On Digital Immigrants and Digital Natives:

How the Digital Divide Affects Families, Educational Institutions, and the Workplace

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"Digital native" is a term for people born in the digital era, i.e., Generation X and younger. This group is also referred to as the "iGeneration" or is described as having been born with "digital DNA." In contrast, the term "digital immigrant" refers to those born before about 1964 and who grew up in a pre-computer world. The terms "digital immigrants" and "digital natives" were popularized and elaborated upon by Dr. Mark Prensky (2001) and critiqued for their validity and usefulness by Harding (2010) among others. In the most general terms, digital natives speak and breathe the language of computers and the culture of the web into which they were born, while digital immigrants will never deal with technology as naturally as those who grew up with it.

Not all Digital Immigrants and Digital Natives are Created Equal

It is important to realize that not all digital immigrants and not all digital natives are created equal. The native/immigrant divide is one of generations - people were either born in the digital era or they were not (Rosen, 2010; Zur & Zur, 2011). While most digital natives are tech-savvy by virtue of their being born around technology, others do not have a knack for technology and computers, or even an interest or inclination to learn more. Digital immigrants are also clearly a highly diverse group in terms of their attitudes and capacities in regard to digital technologies.

Digital Immigrants fall into the following three major groups:

Avoiders: We have all met avoiders among the digital immigrants. They prefer a lifestyle that leaves them relatively technology-free or with minimal-technology. They tend to have landlines, no cell phone and no email account. They do not Tweet or Facebook, and what is highly illustrative for this group is that they do not see much value in these activities.

Reluctant adopters realize technology is a part of today's world and they try to engage with it, but it feels alien and unintuitive. This group is widely diverse and probably includes most of the digital immigrant group. While they may have a basic cell phone, they do not text if they can help it. They may use Google occasionally, do not have a Facebook account, check their emails intermittently and perhaps have surrendered to online banking. This group is defined more by its cautious and tentative attitude towards digital technology rather than by its willingness to use these technologies.

Enthusiastic adopters are the digital immigrants who have the potential to keep up with natives, due to their ease, capacity, and interest in using technology. They may be high-tech executives, programmers, businesspeople and others who embrace technology and immerse themselves in the Internet culture. This group sees the value of technology and does their best to make use of it. Some members of this group - very few - are of the Bill Gates variety, and have a knack for these things despite their status as digital immigrants. Members of this group text, use Skype, have and use a Facebook account (recognizing that this is the best way to interact with their kids in a favored medium and connect with old friends), check email regularly, and are excited about new gadgets and tech developments. They may also keep a blog, and they have a website if they are in business.

A note to the wise: Immigrants who wish to switch from "reluctant adopter" to "enthusiastic adopter" or members of either group who wish to become more adept with technology are encouraged to hire a patient, pleasant digital native to help build up the skill set.

We take classes to learn Spanish - so why not get a tutor to get up to speed on making good use of technology? Many digital natives are immersed in technology and see it as an easy, fluid integral part of life. As a result, they may be impatient with immigrants who do not understand technology as easily. Asking a native to help can also be an opportunity for them to understand what is difficult for immigrants, and, thus, cross the digital divide themselves.

Like digital immigrants, digital natives are also not created equal. The natives are also a diverse group in terms of their attitudes and capacities regarding digital technologies.

Digital Natives fall into the following three major groups:

> ***Avoiders:*** Some young people, even though they were born digital, do not feel an affinity for digital technologies and, unlike most of their peers, they are not enamored by Facebook, texting or mobile technologies. Members of this small group of digital natives use a cell phone (it's pretty much cripplingly impractical not to have one these days), but do not have an email, Facebook or Twitter account, and may not even have Internet access at home. They probably have an older phone and do not text.
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> ***Minimalists*** realize that technology is a part of today's world, and they try to engage with it minimally and only when they perceive it is necessary. They Google for information if they have to and purchase online only if they cannot do so in a local store. While they may have a Facebook account, they may check it only once a day or every couple of days. They will ask for directions to a friend's house instead of simply getting the address and looking it up on Google maps. If absolutely necessary, they will use Skype or a GPS system, but they are not eager to do so.
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> ***Enthusiastic participants*** make up most of the digital natives. They enjoy and thrive on technology and gadgets. They interact on Facebook all day long, many of them Tweet, all of them are online in some capacity (YouTube, watching TV shows or movies online, Facebook, surfing, etc.) all day long or as much as possible. When they want to know something - such as a language translation, directions to a party, how to spell a word - the first thing they do is turn to Google. This group is harder to reach on the phone than via online methods and texting. They thrive on instant, fluid communication, and own a smartphone or iPad for constant access to the Web.
>
> Younger members of this group prefer texting to emailing. Generally speaking, the younger generations are less and less prepared to write in a professional manner. This sets them up for digital divide clashes at home, school, the workplace and any other situation where digital immigrants set the tone. Enthusiastic participants include (but are not limited to) online gamers and those first in line to buy the new iPad, iPhone or i[next product]. All of them find technology fun, and enjoy the latest developments.
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> As discussed in more detail below, in the workplace this manifests as follows: Bureaucracy, paperwork and formalities make little sense to this group. If it can be done more quickly and simply, why not do it that way? This group is accustomed to having instant access to their teachers, peers and parents on Facebook. Lines of propriety between people of different ages, social statuses and positions of power hardly exist in the minds of these natives.

The native/immigrant distinction is important, as it can help explain tension between parents and children, educators and students, and business management and younger workers. Often, in these situations the different styles, values, and habits of the different groups create misunderstandings, misperceptions, conflict, disharmony and communication breakdowns.

Our hope in compiling this paper is to shed light on the differences between the two groups so that both digital immigrants and digital natives understand themselves and the other group better. This understanding can increase effective communication and contribute to harmony at home, enhance satisfaction and productivity in the workplace and increase the quality of learning and mutual understanding in educational institutions.

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Categories According to a Person's Relationship to Technology

It is important to note that there are other ways to sort people in these groups besides age. We can do so according to their attitudes towards and comprehension of modern digital technologies. Feeney (2010), Toledo, (2007) and others describe a ***continuum*** of people's relationships to the digital world, which is not based on a person's date of birth but on their relationships, attitudes and practices in regard to digital technologies. Following are categories that differentiate people according to their comprehension, understanding and comfort with technology rather than their age.

> ***Avoider*** The Luddites are true avoiders of modern technologies. They use landlines and avoid email and the Internet. The newspapers they like to read arrive via snail mail carrier, not via Internet server. Some of these ultimate avoiders are simply old digital immigrants who cannot relate to modern technology, and others are digital natives who some may call the "Neo-Luddites" who philosophically oppose the use of the Internet and other modern online technologies.
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> ***Minimalist*** Members of this group use technology reluctantly. They may be digital immigrant reluctant adopters or digital native minimalists. Minimalists have an email account and probably a Facebook profile (hard to avoid these days) but do not check them regularly. They have a cellphone, but do not need or desire to be online via the phone. No smartphones are necessary or wanted by this group. Like the avoiders, this group reads the newspaper in paper form.
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> ***Tourists*** These are the people who feel like visitors in the digital world. They pay attention to the 'local' or 'native' digital culture, learn its language, observe its rituals, and comprehend its complexities. This group keeps internal distance from technology even though they tend to use it appropriately and effectively, as needed, but not extensively. This is group stays internally non-digital in regard to preferences and values.
>
> ***Enthusiastic or Eager Adopter*** This group has fun with technology! They enjoy the latest iPhone and talk about its

features; the iPad is fascinating even if they don't have one. This group - if they do not own a new product themselves - is ready and excited to try out the product of a friend and enjoy the process. They participate in online discussions via Facebook, news sites, blogs or online education. They may write online content (a column, a blog) themselves. Members of this group check email and are online throughout the day, find technology interesting, have a smartphone, and are on Facebook. They get their news online, not via print<./p>

Innovator Members of this group are not only enthusiastic, they work with technology to improve it. These are game developers, programmers, engineers, technology writers, professors, and (gasp) hackers. While hackers do not improve technology for the rest of us, they are affecting it, not just using it. Innovators build websites, create applications and perform other online creation functions for their fellow innovators.

Over-User or Addict As the name indicates, digital addicts are heavily dependent on technology to occupy their time. Millions of young people all over the world are in this group - many of them gamers. When digital immigrants are in this group, it is usually for gaming or porn, though it can be for social networking also. Members of this group are extremely protective of their "right" to be online, and will become upset, irate and even violent if technology is not available. This group is what many parents, educators and managers accuse average digital natives of being, but this is a mistake. Addicts include those whose physical, mental, emotional, educational, or occupational aspects of their lives are significantly, negatively affected by their excessive use of digital technologies. Examples of people in this group are gamers who play for 18 hours a day, missing school, work and home life. Other members of this group include porn addicts who do not have sex with their spouses in favor of indulging this online addiction.

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Differences Between Digital Immigrants & Digital Natives

Following is general list of the main differences between Digital Natives and Digital Immigrants. Partly based on Dr. Larry Rosen's (2010) and Dr. Prensky's (2001) work and other scholars, the following chart provides a road map to understanding how the different groups view work, pleasure, and relationships, and their preferred modes of interacting, learning and processing.

Older - Digital Immigrants	Younger - Digital Natives
★ Prefer to talk on phone or in person	★ Prefer to connect via text, chat, Facebook, online games, etc.
★ Do not use text or use it sparingly and reluctantly	★ Text more than call: Almost half of all teens can text with their eyes closed
★ Prefer synchronistic communication, in real time, such as in f2f or phone conversations	★ Prefer a-synchronistic or sequential communication, such as in email, Facebook, or chat
★ Accustomed to and prefer instructional manuals with clear sequential steps. As "reflective learners" they like a logical and linear process of discovery	★ Cannot relate to manuals - Solve problems "intuitively." As "intuitive learners" they are engaged in rapid 'trail and error' actions and prefer discovering via actions, experimentation and interaction rather than by reflection
★ Prefer receiving information slowly: linearly, logically, and sequentially	★ Prefer receiving information quickly and simultaneously from multiple multimedia and other sources
★ Prefer singular processing and single or limited tasking	★ Prefer parallel processing, multitasking or task switching
★ Prefer reading text (i.e., books) on processing pictures, sounds and video	★ Prefer processing and interacting with pictures, graphics, sounds and video before text
★ Inclined to read a book from cover to cover	★ Inclined to read texts in short bursts, one paragraph at a time, hopping to other activities, such as texting or Facebooking, in between paragraphs
★ See high value in deferred gratification and rewards	★ Prefer instant gratification and rewards, do not see value in waiting
★ Hierarchical approach to workplace rather than a democratic or egalitarian one	★ View the workplace more in egalitarian terms and less in hierarchical (top-down) terms
★ Rely on a traditional 5-day work week, followed by an	★ Work intermittently 7 days a week; alternate among play, work, socializing, etc. 24/7. No "end" to the week - continuous flow, natural rhythm

off-work weekend	
Assume they will work their way up the ladder in the workplace, in a linear fashion, in one career with one company, leading to a 'gold watch,' retirement and pension	Try many careers during the lifetime and switch workplaces and work settings fairly easily and fluently. Stability, security, and pension are not highly valued as variety, experience and experimentation, which natives see as essential to vocational satisfaction (Theme - experiment rather than consider)
Value loyalty and consistency in the workplace	Are more concerned with personal satisfaction - self is focus rather than company. May change jobs often as they develop personally, add to skill set and change areas of interest
Prefer central brick and mortar work place, distrust telecommuting, need to control when and where people work	Prefer telecommuting and flexible hours, opportunity to make up work remotely, i.e., from a café on a weekend or while on vacation
Exclusive focus on work-related matters during work hours	Prefer to switch focus and alternate among work, play, social networking, etc., and are more productive and happy working this way
Hang out in person, clubs, dinners, etc.	Hang out both online (Facebook, texting) and also offline (concerts, parties)
Value 'proper' English	Use texting and instant message shorthand: cu tomorrow; luv ya, r u going to the game?
Tell friends about a trip on the phone, or with an in-person conversation or at-home slideshow	Tell friends about a trip by posting pictures on Facebook (visual versus verbal or text stories)
Use the Internet to gather information	Use the Internet to socialize, play, have fun, watch videos, shows, create, etc.
Think of the Internet in passive terms of what they can read, review or learn	View the Internet in terms of interaction and participation rather than as passive or one-directional
Think young people waste their lives online	Many aspects of life are happening only online
Think of the Internet and virtual world as not part of "real life"	Internet is as real, and often more pleasurable and tangible, than offline life
One task or pleasure at a time	Like multitasking and task switching. Prefer several tasks or recreation activities at a time: Watch a show, socialize, text, study, play, etc.
Value privacy and limit self-disclosure to small circle of friends, if even that	Put highly personal information on social networking sites, where they may have hundreds or even thousands of friends who can view. Also put personal videos on YouTube - not afraid to be known, not especially concerned with privacy
Prefer more knowledge and "just-in-case" approach	Prefer to learn "just-in-time" and what is minimally necessary
Learning is a necessity and is often unavoidable drudgery	Learning should be fun and knowledge is often acquired via fun activities, such as gaming, surfing the web or social networking.
Get their news via traditional news sites (New York Times, local papers) or hard copy newspapers	Get their news from friends via Facebook (political discussions on walls), Twitter, political blogs. Traditional news sites are a part of, but not the central piece, of news for this group
Prefer to have 'quality' interaction with one or few people rather than many	Interact/network simultaneously with many, even hundreds of others, as well as with best few friends
Quality interactions can only occur with a tight circle of friends, who have known each other a long time and	Quality interactions can occur with complete strangers, in public, on Facebook, via Twitter and especially online gaming (some games have millions of players around the world). Natives are constantly meeting each other

earned trust

- Traditional safety concerns: Physical kidnapping, assault, robbery

and getting to know one another, often having never met face to face

- Safety concerns: Sexting, inappropriate pictures online, cyber stalking, cyberbullying, privacy invasions (hijacking of email accounts, social networking sites)

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MultiTasking Vs. 'Hopping' or Task Switching

Most people multitask by driving and talking on the phone, or watching a TV show while at the gym. Digital natives multitask in a more advanced manner - they text and bicycle, chat (instant message) and talk on the phone. They simultaneously do homework while watching shows online, listening to iTunes, updating their Facebook profile and texting as needed. This probably seems absurd to digital immigrants - but for many natives, it is a way of life. For a little perspective, our ancestors would likely be appalled at how we use the telephone instead of meeting in person. So perhaps the issue is adjustment to change rather than the specific recent tech advances. Digital natives are often criticized by digital immigrants for their multitasking habits.

Unlike the common view of multitasking, when it comes to more complex tasks, people do not really multitask, they just think they do. The brain can't process two high or complex levels of cognitive tasks simultaneously. ***When it comes to complex tasks, the brain oscillates (switches) between the two or more tasks. In common language, the brain "hops" from one task to another .*** Driving while talking on the phone or reading while listing to music are examples of multitasking. In contrast, texting, watching YouTube, and updating one's Facebook profile are done sequentially, and one activity at a time and therefore are considered 'task-switching' or hopping.

Digital natives grow up in a world of intense stimulation - flashy colors on TV and the Internet, fast-paced games, cell phones, etc. Their brains - as many immigrants have probably noticed - "hop" faster than that of their adult counterparts. This is a combination of a function of their age (faster response times for younger people in general) and their generation (grew up in a world where fast hopping is "the norm").

Even digital immigrants who view digital natives texting, homeworking and YouTube hopping while shaking their heads can appreciate that *simple* multitasking (not hopping) has been shown to improve performance. Examples of these combinations that are long appreciated by researchers include: listening to music while working out, reading, writing and performing other tasks. Music can help increase concentration, productivity and focus. As we describe in this paper, many natives multitask (and hop) much more than this, and find that mode to be perfect for their productivity. Excessive, intense or rapid hopping is not appropriate for most immigrants as their brains have not been trained to function effectively under such circumstances.

Intuitively, it seems that those who intensely multitask or "hop" are not likely to comprehend, digest and remember well the important information they read or hear while multitasking***. However, research on the effects of multitasking on retention and comprehension is still in its infancy, and we do not yet have conclusive results on the issue.*** While some research supports the assertion that multitasking/hopping interferes with retention and comprehension, equally well-constructed research shows that retention and comprehension of essential and most important information is not affected by such diverse attention. We simply don't know yet - and results vary based on the learning preferences and abilities of the individual. For some people, even studying with music seems impossibly distracting. Others feel perfectly at home hopping amongst Facebook, school report, email, etc. The key is to know one's preferred method of work, and do one's best to organize a life where one can work optimally.

The brains of natives born these days are even more adept at hopping than the teenagers we observe now. Toddlers are growing up playing with iPods and smartphones. Being able to navigate online amongst different applications and functions seamlessly is completely normal to them. And importantly - this has relevance for education - having *control* over the exploration of material seems normal to them. Instruction to "open a book, go to page 5," lands as completely archaic to most digital natives. From their perspective, it is so much more fun to click around themselves! We'll cover this more in our **section on education**.

While our fast-paced culture often calls for multitasking in some form or another, it *is* still important to look for healthy balance and use good judgment about when it is safe and useful to multi-task, and when it is not. For example, texting and driving is ill-advised, illegal and potentially deadly.

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The Generational Clash Crisis at Home, School and Work

The differences between the generations inevitably result in tension, misunderstanding and conflict at home, between parents and children, at the workplace, between management and the workforce, and in schools, between teachers and students or even older and younger teachers and staff. Certain subjects make many digital immigrant parents, teachers, supervisors and bosses concerned and upset. Understandably, the same subjects make children, students and workers feel misunderstood and disrespected. Conflict seems inevitable on all three fronts. Our hope is that the following are short summaries of the cross-generational concerns and conflicts in the three different settings of the home, school and work can increase understanding and reduce tension across the digital divide.

The Homefront

Parents witness their children doing homework while text messages are flying, videos are streaming, Facebook profiles are updated, Twitter is checked every couple minutes, Internet browsers are open, the loud rock music is blaring from iTunes in their ear buds. On top of all that, many children need to ***also*** deal with nagging parents complaining about their multitasking. As a result, many deeply concerned and discouraged parents label their children "addict" for the extensive time they spend online and, contradictorily, also label them as ADHD on account of the multitasking/task-switching. Needless to say, these labels do not help the natives find balance among online and offline, or help the relationship between natives and immigrants.

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Online socialization is a highly complicated, multi-dimensional modern and - to some - a fascinating and intriguing phenomenon. The immigrant concern with childrens' supposed isolation when they are "all alone" in their rooms is based on lack of understanding that the natives usually text rather than talk on the phone, and often prefer to hang out on Twitter or Facebook via their smartphone or as a player in an active multi-player online game, rather than in the local bar, on the street or at the town square.

The generational digital divide is one of the most contentious arenas of modern life. Making the situation worse is some immigrants' tendency to nag, complain and threaten around technology use. Such attitudes and threats by parents are more likely to widen the rifts between parents and children, decrease effective communication and push the child to more 'fun' online activities, away from negative nagging parents.

With some effort and attention, parents can become more effective. Consider these tips:

- Ask your child to show you what he/she does online.
- Sit down and play the game with them for a bit.
- Ask your child to help you figure out a new gadget, such as a digital camera, smartphone, new email account.
- If you are tech-phobic, work on getting over these issues. Your child grows up in a different era, where technology is the norm. It is not fair to punish or belittle your children for growing up appropriately for the times.
- Give your child an opportunity to learn online. Since kids already like games, buy them some good educational games (learning a new language, doing math equations, etc.). You can trade "educational game time" for "free game time" - and your kids, despite protests, will probably have fun with both. This is "meeting them where they're at."
- Avoid the hair-trigger "he/she's an addict!" Consider your own perspective. If this is your first thought, you're probably simply speaking from your immigrant standpoint of lack of understanding.
- Consider using Nanny Net, Parental Control or similar programs to block certain sites and certain content as well as to stay informed of your children's activities. Of course, this must be instituted with an age-appropriate mindset.
- You CAN have an influence on your child - but start with the goal of understanding and respecting.

The above advice is all about joining your child, closing the communication gap and respecting and welcoming in their expertise. Their interest in games and the Internet is not a bad thing. If you can avoid becoming the "tech is bad" person, you will have more of an opportunity (credibility) to encourage offline activities. First, understand and honor your children.

This does not mean your kids get carte blanche to do anything online. Porn and cyberbullying are not okay. Be a parent about online activities, just as you would about jaywalking on a highway or playing near a fireplace. But to be effective in your parental duties of effective, appropriate boundaries, you cannot act from outside your child's world.

Parents may want to bear in mind the idea of balance and help their children achieve balance between:

- High speed and low speed
- Acceleration and stillness
- Engaging in virtual and face-to-face communication
- Watching online videos and watching sunsets in 'real' life
- Reading blogs and emails and reading hardcover books, poetry or sacred texts
- Playing online and playing offline (in person)
- Surfing the Internet and surfing the Inner-net

Parents may also want to bear in mind the following definition of Cyber-Wellness and help their children pursue it:

Cyber-Wellness is a practical approach to people's relationship with technology that emphasizes safety, awareness and respect in matters pertaining to the Internet. It addresses needs for physical, psychological, communal, emotional, spiritual, and vocational/occupational well-being and the importance of a balanced life while using Internet technologies. Cyber-Wellness philosophies and practices are best implemented with sensitivity and respect to generational, cultural and individual differences in background, attitudes, outlook and relationship to technology.

Schools and Colleges

College and university instructors, and gradually more high and even middle school teachers, routinely face situations where throughout lectures, labs, or discussion groups students update their Facebook profiles, text, surf the net, Tweet, respond to email, and much more. High school instructors and college professors and administrators are also concerned that many students spend long hours on their cell phones and online gaming during all times of the day and night, resulting in exhausted and unfocused students. They are concerned that the Internet dumbs down the students' minds due to the distractibility effect and the concurrent lack of focus and concentration on non-technical subjects.

As usual, there is another side to the coin. Digital technologies and the Internet have revolutionized the way people gather information and acquire new knowledge. Gone are the days when only a handful of Buddhist monks have access to the original *bhagavad gita* and other sacred texts. With a click of a button, any person who is wired to the web can access millions of documents, ranging from books, to poems, to articles and so much more. Any student can review the details of the ancient Dead Sea Scrolls from a smartphone, iPad or computer. Knowledge no longer comes primarily from library books and the lecture podium.

Along the same lines, natives view the quest of knowledge as a participatory process; this is best shown in Wikipedia. Knowledge, truth and facts are no longer accessed via the 'all-mighty' Britannica Encyclopedia, but instead are being co-created and continuously revised on Wikipedia and similar sites. The issues of accessibility and attitudes towards the acquisition of knowledge have a profound effect on the relationships between professors and students and, in more general terms, between teachers and learners. People without formalized college or post-graduate education can become experts through individual research and discussion with scholars met online. Because of this capacity to gather and create new information, natives often view themselves as equal or - in terms of technology - superior to their professors. The old hierarchy is gone.

Generally speaking, digital natives prefer to scan shorter text rather than thoroughly read longer text. Their preference is to view visuals, videos and - whenever possible - games. Participatory culture is the norm for young people, and digital natives are not inspired by passive learning. This creates predictable, serious problems between baby boomer or digital immigrant teachers who are anything but eager adopters and their students, who see the instruction to sit and receive as archaic.

It is obvious that educational systems must change and catch up to modern times. It has been repeatedly stated that our 19th century educational style and approach does not serve our 21st century students. Learning institutions at all levels - grade school through post-graduate - must stop fighting the technologies. Instead, they can adapt to the learning style of young students and tap into the online information and technologies that are second nature to natives. ***At a basic level, this means changing the educational model to be more participatory and less passive.*** Even without technology, this approach at least mirrors the experience of natives online - they have choices and can direct their own learning. In terms of technology: Class websites, chat rooms and educational games are rather simple to implement. A class website can include a password-protected section with roster information; a place to upload papers and share with classmates; a discussion forum; resources page; and much more.

Educational games are plentiful, fun, and many are free. Students can click around and direct their own learning in the areas of language (first or other languages), history, math (such as solving math equations to gain speed on a racing car) and many other areas. To those who think games are dumbing down our kids, we say - it depends. Is not a math game much better than sitting glossy-eyed in front of the non-participatory, passive television set? Interestingly, the digital immigrants who object to Internet gaming are fine with TV (they grew up with it!), which can be equally wasteful, dumb down or harmful. Again, it depends on the content of the game/show, and how much time and energy is spent there. Schools can include games in education and help make learning fun.

Similarly, using Wikipedia as a model of a participatory creative project can be applied to almost all subjects and different levels of education. We have the technology. We have the evidence of our educational institutions failing to prepare our children for this 21st Century world. If the children are not engaged, if the methods used on them were current one hundred years ago, what possible benefit could they gain from sitting still and zoning out?

Schools need to churn out students who are excited about learning and ready to thrive in the world as they meet it after high school.

This means that students should be proficient in: Microsoft Office (including Word, Excel, Powerpoint); they should know how to write a business-appropriate email (no texting abbreviations); when it is and is not appropriate to text; when to turn off their phones; how to handle security breaches online (in the forms of sexual pictures of self or friends, stolen identity, bad online reviews, etc.). Today's schools are doing none of this - and are doing their students a grave disservice in the process.

The knowledge of how to use digital technology is easily available. It is time for more educators to change, adapt and utilize modern technologies to engage our students in the creative adventure of education, so the students are intrigued and enthusiastic participants rather than reluctant, passive, unprepared-for-the-world learners.

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The Workplace

Managers and supervisors at the workplace experience similar tensions with many young native employees who seamlessly text and update their Facebook profiles **during** work hours and do not hesitate to watch a YouTube video or even – at worst - a pornographic video at work. As noted above, natives have a different view of hierarchy and authority than their immigrant counterparts, partly due to the fact that the Internet works as equalizer of the playing field. Everyone is equal on blogs, YouTube, Twitter and Facebook. As a result, the generational clash is often around issues of the reluctance of the native to accept the hierarchy in the workplace and obey authority without questioning it.

he fact that young people are often much more tech savvy than older ones and are faster (intuitive) learners gives them more power, in some ways, than their employers. This can create tension in companies with a traditional hierarchy. Eager adopter immigrants are not subject to this tension - they welcome the young people's ideas and contributions. Still, this issue of the "8 hour workday" is viewed by many natives as an outdated construct of past generations. As noted previously, natives prefer to work intermittently, in various places (cafés, vacation, home) throughout the day and week.

The recent "Twitter revolution" in the Middle East has demonstrated the power of the Internet to disseminate information and to allow masses of people to organize and mobilize in ways they could not before. Twitter posts show up instantly and can be read by absolutely anyone with an Internet connection. The organizing potential of this tool is incredible.

Young people's non-traditional view of power in the workplace can lead to misunderstanding, miscommunication, tension and conflict. Supervisors and management may wonder why a young worker seems irreverently casual, and young workers may wonder why their supervisors and management believe distance is necessary for respect. Again, the explanation lies in the cultures in which these two groups grew up.

Just as in the academic world, the workforce finds young people who can perform research, hire people via Craigslist and otherwise far outperform their digital immigrant counterparts. Young people understand Internet technology intuitively and, as a result, become necessary for the development of business. This leaves digital immigrant management in the position of being in charge of keeping a company thriving, but unable to do so without the assistance of the natives. Clearly, this is a setup that can shake up the traditional business structure.

Also, young people do not value loyalty to a company the way the older immigrants do. While there was pride among digital immigrants in working for the same company for 40 years, natives are often happier working fluidly as independent contractors rather than employees. They prefer to tele-commute rather than seek a cubicle, and to do work that interests them. Stability is less important than stimulation and satisfaction, which are often derived from being part of a participatory culture.

In order to stay competitive and successful, corporations and businesses must adapt to both modern technology and to the changing dynamics in the workforce. Realizing that native workers thrive in a participatory culture can help managers harness the creativity, knowledge and capacities of native workers in such environments. Of course, implementing participatory environments will be different in different business settings. Like parents and teachers, it is important that managers and supervisors at all levels understand the digital native culture, ways of viewing the world and especially their view of hierarchy, multitasking & task-switching, loyalty and tele-commuting. The modern business manager must find a balance between the traditional approach of 100% presence of workers during work hours to work-related issues with the modern native ways of multitasking, task-switching and working intermittently throughout the day, night and week.

Meeting the young workforce on their own turf is likely to be an effective strategy in many settings. When appropriate, this may involve changes in training, to include gaming and virtual reality, procedures, more flexibility of when and where employees work, and an acceptance of the work rhythms of natives. Sitting still and concentrating only on work for eight hours may be unrealistic for many natives. There are plenty of skilled, bright, creative digital natives who will perform better under circumstances that suit their preferred working style. Obviously, a happy and satisfied workforce is likely to be the most productive, effective and stable - and that helps the business ultimately be successful and thrive.

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Summary

Digital immigrants are generally the parents, teachers, senior administrators, supervisors and managers in the settings described above. Parents often look at the young ones spending long hours in front of a computer screen and are concerned with what they assume is isolation or addiction. Teachers look at texting and Facebooking during class and view technology as an enemy to learning. Managers may view young workers as uncommitted or disrespectful due to misunderstanding regarding cultural and style differences. The longer immigrants take to understand the natives they parent, teach and manage, the bigger the digital divide will get. Eventually, when immigrants grow older, retire and die off and only natives are left, this will not be an issue (new issues undoubtedly will emerge). But until then, it is time to do some cultural anthropology and appropriate adjustment. Our families, classrooms and businesses will be the better for it.

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