Reading Response:

Digital Natives, Digital Immigrants

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After reading the Prensky (Parts I and II) and Bennett, et al, articles and listening to the NPR audio file my opinions about the impact of the net generation on education have not fundamentally changed but I do have a greater appreciation of the debate and the implications for both students and education. There seems to be little question that most students today have grown up and are immersed in a world replete with digital interfaces and that most are very comfortable operating in this environment. Prensky (2001, Part I) argues that students today “like to parallel process and multitask,” “prefer random access” and “function best when networked.” My own experience in raising two boys, both now in college and definite qualifiers as Digital Natives, and teaching for the past 10 years leads me to question the implication of Prensky’s assertions relative to student work quality and depth of understanding while multitasking in networked fashion. I do not doubt what many students prefer; I am suggesting further research is required to better understand what is in their educational best interest. I will return to this issue a bit later.

Interestingly, the NPR piece on Michael and his family was five years ago, a considerable technological regression by today’s standards, and the issues raised then are the same as now. Michael had two computers, three video game platforms (X-box, Nintendo and PlayStation), two iPods, a Palm Pilot, he loved instant messaging, said that even violent video games are relaxing, insightfully suggested that the online interface can more easily enable conversation and makes social rejection seem less painful, and he watched little television, finding the remote control “too complicated.” Today’s Net Generation, generally speaking, is growing up with the same ease in the digital world that their 40- and 50-year old teachers experienced with G.I. Joe, Barbie, riding bicycles helmet-less to school and perhaps a “high tech” walkie-talkie. Times have indeed changed, as they always have, but the important issue is how to best prepare this generation to be self-actualizing, productive global citizens. Today’s students may prefer to play online games, just as I would have preferred to play with my
friends in my backyard when I was growing up, but education has a deeper responsibility than maximizing student immediate gratification. This is not to say that modern technology should not play a vital role in preparing students for higher education and life, it clearly should, and I embrace many leading-edge digital tools in my teaching but they need to be designed and employed to deepen student understanding, develop critical thinking skills and connect people in a collaborative way to maximize creativity and innovation, not simply used for fun just because, as Prensky states, “they prefer games to ‘serious’ work”.

I have certainly experienced a digital native versus immigrant cultural divide. From a personal standpoint perhaps the most dramatic is my mother. She is an amazingly well read individual and can intelligently engage in a conversation on virtually any topic but she is a technophobe. I finally convinced her to learn how to use a simple four-function calculator (add, subtract, multiply and divide) when she was about 60 years old and since moving to China five years ago I have not been able to get her to learn to use email. She misses so much since I cannot easily and frequently communicate with her and send pictures of her grandchildren, arguably the bare minimum of digital sophistication today. We have to constantly juggle the 13-hour time difference in making phone calls on Vonage. Prensky (2001, Part I) argues that digital “skills are almost totally foreign to the Immigrants” and in my mother’s case this is true.

My teaching style continues to evolve as technology has grown and students have become more sophisticated and I increasingly employ an inquiry- and project-based learning methodology using technology as a tool to deepen student understanding. As an example, this year in my Algebra I class we were reviewing some instructions from my SmartBoard using our new MacBooks and a student asked me if I wanted “Alex” to read it. After I inquired who “Alex” is Tom told me “he” is one of the MacBook’s digital voice text reading options that
works on webpages, Word documents, etc. and all you have to do is set up Speech commands, highlight text and press the programmable key for activating “Alex” to read the text. I asked the other students if they knew about “Alex,” to which they said no, so I asked Tom to use my MacBook and SmartBoard to show us how to set it up on my computer and teach the rest of us how it works. It was an empowering experience for us all. As I have found to frequently be the case, this one small example in one classroom, quickly spiraled outward as I soon thereafter shared “Alex” at a cross-campus professional development conference, awarding full credit to Tom for teaching me and the other 50 teachers at the conference who did not know “Alex” either. In this one example I chose to model learning alongside and from students, a significant departure from the sage on the stage paradigm, a one-way world where the teacher solely imparts knowledge. This shift can be uncomfortable for some teachers, making them feel that they are less competent as educators, which of course they are at risk of becoming without continued learning on their own part. I have found that some of my colleagues shy away from technology professional development and even create scheduling conflicts to avoid the discomfort.

A teacher who believes evolving technology is nothing more than a time drain or a passing fad is not only endangering their career skill set, but short-term they are missing powerful, enriching learning opportunities for themselves and their students, and long-term they are hindering student competence in vital workplace and life skills. Perhaps such a teacher feels that they grew up and attended university successfully without laptops, video games, digital social networking, iPods and cell phones, but they fail to recognize the impact of humanity’s relentless pursuit of knowledge and innovation. In that teacher’s own lifetime microwave ovens, cordless and mobile phones, personal computers and the internet were all commercialized and pervasively integrated in personal and vocational settings, all consistent with Moore’s Law (2009, Columbia Electronic Encyclopedia). More an axiom than a law in
the scientific sense, Gordon Moore, co-founder of Intel Corporation, predicted in 1965 that transistor density on a chip would double every 18 months, which has become a self-fulfilling prophecy and continues to describe the pace of electronic device innovation. One can turn back the hands of time and continue down the exponential curve of digital innovation pointing out that continuous innovation is not new, but the point is today’s Net Generation, and we as educators, are riding up an exponential growth function and are challenged to assimilate new digital tools at an increasing pace when those we seek to educate grew up surrounded by and comfortable with this fast-paced digital world. Therein lies the stress and, at times, the divide between teachers and students.

At Shanghai American School we are strongly encouraged to incorporate technology in the classroom and our school has invested heavily in tools, such as the MacBook one-to-one program for students, professional development and technology integration staff. As an Algebra I teacher my hardware includes an Interactive Whiteboard (I authored the project bringing the first SmartBoards to our Middle School), LCD, MacBook and a classroom set of TI-84 Plus graphing calculators. My software includes all the standard Mac packages plus TI-SmartView, a dynamic projection of the TI 84-Plus graphing calculator, MacGrapher, and I regularly update a class blog and use the internet for learning with such tools as Gizmos interactive manipulatives by ExploreLearning. We have a strong collaborative environment where teachers continually help each other, troubleshoot problems and evaluate emerging technology.

From a research perspective I believe the Bennett, Maton and Kervin (2008) article is superior to either of Prensky’s primarily due to greater empirical evidence and depth of cited work. Bennett, et al, as the title of their work indicates, provide a critical review of the digital native versus immigrant debate, cite 51 references and argue that “neither dismissive
skepticism nor uncritical advocacy” is appropriate. They suggest that the so-called “academic moral panic” surrounding the demands for fundamental educational reform is premature and without empirical foundation. Bennett, et al, bring rational thought to the debate reminding us that “education has a vitally important role in fostering literacies that will support learning” and while they agree young people enjoy and are interested in technology they argue that the key is employing digital tools to support effective learning. I wholeheartedly agree.

By contrast, Prensky (2006, Part I) appeared to be championing a cause versus putting forth a serious scholarly effort and while he provided some examples from professional experience his citations were weak, denying the opportunity for adequate peer review and establishing credibility. His use of terms such as “singularity,” “digital immigrant accent” and “heavily accented, unintelligible foreigners” approaches hyperbole. In addition statements such as “digital immigrants think learning can’t (or shouldn’t) be fun” could be construed as sweeping indictments and possibly insulting to many digital immigrants who embrace technology as a valuable learning tool. I find his argument that educational content can be seen as two-fold, “legacy” and “future,” is simplistic. He does not seem to grasp the need for K-12 building of foundational knowledge and critical thinking skills that serve to steer young people as they identify passions, select colleges and majors, and embark upon their vocational path.

Prensky (2006, Part II) brought neurological research into the debate purporting that just as any long-term exposure and repeated activity affects brain physiology and function, today’s digital natives are neurologically different and must be educationally engaged accordingly. Although Prensky confessed there are inadequacies in reflection and critical thinking skill development, he offers video games as the panacea design platform in reaching digital natives because they “think differently than the rest of us, they have hypertext minds,
they leap around as though their cognitive structures were parallel, not sequential” and their brains work “in bursts.” His arguments gained some strength in focusing on the benefits of digital media interactivity, particularly in “inductive discovery,” “attentional deployment” and quickened response to expected and unexpected stimuli. Prensky also starkly contrasted a dynamic, interactive digital environment versus a traditional, didactic teaching mode, which I believe has merit, leading him to call for “digital game-based learning.” While the word ‘game’ is a bit troublesome to me as an educator because it connotes frivolity, I understand Prensky’s point that by reaching digital natives on a cognitive level that fully engages them we may increase the potential for learning. Web-based virtual manipulatives such as ExploreLearning’s Gizmos are an excellent example of the interactivity that Prensky espouses plus sound reinforcement of educational concepts. He concludes in Part II that interactive medium design is vital to meaningful outcomes and I totally agree.

The final point I would add to this rich Module 3 content is the issue of digital technology management for adolescents. As I stated earlier, my wife and I raised two sons and I have been in education 10 years now so I speak with some experience that while digital natives are blessed with amazing learning and communication tools, these empowering devices entail risk. I refer here mainly to the real issue of sleep deprivation with many teenagers. It has become habitual for many digital natives to simultaneously do homework, listen to music, instant message friends, update Facebook, play an online game and even watch a muted television. The most ardent of digital native supporters would hail the inherent development of multitasking skills but all too often the result is midnight and later bedtimes leaving students sleep deprived the following day, and one has to question to what extent there is a dilutive element to this degree of multitasking resulting in eroded student work quality and understanding. This issue has risen to near the top of the list during parent-teacher conferences over the past few years. Parents struggle with helping their children develop
responsible and healthy behavior in the digital age, many finding it necessary to mandate an evening time after which no technology can be used. It sounds simple enough but as with many things teenager it is not. This challenge is unlikely to subside and indeed may become more arduous if the trajectory of technological innovation persists.

References


