A Digital Immigrant's Interactive Whiteboard Experience

SUMMARY

Even a "proponent of all things technological" finds the need to shift his pedagogical gears to make best use of the versatile interactive whiteboard. When he develops a learning community of whiteboard users in his district, everyone discovers applications and lesson ideas they wouldn't have thought of otherwise.

As a self-proclaimed geek and early gadget adopter, I anxiously awaited the arrival of my new iPad. The debate among technology pundits over the transformational effect of this "revolutionary" device had reached its climax, and I wanted to contribute actively to this discussion. Anticipation rushed through me as I unboxed it. A grin plastered my face as I presented my iPad to family members who sat in awed silence at all it could do. Everyone was impressed with it, except my three-year old son.

Within one minute of holding my iPad, my son scrolled through five pages of apps, located his favorite game, and launched it. As the sound was muted, he continued to play his game as he instinctively reached for the volume button and turned the sound all the way up. At the time, I stood there in shock. Everyone in my family needed guidance in navigating the iPad. My son just used it. I soon discovered my two-year-old daughter was equally comfortable with it. This revelation amazed me, although it should not have. My children are Digital Natives.

Digital Natives and Digital Immigrants

Thanks to high-speed Internet connections, affordable computers, and an infrastructure built during the technology bubble of the 1990s, technology has transformed our youth. In 2001, Prensky argued in *Digital Natives, Digital Immigrants*, that our educational system was not designed to teach students who have been immersed in technology from birth. While various descriptors have emerged since then, I have found this metaphor continues to describe my experience. Having spent their entire lives surrounded by and using digital technology, students today fundamentally think and process information

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differently. They are "native speakers" of all things digital. Those not born into the digital world are "Digital Immigrants" who learn to adapt to their environment while retaining an "accent," or foot in the past. The single biggest problem "is that our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language" (Prensky, 2001, p. 2). One technology that can assist in bridging this gap is the interactive whiteboard.

Interactive whiteboards have been a major investment in many school districts. Marzano (2009) indicates that while limited research is available on the use of whiteboards and student achievement, his work with Haystead (Marzano & Haystead, 2009), shows some achievement gains. Critics caution that whiteboards need to be accompanied by innovation in instructional design in general (McCrummen, 2010).

Often, districts present this technology as an opportunity to engage students and increase achievement. Educators are expected to integrate this technology into their curriculum. While some teachers embrace this new opportunity,

others resist. The truth of the matter is that this technology is nothing more than a tool, which — if utilized properly — can capture the interest and engagement of both teachers and students. When poorly used, this same technology can create boredom, apathy, and frustration. Negative feelings can be generated from classroom teachers who feel overwhelmed with the rapid introduction of new technology and are provided limited training on how to understand and utilize it effectively (King, 2002).

Low Tech, High Tech and New Tech

The discussion about technology in public education is often clouded by unclear definitions. Technology is a broad category, and there is a great danger in lumping all technologies together. The *New Oxford American Dictionary* defines technology as "the application of scientific knowledge for practical purposes." Using this definition, technology has been utilized in our schools for more than 100 years. Kent and McNergney provided a division in 1999 that I find helpful in

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understanding the historical development of technology — low technology and high technology. Low technology is often seen as the "traditional classroom." Simple, flexible, and quickly adapted to teacher modification, low technology includes items such as textbooks, maps, overhead projectors, and the chalkboard. High technology includes film, radio, and microprocessor technology such as the personal computer or interactive whiteboard. This technology is often seen as complex and incapable of easy modification. High technology can further be divided into two categories. All technology prior to the personal computer (such as radio or film) is classified as traditional high technology. All technology utilizing the computer (such as the interactive whiteboard or software) is seen as new high technology.

Within these contexts, issues involving teachers and technology often arise when new technology is used in a traditional manner. Digital Natives have learned to seamlessly access and acquire information from a variety of sources and through a variety of means — often through self-experimentation and discovery. Many educators, born and educated in the age of low or traditional technology, lack this playful curiosity. In fact, I have found through personal conversations that many veteran educators are fearful of "breaking" this new technology. As a result,

new high technologies are often misused or their use is limited by the lack of teacher knowledge and experimentation.

Much has been written about the phases that professionals go through in relationship to technology. I continue to find an analysis related to an early study to accurately reflect my experience. Sandholtz, Ringstaff and Dwyer (1993) described a five-phase evolutionary change in the behavior of teachers using technologies. The first phase, **entry**, found teachers with little or no experience have mixed feelings of trepidation and excitement as they encountered difficulties in discipline and resource management. The second phase, **adoption**, found increased teacher self-esteem as they use technology as a passive supplement to existing lessons. The third phase, **adaption**, found teachers focus on productivity creating increased opportunities for higher-order thinking engagement. The fourth phase, **appropriation**, found the emergence of new instructional patterns using technology is determined solely on the individual teacher's level of personal mastery of the technology. It is important to note that access to personal coaching at this level increased usage of instructional patterns. The final phase, **invention**, found the teacher's view of learning shifts toward an active, creative, and socially interactive point of view. Teachers at this level create new learning environments where knowledge is

gathered, analyzed, synthesized and constructed collaboratively. While teachers evolve at varied rates and in different ways, these phases align with my 10-year journey — navigating the five phases of technology integration — with the use of interactive whiteboards.

The Interactive Whiteboard

Interactive whiteboards are one of the most common forms of technology introduced into the classroom within the last 10 years. Developed and introduced by SMART in 1991, the interactive whiteboard is connected to an LCD projector and computer, and provides touch control of computer applications. This form of interaction creates a connection between the user and the application that personalizes the learning experience.

Interactive whiteboards were introduced into my school district in 2001. As a second-year middle school social studies teacher and proponent of all things technological, I was selected to receive one of these interactive whiteboards. During my entry and adoption phases, I found myself struggling for ideas. Focusing on the New York State Social Studies Learning Standards and the New York state curriculum guide, I began to create PowerPoint slides illustrating various curriculum objectives. While successful with this activity, over time I discovered myself using the whiteboard as a glorified overhead

projector. Class-wide interaction with the whiteboard almost never occurred. Everything I knew about instruction, firsthand and through my teacher preparation courses, did not prepare me to unlock the amazing potential of this new technology.

The interactive whiteboard required me to shift my pedagogy. One of my first experiences came during a wrap-up activity in social studies. Focusing on Social Studies Standard One of the New York State Learning Standards (major ideas, eras, themes, developments, and turning points in the history of the United States and New York), students were asked to create an illustration of one cause of the American Revolution. That evening, I selected and scanned images into an interactive presentation concerning this topic. During the next day's lesson, students were provided the whiteboard as a station from which they had to locate the best image representing a short list of event characteristics. Instead of having 24 students sit passively and watch one student engaged, groups of four students were given the opportunity to individually interact with the whiteboard. Students enjoyed the activity, and I became motivated by their enthusiasm. Over a period of time, I began to adjust my classroom layout to incorporate the whiteboard into as many activities as possible — often in small groups.

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Collaboration

Around the same time, I began offering professional development on using the interactive whiteboard to other teachers in my district. Suddenly, I was no longer alone in developing lessons. As we developed a learning community of interactive whiteboard users, I continued to learn of applications and lesson ideas I would never have thought of on my own. Helping an elementary teacher illustrate a storybook motivated me to create interactive images illustrating the Iroquois Creation Myth. During another activity, I had students taking on the roles of colonists to communicate the motives behind coming to America—and as a class we began to interactively build a colony. Each of these activities moved me from the adaption phase to the appropriation phase of interactive whiteboard use. One of the greatest lessons I learned at this time was that I needed to get out of my comfort zone and experiment. Each collaborative opportunity provided me with examples of what worked and what needed further refinement.

Each New Year of Teaching, Integrating More Technologies

Having now spent a decade using the interactive whiteboard, I have come to understand that effective implementation requires a shift in thinking about how instruction is delivered and how a classroom in organized. In this respect I agree with Prensky (2001), who said, "if Digital Immigrant educators *really* want to reach Digital Natives — i.e., all their students — they will have to change" (p. 6). Comfortably set in the invention phase, I continued to look for new ways of combining different forms of technology.

Last year I asked my students to develop a digital play on the Age of Exploration. One period was devoted to illustrating a section of the play. As students worked on creating the illustrations, each student recorded their lines on my desktop PC. At the end of the period, each illustration was digitized using my document camera. Audio and images were combined using utilities or websites such as *http://www.myplick.com*, which allows a PowerPoint to sync to an audio file to create a movie. The next day, students watched their self-created video as an introduction to the lesson. Each subsequent day, a different class video was rotated in until the students had watched five videos. Students not only participated in a shared experience, but reviewed important concepts at least *five times*. This type of ongoing reinforcement of important concepts — in different ways, through different methods — is consistent with what we know about best practices in education.

Each successful activity encourages me to incorporate technology into my

lessons in different ways. This year, my students have become historians during our Age of Exploration unit. Similar to how historians use primary sources to create narratives, students relied on primary source documents to create their own story of the first encounter between Christopher Columbus and Native Americans. Students then worked on illustrating this story using PowerPoint. These stories have been shared between classes, and utilized when discussing different interpretations of history.

Bridging the Gap

The interactive whiteboard is one tool that can help bridge the gap between Digital Natives and Digital Immigrants. But like any tool, it needs to be used appropriately and in conjunction with good curriculum and varied, effective instructional approaches. Marzano (2009), recommends that teachers organize information into small segments before developing digital flipcharts, that visuals be those that clearly focus on the important content, and that when using features such as voting devices and virtual applause, the teacher needs to focus on discussing correct answers and not letting the distraction of the features overshadow the instructional objectives.

Teachers in growing numbers are moving from traditional instructional methods to methods more appealing to Digital Natives. All change produces some element of fear and uncertainty.

Understanding the phases teachers go through in the integration of technology in their instruction can reduce this fear. With enough time, support, and commitment, teachers should be able to master any technology, and while doing so, may also discover a renewed sense of excitement for their profession.

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