert and Donna agree that teachers have to be willing to take the risk of turning learning over to the students. "Watch your kids get fired up. Let go a little bit. You'll be amazed." As for its effect on teaching? "It's almost a different paradigm." (personal interview with Miller, April, 2009).

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