Digital Natives: Ten Years After

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Abstract

A lot has been written about the digital native since the coining of the term about ten years ago. A lot of what has been originally written by the digital native has been taken as common sense and has been repeated many times in many educational contexts, but until recently the true nature of the digital native has not been explored. Because the myth of the digital native is still alive and well, this article aims to examine the findings that have come out of recent research with regard to digital natives and their true nature, as well as turn a critical gaze onto the assumptions, taken as common sense knowledge, of what the characteristics of digital natives are.

Keywords: Digital Natives, Research, Characteristics, Technology, Availability, Usage

Introduction

This year marks ten years from the first introduction to the term "Digital Natives," coined originally by Marc Prensky in two seminal articles that established the traits of the digital native (2001a, 2001b). Prensky is by no means the first person to try and identity a new, distinct, generation of humans, and *digital natives* isn't the only term proposed to describe them. Other common terms come from Oblinger & Oblinger (2005) and Tapscott (1997) who use the term *net-generation*, and Strauss & Howe (2000) use the term *Millennials* to describe this same generation of students. The dates do vary from author to author, but not by much; and the characteristics attributed to this new generation blend easily from author to author because a lot of the characteristics are predicated on access and utilization of technology and the Internet. This naming fetish didn't stop at these three terms, and these terms are used interchangeably in every day discussions, but for the purposes of this article, this article will use the term "digital native."

The emergence of the classification of this new generation lead to many articles, blog posts, columns, books and videos on educating this generation and taping into these learners' *new* learning styles (Dede, 2005). Popular viral videos were produced showing statistics of new technology usage (Socialnomics, 2009) and emotional pleas from self-professed young digital natives that would like to see change in the institutions that educate them and cater to their *unique* digital needs and learning styles (VALATV, 2010; Nesbitt, 2007) What's amazing about this term, and all that it implies, is the amazing speed with which it took hold in circles broader than the educational circle, and how it became part of our "common sense" without having been tested much in every day practice. The digital native became a rallying cry for change in education, (expensive) technological infusion at all levels of education, and broad-changes in institutions that are providing learning opportunities and environments to these digital natives. This article aims to critically examine the underlying digital native theory, review recent studies inquiring about the existence of digital natives, and to examine the effects that this "movement" has had on the learning professions.

Who Are These "Digital Natives"? - A Critical View

When examining the key characteristics of digital natives I start by examining the works of Prensky (2001a, 2001b, 2003, 2006a, 2006b, 2010) for two reasons. He is the author most often quoted or referred to when discussing the characteristics and preferences of this generation in both peer reviewed and non-peer reviewed articles; especially in the "early literature" on digital natives between 2001 and 2006. He is also the person who coined the term "digital native" in his early writings. Other authors, such as Dede (2005), Oblinger (2005), Oblinger & Oblinger (2005), Howe & Strauss (2000), Tapscott (1999) and Frand (2000) also get referenced, although not with the same frequency as Prensky's writings. Thus it makes sense to examine Presky's arguments and positions first.

Prensky's Digital Native Canon

In his first article on digital natives (2001a) Prensky writes about a singularity, an event that fundamentally changed things, our students in fact, so that the current educational system is ill prepared for this new generation of learner. Prensky supports his argument by providing some facts and figures, such as students spending fewer than 5,000 hours of their lives reading (assuming that reading refers to books only), but over 10,000 playing video games, 20,000 watching television, and he goes on to give us more similar statistics about Instant messages (IMs) sent, talking on (digital) cellphones and sending email. It is clear that in Prensky's writings, as well as other digital native author's writings, that they expect that these statistics hold true across the board, regardless of your socioeconomic background and your country of origin. What's clear is that the context isn't really considered. *Who* is spending all this time playing video games? Prensky owns a video game company so it may be that what he sees every day is what he thinks of the norm, but that doesn't mean that this norm is universal reality.

Other overgeneralizations put forth by authors like Prensky, is that the digital natives prefer images over text, they prefer games over "serious work," they function best when networked, digital natives can't pay attention (or they choose not to!), and finally digital natives have skills, with digital technologies, that they've perfected. There are a number of issues with these overgeneralizations. First, and foremost, *what is the context?* What is the Socioeconomic Status (SES) of these digital natives that have access to the technology that they've become skilled masters of? Do those general skills transfer over to the academic side? Could I seamlessly take my skill of posting facebook updates and apply this to an academic context without the help of a more experienced "digital immigrant"? Can Prensky's digital immigrants *just pay attention* even when they are bored? Of course not! Digital immigrants doodled, dozed off and day dreamt when they were bored, digital natives do the same. Being able to focus on a task has nothing to do with exposure to technology. Finally, I would say, that *most* people prefer to do *fun* things rather than something that they perceive of as work.

These figures and overgeneralizations have oft been repeated by followers of the digital native message, without much self-reflection or critique. They are taken as-is, as common sense, and as universal. Early on, when some suggested that the context does matter and that these are assumptions aren't universal (VanSlyke, 2003), Presky's (2003) rebutal, which included a lot of technological buzz words and no hint of pedagogy, said that these online services are a few of the things that kids are using online these days and he expects that his observations hold true in the US, Japan, Korean and much of the rest of the world. Prensky doesn't provide facts or empirical evidence, just *suppositions*. When Prensky writes about his preferred method of teaching (2001a) he writes that he prefers to invent video games, but he never considers that this may not be the most appropriate method of instruction, and that it might not be the *learner's* preferred method for instruction. Thus in the same article he talks about the needs of the learner, while at the same time ignoring the needs of learners by imposing his own preferred method of teaching.

Prensky's technological determinism culminates in a biological determinism in part 2 of his introduction to the concept of the digital native (2001b). Prensky argues that the brain's neuroplasticity makes it so that the brain adapts to the environment that it is in, so in a technology-infused environment the brain will adapt to better use the *tools* that are available in that environment. While this may be true, there are two things that Prensky does not take into account. The first is that as human beings our brain is continuously rewiring itself throughout our lives. We don't fossilize at a specific state of our lives, but we learn to use the tools that are available to us, thus digital natives *should* also exploit that physical ability to learn to function in environments that don't necessarily have the tools that they are used to. The second thing that Prensky never questions, in either article, is the *need* to impose radical change on our educational system. This, taken together with the, unknown at the time, numbers of technology use within the digital native population, means that we weren't really talking about pedagogy, and what's really good for the learners, but rather, perhaps, change for change's sake, or the technological equivalent of "throwing money at the educational problem."

Addenda and Extensions to the Canon

Other digital native evangelist authors have their own two cents to add into the mix of characteristics that defines this group of supposedly tech-savvy students. Oblinger (2005) for instance portrays a vision of technological utopia, something that supposedly exists today, where students are *proactively* using their iPods to learn, snap photos everywhere they go and use these tools for impromptu study meet-ups.

Students don't wait for the professor to answer their question but they Google it for themselves and find the answer; however this isn't always the truth. The fact that one can mechanically go through the motions of searching for someone on Google doesn't mean that they possess the critical literacy and information literacy required to determine which results are quality search results. Even if they knew which results were quality results it does not imply that these students can then process what those results mean and to learn the answer to a question that they had; this is something that Oblinger glosses over.

One of Frand's (2000) contributions to what makes a digital native a digital native is what he terms "Nintendo over logic," which claims that this generation doesn't read manuals and prefers a trial and error approach, as one might find in a video game. Prensky (2001a) and others also hit upon this note as an innovation of digital natives, and an "accent" (or hinderance) that digital immigrants have because they rely on manuals. This notion of trial and error über alles as a innovation of digital natives, and the non-reliance on manuals is false on two grounds. First, experiential learning, another name for learning by trial and error, goes back at least to the early 1900s with the work of Piaget. Presky's later proposals (2006a, 2006b; 2010) for using peer groups, allowing students to pursue their passions, and essentially going from a *sage on the stage* to a *guide on the side* aren't new, but they go back to Piaget (Singer & Revenson, 1996), Vygotsky (1978) and even Socrates (Karasmanis, 2002), just to name a few. If Piaget, Vygotsky and Socrates thought of these notions, this means that these traits aren't inherent to a population who grew up in a digital age, but rather these are traits inherent in humans as a whole, and everything else is just a tool that we can utilize.

Another trait that is ascribed to digital natives is that they are multitaskers, moreover they are efficient at it, and it is technology that encourages this multitasking. Dede (2005) gives us an example of his daughter doing her homework while at the same time listening to music, emailing and IMing friends and surfing the net. Dede isn't the only one who provides us with anecdotes like this one, and as a matter of fact there are many anecdotes like this in both peer-reviewed and non-peer reviewed publications, it's part of what passes as "common sense." The problem is that this type of multitasking wasn't taken to task. Are these tasks performed at the same time, or are they done serially, in smaller distinct segments? Has the efficiency of multitasking been proven? And how much brainpower are we giving to each individual task? Is the music something we pay attention to or is it the equivalent of white noise? Does the multitasker pay the same attention to each individual IM window or does he let some of them acquiesce?

Finally, tying in with multitasking, and "Nintendo over Logic", we have a depiction of how digital natives learn. According to Tapscott (1999) digital natives are non-sequential with their use of information, going back and forth between programs and sources and their learning style is an outgrowth of these ingrained habits of seeking and retrieving information from the Internet. This marks a striking contrast to previous generation of students, who tend to acquire info more passively from authority figures (Tapscott as quoted in Barnes, Marateo & Ferris, 2007). Perhaps one of the bigger claims made is that this generation (i.e. digital natives) exists across the world and across socio-economic conditions, not just in advanced economies (Tapscott as cited in Jones & Healing, 2010).

Just as with the number of email messages sent and read, the number of hours spent on watching TV and playing video games that Prensky (2001a) gives us, the importance is not in the metrics themselves, but rather the details of who provided this information, in what context, and what these numbers mean in the broader context. Knowing that one can multitask isn't new information, we've always been able to walk and chew gum at the same time, to borrow from the old saying, but how much attention are we paying to each task *and why*. The devil *is* in the details and unfortunately the early literature on digital natives that built upon the work of Presky, Oblinger, Tapscott, Dede and Frand lacked that fine attention to detail; they seemed to rework the same old *assumptions*, and fit their data within the Weltsaschauung of the digital native proponents.

Straight from the Digital Natives

Some information about digital natives comes from digital natives themselves, not just from members of others generations trying to describe digital natives. Two prime examples, from written sources, are Roberts (2005) and Windham (2005) who provide us with information about what it means to be a digital native from a technological and a social perspective. Roberts writes that he is " a member of the [digital natives] Generation. The Internet and related technologies have had a major influence on [his]

generation's culture and development. Many, if not most, [digital native] students have never known a world without computers, the World Wide Web, highly interactive video games, and cellular phones."

Roberts continues by providing views of a supposed representative sample of digital native students and what technology means to them. Among the responses are "Reformatting my computer system and installing cutting-edge software that allows me to do what I want, when I want, without restrictions, viruses, and the rules of Bill Gates, " and "The ability to adapt and configure an already established program to [something that] benefits me daily." Roberts concludes with:

> "The feedback from this select set of [digital native] students does contain some good news. It indicates that the [digital native's] general expectations regarding leading-edge technology have not fully impacted its expectations about the use of technology to support learning. This may signal a failure in the responsiveness of colleges and universities in terms of keeping pace with the rapidly changing technological landscape. However, it may also indicate that the opportunity to catch up with the [digital native] has not been lost."

There are several issues with what Roberts writes. An implicit assumption is made that his own lived experiences are the same across the lot of digital natives, something which isn't true. Up until recently access to video games, cellular phones and the Internet were costly enough to imply a certain level of affluence; as such these would not be the lived experiences of *most* members of this generation. Related to this is this assumed technological know how required to format, reinstall and customize one's computer (to the extent described); again this isn't the case with all digital natives. Finally, the digital native is viewed from a position of superiority, giving non-natives a chance to catch up with them, and the digital native's low expectations regarding academic technology must be a result of the non-native's failure to adapt quickly enough.

From a social perspective on digital natives we look to Windham (2005) who writes about encounters with a professor that one, reading her article, would characterize as a Luddite. While it is true that this particular professor could incorporate some newer ways of communication (like email) this particular digital native comes off as highly disrespectful to people who don't share her social conventions, relegating these non-digital natives into the category of "relics." This particular professor represented for her "a world [she] could scarcely remember-a world before driving directions on MapQuest, book buying on Amazon.com, and making plans on Instant Messenger." While this may be true it is hardly a reason to assume that all of the world operates in this same fashion, and that it is the only way of being.

Windham writes that members of the digital native generation are consumed by the notion of achievement, they join clubs, participate in community service and are engaged. Furthermore this generation has not seen corruption of power or felt the fear of the Cold War. It is argued that it is this type of social change that has brought on the technological adeptness in digital natives. Digital natives keep their addresses and plans in their PDAs, they listen to their music on MP3 players, record one television program while viewing another, and browse library databases instead of going to the library. These are viewed as digital native innovations over previous generations; however it is *previous* generations that brought these innovations to this current generation, the digital natives, not the other way around.

Finally, digital natives are described as striving "to stay ahead of the technology curve in ways that often exhaust older generations," and to achieve this they "rarely pick up the instruction pack to learn programming or a technique. Instead, spurred by our youthful exploration of the Internet, we tend to learn things ourselves, to experiment with new technology until we get it right, and to build by touch rather than tutorial" (Windham, 2005). From a surface view, this does corresponds to what other digital native evangelists claim, like Frand's (2000) "Nintendo over logic," but something is amiss here. Digital Natives may indeed start without looking at a manual, but when what they are using is not intuitive, they either get the manual, as is exemplified by the great numbers of computer game walkthroughs online; they will give up, as we shall see digital natives aren't that great at adapting when compared to older students; or they stick to what they know, which means not experimenting and goes counter the claims of digital native evangelists.

Digital Natives in Research

Demographics Matter

So, what does the research on digital natives tell us? The picture is not as black and white as digital native evangelists, would have us think. There are many variables that go into creating the stereotypical

digital native. Location is important, as well as socioeconomic status. How much one uses a certain tool or technology, and what they use it for, are also factors; and how well those skills and behaviors transfer over into educational domains is important. After all, one can't advocate for radical change in the education system based on skills and behaviors that don't carry over.

VanSlyke (2003) had originally questioned the global reach of the digital native, and Prensky, in a rebutal, disagreed with him stating that he expected children in much of the rest of the world to exhibit the behaviors of the digital native (2003). Research, however, has shown that the location *does* matter. In the US (Smith & Caruso, 2010) we see different levels of computer and web technology usage among the same demographic of digital natives in Australia (Kennedy, et al., 2010; Margaryan & Littlejohn, 2008) and than those in the UK (Stoerger, 2009). In South Africa, as well, we see that only 26% of the population might be described as having grown up digital (Brown & Czerniewicz, 2010).

We also see that the semantics of the words "native" and "immigrant" make a difference. As Brown & Czerniewicz (2010) inform us, in the South African context the words "native" and "immigrant" have the opposite meaning from what Prensky (2001a) describes within his North American frame of reference. In South Africa, due to its colonial and apartheid past, the immigrant, the colonizer, is seen as the forward thinker, while the native is seen as the one who is backward. Digital native, as a term, according to many, including Brown & Czerniwicz, is an "othering" concept. It sets up a binary black and white, and those who fall into one category, whatever the connotation and the qualities implied, cannot exhibit characteristics of the other category that they are not members of.

This is problematic because there is an implied power relation, and superiority, attached to those particular sets of skills and dispositions of the digital native. In turn, this digital divide has spurred a Moral Panic, calling for radical change in education where arguments are articulated in dramatic language, with no empirical evidence or theoretical foundations, based only on "common sense" and personal anecdotes (Bennett & Maton, 2010). Anyone who resists or questions these calls radical change is said to be out of touch, lazy, or just dismissed as not having legitimate concerns (Jones & Healing, 2010).

Another major factor in this discussion are socioeconomic factors. Most of these studies poll students who are in college. College students don't represent whole populations because they tend to be from a segment of the population that has the financial capacity to afford to be able to go to college (Bradley, et al., 2008 in Bennett & Maton, 2010). As Brown & Czerniewicz (2010) framed it: it's not about a generation but an elite. Brown & Czerniewicz found that information and communication technology (ICT) use was along socioeconomic lines. Twenty-two percent of the students lacked both experience and opportunity to use ICT, had less than 4 years of experience and had no ICT access off-campus.

As Broos & Roe (2006) indicate, socioeconomic factors, as well as other factors such as race, gender and educational background, do play a role in how and *how much* people use technology. Those with higher incomes do tend to use technology and the Internet more often than those in middle and lower income categories. One's anticipated job prospects, in the Broos & Roe study, were also strong indicators as to whether one would use ICT or not. Finally, another interesting point to consider are the demographics of digital natives. In a recent US study by the Pew Internet and American Life Project (Rainie, 2011), most digital natives are white (61%) and live in the suburbs (54%). It is hard to believe that an American suburban white person will have the same life experiences as other people who are not in that same demographic group.

Access to, Utilization, and Quality of Engagement

With all the focus on having a generation "bathed in bits" (Tapscott, 1999) access to technologies and utilization of these technologies in both quality and quantity should be something that matters when we measure technological engagement of these digital natives. Access and utilization should also be something that ought to be scrutinized and carefully analyzed. First, keeping an eye toward the USA, we see that contributional usage by members of the digital native generation on social sites is quite low. Only 36% of digital native students contribute to blogs, only 40% contribute to wikis, and only 42% contribute to video sites. Social games and social bookmarking sites are only used by 25% of these digital natives. Fewer that 20% of the students said that they used course lecture podcasts or videos (Smith & Caruso, 2010). Similar results were also found by the Corrin, Bennett & Lockyer in the Australian academic context (2010) and the Pew Internet Internet and American Life Project in the broader US context (Fox & Madden, 2006; Jones & Fox, 2009; Zickuhr, 2010; Rainie, 2011).

Across the pond in England, Jones & Healing (2010) report that over 80% of first year students reported a "slight confidence" and "basic skills" with presentation software and online library resources - sources that they were familiar with. For sources that they were not familiar with, like blogs and wikis, these students reported that they didn't not feel confident in using them; this mirror's Kvavik's findings (2005) in the US. The Jones & Healing study reports that only a minority of students felt like it was important to them to share and upload content.

In Australia a study found that only 15% of the digital natives were "power users" and 45% were rudimentary technology users (Kennedy, et al., 2010). In a related study, more than 70% of Australian first year students never kept a blog, more than 80% had never produced a podcast and have never contributed to a wiki (Kennedy, et al., 2007). Similar results were reported by Corrin, Bennett and Lockyer (2010) indicating that only 23% of students self-reported as advanced computer users, 66% never had a blog, 69% did not maintain a website, video editing or creation was rare, and they seldom (31%) or never (41%) listened to podcasts. While it is true that the technological advancements of the past few decades have created a veritable cornucopia of information for digital natives and non-digital natives alike, as Dresang (2005) points out, the digital natives are missing out on this rich environment because they have poorly developed information-seeking skills, in other words they consume from sources that they already know.

If one were to take the claims of digital native evangelists at face value, or read student commentary such as the ones provided by Roberts (2005) and Windham (2005), or view popular viral videos by so-called digital natives (VALATV, 2010; Nesbitt, 2007), one might think that all of them are power users; that they are indeed media producers, that they collaborate often, frequently and with great skill. However the collected statistics from a variety of studies paint a different picture; the fact is that the *average* "digital native" entering college is not technologically sophisticated; this digital native is not a power user. Even in countries where there is more access to a computer and the Internet, usage of these technologies tends to be read-only, checking facebook or looking things up on Wikipedia (Selwyn, 2010; Margaryan & Littlejohn, 2008); in other words passive interaction.

Personal Technology and the Leap to Educational Technology

Even when students use a certain technology for personal use, it neither means that they want to use that technology for use in educational ventures, nor does it mean that they *know* how to use it in an educational context. As Kennedy, et al. (2008) discovered, the transfer from an entertainment technology to a learning technology is neither automatic nor guaranteed. Kvavik's study (2005) informs us that even high levels of skill and use did not necessarily translate into a *preference* for increased use of technology in the classroom; in addition students *preferred* technology in moderate mounts as a supplement to their courses. There are two factors in play here; first are student attitudes toward instruction, and the role of technology in instruction; and second the nature of personal technology when mixed with instruction.

First one has to examine student motivations and perceptions as to what constitutes instruction. Nicholas (2008), through his surveys, found that the majority of students prefer lecture as the format of class instruction, in addition to collaborative group work; a similar result was seen in an Australian study (Margaryan & Littlejohn, 2008). Lohnes & Kinzer (2007) discovered that student's perceptions of education were fairly traditional: students expected to go to a classroom and viewed this space as a separate space. They also expected to be lead through the materials by a subject matter expert. Technology isn't necessarily ruled out, however it needs to tie into the subject of the class, in other words, is the application of this technology appropriate for the subject matter? In Kvavik's study (2005) he discovered that students did not feel that the use of information technology in the class increased the amount of time that they were engaged with course activities. Some students (JISC, 2007 in Bayne & Ross, 2007) actually go a step further and suspect that if all learning in mediated through technology, the value of learning will diminish.

The second factor has to do with the perception of the space: is it a private space or a public space? Students are reluctant to mix their private sphere, exemplified by the use of services like facebook and instant messaging, with the classroom sphere. Students were asked if they would like to use their favorite IM client to support classroom communication. This was rejected by students, saying that their "friends" on MSN are actually their friends, so adding many classmates to their MSN account, with whom they generally don't speak, is too laborious, and potentially an issue of privacy (Margaryan & Littlejohn, 2008). An interesting adjunct to this are the findings of Jones & Romanau (2009) whose study found that "collaboration and collaborative learning did not seem to be a strong feature of the students' experience

at university and the kinds of social networking that was done was mainly informal and largely unrelated to formal learning."

Locus of Control

One final element to consider is student locus of control and the independence to experiment freely (and without consequence) with the technology. Kvavik (2005) found that in quantitative studies *students* say that they have the skills that they need, however qualitative data contradicts the collected quantitative data. Students only have very basic office suite skills, and they have difficulty moving beyond those basic activities; it would appear that these students don't recognize that their applications have enhanced functionalities that they can use. The same study, discovered that these digital natives are mystified by technology and some are afraid to putz around, to experiment, for fear that they will do something wrong and break the computer; Margaryan & Littlejohn (2008) found similar results. This casts further doubt on the "Nintendo over logic" assertions that digital native evangelist authors have put forth.

One possibility for this lack of confidence on the part of computer users may lie in how much time they've spent using technology. Studies have shown that those who have taken up a technology more recently, and who lack confidence, take up fewer opportunities (Linvingstone & Helsper, 2007). Older students (the assumption being non-digital native older students) have been shown to have more proficiency with technology (Eynon, 2010), indicating that greater time on task is beneficial. Control of access has also been shown to have an affect on computer literacy. Young people who use the Internet more at school are more likely to use the Internet for homework activities; however sporadic and monitored access at schools and libraries may provide sufficient access for basic information seeking, but is insufficient for the immersed kind of social engagements that we expect students to possess (Ito, et al., 2008: p.2 in Eynon, 2010).

Educators are perhaps falling into the same trap as parents are; that is that we have a *tacit expectation* that kids will have spontaneous engagement with schooled interests spurred by the availability of the computer as a tool (Kerwalla & Crook, 2002), this of course has proven to not be the case. If computer access and behaviors are controlled, either by supervision by an authority figure, or inconvenient placement of the computing device, the locus of control is external (Kerwalla & Crook, 2002), and this has an effect of inhibiting creative experimentation, and thus limiting the learner. These limitations lead to computer usage behaviors are counter to what "common sense" has us associate with digital natives.

Finally, from a social perspective, in contrast to the earlier writings about digital natives by digital native evangelists that portrayed digital natives as masters of their own destiny, there is some work that goes counter to this argument. Johnson (2006), a digital native herself teaching other digital natives, indicates that digital natives are complacent, actively seek authority figures and are unable to cast a critical gaze on their lives. This can be seen in digital native's own writing as exemplified in the previous section by Roberts (2005) and Windham (2005).

Conclusion

In the past ten years, a lot of articles have been written about how to reach out and how to teach these so-called digital natives. Many professionals, in many diverse fields, have written on the topic and they, like Smith & Caruso (2010) believe some version of the myth that these digital natives are cloud-savvy information consumers. Much of this thinking is seen as "common sense," however as Ng informs us "common-sense thinking is uncritical, episodic, and disjointed, but it is also powerful because it is taken for granted" (1997, in Selwyn, 2009). Looking at the research, however, we see that there is no one, monolithic, group that we can point to and say that *those are digital natives*. As a matter of fact, the individuals who would fit the stereotype of the digital native appear to be in the minority of the population.

The person who coined the term digital native, Mark Prensky, acknowledges this fact in his recent writings by saying that "by virtue of being born in the digital age, our students are digital natives by definition, but that doesn't mean that they were ever taught everything (or anything, in some cases) about computers or other technologies, or that all of them learned on their own" (p64, 2010). The problem is that he, and other digital native evangelists, are still clinging to this flawed concept of the digital native. At best it doesn't describe a population because digital technology was in our day-to-day life before the digital native came along; at worst it is an "othering" concept, a concept which creates an artificial dichotomy with a privileged and a non-privileged position. Depending on your own cultural context, the native may be the privileged or the non-privileged one.

In earlier writings about digital natives (Frand, 2000; Prensky 2001a; Prensky, 2001b; Dede, 2005; Oblinger, 2005; Oblinger & Oblinger, 2005) the native was clearly superior, however uncritically accepting such terminology not only creates a second class citizen of the non-natives, but it also places the majority of digital natives in a depriviledged position. These digital natives try to catch up to the stereotype; obstacles are added to the education of the digital native due to the moral panic (Bennett & Maton, 2010) created by the calls for radical change in education to help these digital natives with the tools that they supposedly use every day.

Student surveys showed that older students more likely to change their approach to learning, whereas the digital native students were the least likely to change their approach to learning (Garcia & Qin , 2007). As Ramaley & Zia (2005) point out, "by the time students enter high school, disengagement from course work and serious study is common." From a US context, in a post-*No Child Left Behind* USA, if our digital native learners aren't engaged, they have no incentive to work around the problem and find a solution. In contrast, older learners, I would posit, are more engaged and thus *do* work at changing their approach in order to find solutions.

Instead of having education professionals focus on the technology aspect of the debate and in certain digital native behaviors, which "common sense" has told us, are immutable, we ought to be focusing on proper pedagogy and exposing our students to information retrieval and critical information analysis skills that are in both the digital and the analog realms. We out to teach our students to actually change their approaches to learning when what they are trying out is not working for them, instead of assuming that they possess this "Nintendo over logic" which enables them to modify their learning plans when things aren't working out.

Finally, we need to move away from this fetish of insisting in naming this generation the Digital/Net/Google Generation because those terms don't describe them, and have the potential of keeping this group of students from realizing personal growth by *assuming* that they've already grown in areas that they so clearly have not. Learners don't know what they don't know (Christensen, 2006), but if they come to the table from a position of superiority, like they are better than the so-called digital immigrants (Roberts, 2005; Windham, 2005) they lose an opportunity to learn something that they don't know that they don't know, something that may be beneficial to them. Let's resist "common sense" because common sense isn't all that common.

References

Acosta, G. (2005, Fall). Online Learning: How to Engage the Millennial Generation. *Update Newsletter, 17*, 1. Retrieved from http://occrl.ed.uiuc.edu/Newsletter/2005/fall/fall2005_1.asp

Alch, M. L. (2000). Get Ready for a New Type of Worker. *Human Resource Professional, 13*(1), 23-26. Retrieved from http://www.allbusiness.com/human-resources/515599-1.html

Attwel, G. (2007). Personal Learning Environments - the future of eLearning? *ELearning Papers, 2*(1), 1-8. Retrieved from http://www.elearningpapers.eu/index.php?page=doc&doc_id=8553&doclng=6

Barnes, K., Marateo, R. C., & Ferris, P. S. (2007). Teaching and Learning with the Net Generation. *Innovate, 3*(4) Retrieved from http://www.innovateonline.info/index.php?view=article&id=382

Bartolome, L. (1994). Beyond the methods fetish, toward a humanizing pedagogy. *Harvard Educational Review, 64*(2), 173-194.

Bayne, S., & Ross, J. (2007). The 'digital native' and 'digital immigrant': A dangerous opposition. Paper presented at the *Annual Conference of the Society for Research into Higher Education (SRHE),* Brighton, Sussex, UK. Retrieved from http://www.malts.ed.ac.uk/staff/sian/natives_final.pdf

Belz, J. A. (2002). Social Dimensions of telecollaborative foreign language study. *Language Learning and Technology, 6*(1), 60-81. Retrieved from http://llt.msu.edu/vol6num1/belz/default.html

Bennett , S., & Maton, K. (2010). Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning, 26*(5), 321-331. doi:10.1111/j.1365-2729.2010.00360.x

Bennett, S., Kervin, M., & Kervin, L. (2008). The 'digital natives' debate: A critical review. *British Journal of Educational Technology, 39*(5), 775-786. Retrieved fromhttp://www.soc.northwestern.edu/justine/CC_Winter10/readings/BennettMatonKervinDigitalNativesDebate08.pdf

Bird-Soto, N., & Rengel, P. (2009). Podcasting and the Intermediate-Level Spanish Classroom. In R. Oxford, & J. Oxford (Eds.), *Second Language Teaching and Learning in the Net Generation* (1st ed., pp. 101-110). Honolulu, HI: National Foreign Language Resource Center.

Broos, A., & Roe, K. (2006). The digital divide in the PlayStation generation: Self-efficacy, locus of control and ICT adoption among adolescents. *Poetics, 34*(4-5), 306-617. doi:20.1016/j.poetic.2006.05.002

Brown, C., & Czerniewicz, L. (2010). Debunking the 'digital native': beyond digital apartheid, towards digital democracy. *Journal of Computer Assisted Learning, 26*(5), 357-369. doi:10.1111/j.1365-2729.2010.00369.x

Carlson, S. (2005). *The Net Generation Goes to College.* Retrieved July 17, 2010, from http://chronicle.com/article/The-Net-Generation-Goes-to/12307

Christensen, M. (2006). Lies about Learners. In L. Israelite (Ed.), *Lies About Learning: Leading Executives Separate Truth from Fiction In a $100 Billion Industry* (1st ed., pp. 11-25). Alexandria, VA: ASTD Press.

Cleary, A. (2008). *Keeping up with the 'digital natives': Integrating Web 2.0 technologies into classroom practice.* (Unpublished Master of Education). The University of Waikato, Hamilton, New Zealand. Retrieved fromhttp://hdl.handle.net/10289/2280 (10289/2280)

Clegg, S., Hudson, A., & Steel, J. (2003). The Emperor's New Clothes: Globalisation and e-Learning in Higher Education. *British Journal of Sociology of Education, 24*(1), 39-53. doi:101080.0142569032000043597

Coffman, T., & Klinger, M. B. (2007). Utilizing Virtual Worlds in Education: Implications for Practice. *International Journal of Social Sciences, 2*(1), 29-33. Retrieved from http://www.waset.org/journals/ijss/v2/v2-1-5.pdf

Corrin, L., Bennett, S., & Lockyer, L. (2010). Digital natives: Everyday life versus academic study. Paper presented at the *Proceedings of the 7th International Conference on Networked Learning,* Aalborg, Denmark. 643-650. Retrieved from http://www.lancs.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/PDFs/Corrin.pdf

Dede, C. (2005). Planning for Neomillennial Learning Styles. *Educause Quarterly, 28*(1), 7-12. Retrieved from http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/PlanningforNeomillennialLearni/157325

Donnison, S. (2007). Unpacking the Millennials: A cautionary tale for teacher education. *Australian Journal of Teacher Education, 32*(3) Retrieved from http://ajte.education.ecu.edu.au/issues/PDF/323/Donnison.pdf

Downes, S. (2005, October 16). E-learning 2.0. *ELearn Magazine,* Retrieved from http://www.elearnmag.org/subpage.cfm?article=29-1&section=articles

Dresang, E.T. (2005). The Information-Seeking Behavior of Youth in the Digital Environment. *Library Trends*, 54(2) 178-196.

Eynon, R. (2010). Supporting the "Digital Natives": What is the role of schools? Paper presented at the *Proceedings of the 7th International Conference on Networked Learning,* Aalborg, Denmark. 851-858. Retrieved from http://www.lancs.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/PDFs/Eynon.pdf

Frand, J. L. (2000). The information-age mindset. *Educause Review, 35*(5), 14-24. Retrieved from http://net.educause.edu/apps/er/erm00/articles005/erm0051.pdf

Fox, S., & Madden, M. (2006). Generations Online. Pew Internet and American Life Project. Retrieved November 4, 2011 from: http://www.pewinternet.org/Reports/2006/Generations-Online.aspx

Fuchs, C. (2009). Digital Natives and Their Self-Rated Electronic Literacy Skills: Empirical Findings from a Survey Study in German Secondary Schools. In R. Oxford, & J. Oxford (Eds.), *Second Language Teaching and Learning in the Net Generation* (1st ed., pp. 31-52). Honolulu, HI: National Foreign Language Resource Center.

Garcia, P., & Qin, J. (2007). Identifying the Generation Gap in Higher Education: Where Do the Differences Really Lie? *Innovate, 3*(4) Retrieved fromhttp://innovateonline.info/pdf/vol3_issue4/Identifying_the_Generation_Gap_in_Higher_Education-__Where_Do_the_Differences_Really_Lie_.pdf

Gaston, J. (2006). Reaching and Teaching the Digital Natives. *Library Hi Tech News, 23*(3), 12-13. doi:10.1108/07419050610668124

Geneviene, A. (2010). *8 Social Media Tips for Higher Education According to Students.* Retrieved 2010, June 20, from http://www.andreagenevieve.com/think-about-this/8-social-media-tips-for-higher-education-according-to-students/

Goodwin, J. (2010). It's time for teachers to step out on technology. *MTA Today, 41*(1), 15-15. Retrieved from http://www.massteacher.org/news/MTA%20Today/~/media/Files/PDFs/MTAT/100809.pdf

Gounari, P. (2009). Rethinking Critical Literacy in the New Information Age. *Critical Inquiry in Language Studies, 6*(3), 148-175. doi:10.1080/15427580903115164

Grandzol, C. J., & Grandzol, J. R. (2010). Interaction in Online Courses: More is NOT always better. *Online Journal of Distance Learning Administration, 13*(2), Retrieved fromhttp://www.westga.edu/~distance/ojdla/summer132/Grandzol_Grandzol132.html

Günther, J. (2007). Digital Natives & Digital Immigrants. Paper presented at the *8th International Conference on Virtual University,* Bratislava, Slovak Republic. Retrieved from http://virtuni.eas.sk/rocnik/2007/pdf/fid001571.pdf

Hargittai, E., Fullerton, L., Menchen-Trevino, E., & Yates Thomas, K. (2010). Trust Online: Young Adults' Evaluation of Web Content°. *International Journal of Communication, 4*(1), 468-494. doi:1932–8036/20100468

Helsper, E. J., & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal, 36*(3), 503-520. doi:10.1080/01411920902989227

Horrigan, J. B. (2000) "New Internet Users: What They Do Online, What They Don't and Implications for the Net's Future," Pew Internet & American Life Project. September 2000. Available at:http://www.pewinternet.org/reports/pdfs/New_User_Report.pdf

Johnson, K. (2006). The Millennial Teacher: Metaphors for a New Generation. *Pedagogy, 6*(1), 7-24. Retrieved from http://muse.jhu.edu/journals/pedagogy/v006/6.1johnson.html

Jones, C., & Ramanau, R. (2009). Collaboration and the Net generations: the changing characteristics of first year university students. Paper presented at the *Computer Supported Collaborative Learning Practices,*Rhodes, Greece. 8-13. Retrieved from http://oro.open.ac.uk/18689/

Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation of Digital Natives: Is there a distinct new generation entering university? *Computers and Education, 54*(3), 722-732. Retrieved fromhttp://linkinghub.elsevier.com/retrieve/pii/S0360131509002620

Jones, S. & Fox, S. (2009). *Generations Online in 2009.* (Research No. 202-419-4500). Washington, DC: Pew Internet & American Life Project. Retrieved fromhttp://www.pewinternet.org/Reports/2009/Generations-Online-in-2009.aspx

Jones, C., & Healing, G. (2010). Net generation students: agency and choice and the new technologies. *Journal of Computer Assisted Learning, 26*(5), 344-356. doi:10.1111/j.1365-2729.2010.00370.x

Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or Digital Natives: Is there a distinct new generation entering university? *Computers & Education, 54*(3), 722-732. doi:10.1016/j.compedu.2009.09.022

Jones-Kavalier, B. R., & Flannigan, S. L. (2006). Connecting the Digital Dots: Literacy of the 21st Century. *Educause Quarterly, 29*(2), 8-10. Retrieved fromhttp://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/ConnectingtheDigitalDotsLitera/157395

Karasmanis, V. (2002) *Socrates: The Wise Man who Knew Nothing*. Athens, Greece: Libranis A.A.

Kennedy, G., Dalgarno, B., Bennett, S., Gray, K., Waycott, J., Judd, T., Bishop, A., Maton, K., Krause, K.L., Chang, R. (Eds.). (2009). *Educating the Net Generation: A handbook of findings for practice and policy*. Strawberry Hills, NSW, Australia: Australian Learning and Teaching Council. Retrieved from http://www.netgen.unimelb.edu.au/outcomes/handbook.html

Kennedy, G., Dalgarno, B., Bennett, S., Judd, T., Gray, K., & Chang, R. (2008). Immigrants and natives: Investigating difference between staff and students' use of technology. Paper presented at the *Hello! Where are You in the Landscape of Educational Technology? Proceedings Ascilite,* Melbourne, Australia. 484-492. Retrieved from http://www.ascilite.org.au/conferences/melbourne08/procs/kennedy.pdf

Kennedy, G., Delgarno, B., Gray, K., Judd, T., Waycott, J., Bennett, S., . . . Churchward, A. (2007). The net generation are not big users of Web 2.0 technologies: Preliminary findings. Paper presented at the *Providing Choices for Learners and Learning. Proceedings Ascilite,* Singapore. 517-525.

Kennedy, G., Judd, T. S., Churchward, A., & Gray, K. (2008). First years students' experiences with technology: Are they really digital natives? *Australian Journal of Educational Technology, 24*(1), 108-122. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.85.9526&rep=rep1&type=pdf

Kennedy, G., Krause, K., Gray, K., Judd, T., Dalgarno, B., & Bishop, A. (2006). Questioning the net generation: A collaborative project in Australian higher education. Paper presented at the *Proceedings of the 23rd Annual Ascilite Conference: Who's Learning? Whose Technology?* Sydney, Australia. 413-417. Retrieved from http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p160.pdf

Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: exploring types of net generation students. *Journal of Computer Assisted Learning, 26*(5), 332-343. doi:10.1111/j.1365-2729.2010.00371.x

Kerawalla, L., & Crook, C. (2002). Children's Computer Use at Home and at School: context and continuity. *British Educational Research Journal, 28*(6), 751-771. doi:10.1080/0141192022000019044

Kervin, L., Reid, D., Vardy, J., & Hindle, C. (2006). A partnership for iPod pedagogy: using the technology of millennial learns across educational contexts. Paper presented at the *Proceedings of the 23rd Annual Ascilite Conference: Who's Learning? Whose Technology?* Sydney, Australia. 419-422. Retrieved from http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p111.pdf

Kramsch, C., A'Ness, F., & Lam, W. S. E. (2000). Authenticity and authorship in the computer-mediated acquisition of L2 literacy. *Language Learning & Technology, 4*(2), 78-104. Retrieved fromhttp://llt.msu.edu/vol4num2/kramsch/default.html

Kvavik, R. B. (2005). Convenience, Communications, and Control: How Students Use Technology. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the Net Generation* (pp. 7.1-7.20) Educause.

Kumaravadivelu, B. (2002). Understanding Postmethod Pedagogy. *Beyond Methods: Macrostrategies for Language Teaching* (1st ed., pp. 23-43). New Haven, CT: Yale University Press.

Lancaster, L. C. (2004). When Generations Collide: How to Solve the Generation Puzzle at Work. Paper presented at the *The Management Forum Series,* Retrieved fromhttp://www.executiveforum.com/PDFs/LancasterSynopsis.pdf

Lenhart, A., Purcell, K., Smith, A., Zickuhr, K. (2010) Social Media & Mobile Internet Use Among Teens and Young Adults. Retrieved on November 4, 2011 from http://pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx

Livingstone, S., & Helsper, E. (2007). Gradations in digital inclusion: children, young people and the digital divide. *New Media and Society, 9*(4), 671-696. doi:10.117/1461444807080335

Lohnes, S., & Kinzer, C. (2007). Questioning assumptions about students' expectations for technology in college classrooms. *Innovate, 3*(5) Retrieved fromhttp://innovateonline.info/pdf/vol3_issue5/Questioning_Assumptions_About_Students'_Expectations_for_Technology_in_College_Classrooms.pdf

Lorenzo, G., & Dziuban, C. (2006). *Ensuring the Net Generation Is Net Savvy* Educause Learning Initiative. Retrieved from http://www.educause.edu/ELI/EnsuringtheNetGenerationIsNetS/156766

Low, L., & O'Connell, M. (2006). Learner-centric design of digital mobile learning. Paper presented at the *OLT Conference, Learning on the Move,* Queensland University of Technology. Retrieved fromhttp://online.cit.act.edu.au/mlearning/lowoconnell2006.pdf

Mangold, K. (2007). Educating a New Generation: Teaching Baby Boomer Faculty About Millennial Students. *Nurse Educator, 32*(1), 21-33. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17220763

Margaryan, A., & Littlejohn, A. (2008). *Are digital natives a myth or a reality? Students' use of technologies for learning.* Unpublished manuscript. Retrieved July 15, 2010, fromhttp://www.academy.gcal.ac.uk/anoush/documents/DigitalNativesMythOrReality-MargaryanAndLittlejohn-draft-111208.pdf

Mason, R. M., Barzilai-Nahon, K., & Lou, N. (2008). The Organizational Impact of Digital Natives: How Organizations are Responding to the Next Generation of Knowledge Workers. Paper presented at the *International Association for Management of Technology IAMOT 2008 Proceedings,* Dubai, UAE. Retrieved from http://faculty.washington.edu/rmmason/Publications/IAMOT_DN_2008.pdf

McWilliam, E. (2002). Against Professional Development. *Educational Philosophy & Theory, 34*(3), 289-299. doi:10.1080/00131850220150246

Meyers, S. A., & Stowell, J. R. (Eds.). (2009). *Essays from E-xcellence in Teaching*. [eBook]: Society for the Teaching of Psychology. Retrieved from teachpsych.org/resources/e-books/eit2009/eit2009.pdf

Monaco, M., & Martin, M. (2007). The Millennial Student: A New Generation of Learners. *Athletic Training Education Journal, 2*(2), 42-46. Retrieved from http://www.nataej.org/2.2/EJMonaco.pdf

Nesbitt, B. J. (2007). *A Vision of K-12 Students Today.* Retrieved may 05, 2010, from http://www.youtube.com/watch?v=_A-ZVCjfWf8

Nicholas, A. (2008). Preferred Learning Methods of the Millennial Generation. *The International Journal of Learning, 15*(6), 27-34. Retrieved from http://escholar.salve.edu/fac_staff_pub/18/

Oblinger, D. G. (2005). Learners, Learning & Technology: The Educause Learning Initiative. *Educause Review, 40*(5), 66-75. Retrieved from http://net.educause.edu/ir/library/pdf/erm0554.pdf

Oblinger, D. G., & Oblinger, J. L. '. (Eds.). (2005). *Educating the Net Generation*. Washington, DC: Educause. Retrieved from http://www.educause.edu/educatingthenetgen/

O'Brien, C. (2008, July 9). How the Google generations thinks differently. *The Times,* Retrieved from http://women.timesonline.co.uk/tol/life_and_style/women/families/article4295414.ece

Prensky, M. (2001a). Digital Natives, Digital Immigrants. *On the Horizon, 9*(5) Retrieved from http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

Prensky, M. (2001b). Digital Natives, Digital Immigrants: Do they really think different? *On the Horizon, 9*(6), 1-6. Retrieved from http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part2.pdf

Prensky, M. (2003). Overcoming Educators' Digital Immigrant Accents: A Rebuttal. *The Technology Source, 7*(3) Retrieved from http://technologysource.org/article/overcoming_educators_digital_immigrant_accents/

Prensky, M. (2006a). *Don't Bother Me Mom--I'm Learning!* (1st ed.) Paragon House.

Prensky, M. (2006b). Listen to the Natives. *Educational Leadership, 63*(4), 8-13. Retrieved from http://www.siprep.org/prodev/documents/Prensky.pdf

Prensky, M. (2010). *Teaching Digital Natives: Partnering for Real Learning* (1st ed.). Thousand Oaks, CA: Corwin Press.

Rainie, L. (2011). The State of the Millennials. Presentation at the Capital Cabal - Washington D.C., Pew Internet and American Life Project. Retrieved November 4, 2011 from http://pewinternet.org/Presentations/2011/Jul/Millennials.aspx

Ramaley, J. & Zia, L. (2005). The Real versus the Possible: Closing the Gaps in Engagement and Learning. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the Net Generation* (pp. 3.1-3.7) Educause.

Roberts, G. (2005). Technology and Leaning Expectations of the Net Generation. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the Net Generation* (pp. 3.1-3.7) Educause.

Selwyn, N. (2009). *The Digital Native – Myth and Reality.* Unpublished manuscript. Retrieved June 29, 2010, from http://www.scribd.com/doc/9775892/Digital-Native

Selwyn, N. (2010). *The educational significance of social media - a critical perspective.* Unpublished manuscript. Retrieved January 18, 2011, from http://www.scribd.com/doc/33693537/The-educational-significance-of-social-media-a-critical-perspective

Selwyn, N. (2006). Digital division or digital decision? A study of non-users and low-users of computers. *Poetics, 34*(4-5), 273-292. doi:10.1016/j.poetic.2006.05.003

Shirky, C. (2008). *It's Not Information Overload. It's Filter Failure.* Retrieved May 05, 2010, from http://web2expo.blip.tv/file/1277460/

Sims, R. (2006). Beyond Instructional Design: Making Learning Design a Reality. *Journal of Learning Design, 1*(2), 1-7. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.118.7075&rep=rep1&type=pdf

Singer, D.G. & Revenson, T.A. (1996). *A Piaget Primer: How a Child Thinks*. Penguin Books.

Skiba, D. J., & Barton, A. J. (2006). Adapting Your Teaching to Accommodate the Net Generation of Learners. *Online Journal of Issues in Nursing, 11*(2), 15-15. Retrieved from http://ezproxy.lib.umb.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=21264988&site=ehost-live

Smith, D. C. (2006). Educating the Millennial Student: Some Challenges for Academics. Paper presented at the *Proceedings of the 36Th Annual Conference of the Southern African Computer Lecturers Association: Electronic Conference Proceedings on CD-ROM,* Cape Town, South Africa. Retrieved from http://www.sacla.org.za/SACLA2006/Papers/WP15%20Derek%20Smith%20Educating%20the%20Millenium%20Student.pdf

Smith, S. D., & Caruso, J.B. (2010). *Key Findings: ECAR Study of Undergraduate Students and Information Technology, 2010.* No. ERS1006). Boulder, CO: Educause. Retrieved fromhttp://www.educause.edu/Resources/ECARStudyofUndergraduateStuden/217333

Socialnomics. (2009). *Social Media Revolution.* Retrieved May 05, 2010, from http://www.youtube.com/watch?v=lFZ0z5Fm-Ng

Stoerger, S. (2009). The digital melting pot: Bridging the digital native-immigrant divide. *First Monday, 14*(7) Retrieved from http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2474

Howe, N, & Strauss, W. (2000). *Millennials rising: the next great generation*. New York, NY: Vintage.

Sweeney, R. (2006). *Millennial Behaviors & Demographics.* Unpublished manuscript. Retrieved June 29, 2010, from http://library1.njit.edu/staff-folders/sweeney/Millennials/Article-Millennial-Behaviors.doc

Tapscott, D. (1999). Educating the net generation. *Educational Leadership, 56*(1), 6-11. Retrieved from http://epotential.education.vic.gov.au/showcase/download.php?doc_id=762

Thomas, C. F., & McDonald, R. H. (2003). Millennial Net Value(s): Disconnects Between Libraries and the Information Age Mindset. Paper presented at the *Free Culture and the Digital Library Symposium Proceedings,*Atlanta, Georgia. 93-105. Retrieved from http://metascholar.org/publications/FreeCultureandtheDigitalLibrary.pdf#page=97

Thomas, N. (2010). Going Native. *The NEA Higher Education Advocate, 28*(2), 12-12. Retrieved from http://www.nea.org/assets/img/PubAdvocate/AdvocateDec2010.pdf

Thompson, J. (2007). Is Education 1.0 ready for Wed 2.0 Students? *Innovate, 3*(4) Retrieved from http://innovateonline.info/pdf/vol3_issue4/Is_Education_1.0_Ready_for_Web_2.0_Students_.pdf

Trinder, K., Guiler, J., Margaryan, A., Littlejohn, A., & Nicol, D. (2008). *Learning from digital natives: bridging formal and informal learning.* (Research Glasgow, Scotland: The Higher Education Academy. Retrieved fromhttp://www.academy.gcal.ac.uk/ldn/LDNFinalReport.pdf

Tsoulos, D. (2009). Integrating Computer Technology in the Second Language Classroom: A Window Into Teachers' Experiences. Paper presented at the *Digiteachers: Media Culture in the Teacher Education Classroom Collaborative Panel for "Media in Transition: Stone and Papyrus, Storage and Transmission",* Cambridge, MA. Retrieved from http://web.mit.edu/comm-forum/mit6/papers/Tsoulos.pdf

Tynan, B., & Colbran, S. (2006). Podcasting, student learning and expectations. Paper presented at the *Proceedings of the 23rd Annual Ascilite Conference: Who's Learning? Whose Technology?* Sydney, Australia. 825-832. Retrieved from http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p132.pdf

Valatv. (2010). *What digital natives want from their library.* Retrieved May 05, 2010, from http://www.youtube.com/watch?v=7_zzPBbXjWs

VanSlyke, T. (2003). Digital Natives, Digital Immigrants: Some Thoughts from the Generation Gap. *The Technology Source, 7*(3) Retrieved from http://technologysource.org/article/digital_natives_digital_immigrants/

Vygotsky, L.S. (1978) *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.

Wilber, D. J. (2007). MyLiteracies: Understanding the net Generation through LiveJournals and Literacy Practices. *Innovate, 3*(4) Retrieved from http://innovateonline.info/pdf/vol3_issue4/MyLiteracies-__Understanding_the_Net_Generation_through_LiveJournals_and_Literacy_Practices.pdf

Windham, C. (2005). The Student's Perspective. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the Net Generation* (pp. 5.1-5.16) Educause.

Zickuhr, K. (2010) Generations 2010. Pew Internet and American Life Project. Retrieved November 4, 2011 from: http://www.pewinternet.org/Reports/2010/Generations-2010.aspx

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