Engaging the Digital Learner
How has growing-up digital impacted learning?

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Disclosures

• I have no Industry Conflicts of Interest.
• I do not endorse any product in this presentation.

Contact

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• Twitter: @cwhitehair
• Web: www.drwhitehair.com
Objectives

- The goals of the session are to review current literature on education for those born in the digital age.

- Explore the generational and demographic differences between learners and teacher of today.

- Explore how the young digital age learners are processing information in the rapidly changing digital time.
## Literature Search  December 27, 2012

<table>
<thead>
<tr>
<th>Search Term</th>
<th>GoogleScholar</th>
<th>ERIC (1966-12/27/12)</th>
<th>PubMed (22 million citations)</th>
<th>Ovid (1948-12/27/12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Generation</td>
<td>3,600,000</td>
<td>108</td>
<td>66</td>
<td>68</td>
</tr>
<tr>
<td>Digital Native</td>
<td>715,000</td>
<td>49</td>
<td>302</td>
<td>4</td>
</tr>
<tr>
<td>Millennial Generation</td>
<td>6,340</td>
<td>83</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Digital Native or Millennial Generation or Net Generation</td>
<td>17,000</td>
<td>229</td>
<td>390</td>
<td>94</td>
</tr>
<tr>
<td>Digital Native or Millennial Generation or Net Generation and <strong>Medical School</strong></td>
<td>653</td>
<td>155</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Digital Native or Millennial Generation or Net Generation and <strong>Graduate Medical Education</strong></td>
<td>71</td>
<td>154</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Digital Native or Millennial Generation or Net Generation And <strong>Graduate Medical Education or Residency</strong></td>
<td>51</td>
<td>154</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Digital Native

- Born after 1980 (by Prensky; others 1982)
- First generation to grow up with our “new technology”
- “Native speakers” of the digital language of
  - Computers
  - Videogames
  - Digital music
  - Video cams
  - Cell phones

http://www.youtube.com/watch?v=qGjADeXFVS0&feature=player_detailpage
## Common Digital Language

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Emoticons</th>
</tr>
</thead>
<tbody>
<tr>
<td>?4U</td>
<td>:)</td>
</tr>
<tr>
<td>BTW</td>
<td>:(</td>
</tr>
<tr>
<td>CID</td>
<td>:-&lt;</td>
</tr>
<tr>
<td>G2G</td>
<td>‘:-)</td>
</tr>
<tr>
<td>LOL</td>
<td>;)</td>
</tr>
<tr>
<td>OMG</td>
<td>:'(-)</td>
</tr>
<tr>
<td>TTYL</td>
<td>:-D</td>
</tr>
<tr>
<td>YT?</td>
<td>%-(-</td>
</tr>
</tbody>
</table>

I have a question for you
By the way
Consider it done
Got to go
Laugh out loud
Oh my God
Talk to you later
You there?
Digital Native, before entering college

- > 250,000 emails
- 10,000 hours talking on cell phones
- 50% of teens send 50 or more text/day or 1,500/month
- 10,000 hours of playing video game
- 20,000 hours watching TV
- 500,000 commercials seen
- <9,000 hours attending K-12
- <5,000 hours reading books

“It is now clear that as a result of this ubiquitous environment and the sheer volume of their interaction with it, today’s students think and process information fundamentally differently from their predecessors.” Marc Prensky, 2001
The gap between parent and teen cell phone ownership is steadily narrowing

Parent and teen cell phone ownership over time

Source: Pew Research Center's Internet & American Life Project surveys.
Digital Native, before entering college

- > 250,000 emails
- 10,000 hours talking on cell phones
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Texting has surpassed email, phone, and face-to-face conversation as the main communication vehicle for 12-17 year olds.

Adults 18+  
10 texts/day

Boys 14-17  
30 texts/day

Girls 14-17  
100 texts/day

Knowledge and Compassion Focused on You

MedStar National Rehabilitation Network

Source: http://techland.time.com/2012/08/16/your-life-is-fully-mobile/
Digital Native, before entering college

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Children’s Media Use, By Platform
Among all 8- to 18-year-olds, amount of time spent with each medium in a typical day:

Total media exposure: 10:45

<table>
<thead>
<tr>
<th>Medium</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV content</td>
<td>4:29</td>
</tr>
<tr>
<td>Music/audio</td>
<td>2:31</td>
</tr>
<tr>
<td>Computers</td>
<td>1:29</td>
</tr>
<tr>
<td>Video games</td>
<td>1:13</td>
</tr>
<tr>
<td>Print</td>
<td>0:38</td>
</tr>
<tr>
<td>Movies</td>
<td>0:25</td>
</tr>
</tbody>
</table>

Note: Children may be engaged in more than one of these activities at the same time.
Digital Native, before entering college

- > 250,000 emails
- 10,000 hours talking on cell phones
- 50% of teens send 50 or more text/day or 1,500/month
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“It is now clear that as a result of this ubiquitous environment and the sheer volume of their interaction with it, today’s students think and process information fundamentally differently from their predecessors.” Marc Prensky, 2001
“Different kinds of experiences lead to different brain structures.” – Dr. Bruce D. Perry, Baylor College of Medicine

• Imaging studies show
  – Blind people light up visual areas of the brain when they learn Braille.
  – Deaf people light up auditory cortex to read sign language.

• Tokyo Denki University
  – fMRI scanning of DN volunteers viewing emoticons :) activated Right Inferior Frontal Gyrus (RIFG) – nonverbal communication. Typically language is processed in Broca’s area (LIFG).

• Bookheimer and Moody, UCLA with fMRI, “savvy” vs “naïve”
  – Reading activated the same location
  – Google Search
    • Savvy – left dorsolateral prefrontal cortex
    • Naïve – minimal to no activation
Eye Pattern “F”

Digital Native

Digital Immigrant

http://www.youtube.com/watch?v=ilq9qeyVjT0&feature=player_detailpage
Digital Immigrant

• Anyone **born before 1980-2**
• Not born into the digital world, but later in life adopted many or most aspects of new technology.
• Can speak the digital language but always retain their “accent”.
  – Printing out an email
  – Calling someone to see if the received an email or text
  – Printing out a document to edit rather than editing on the screen
  – Bring people into your office to see a screen rather than sending the URL

• A language learned later in life goes into a different part of the brain.
• “It’s very serious, because the single biggest problem facing education today is that our Digital Immigrant instructor, are struggling to teach a population that speaks an entirely new language.” — Marc Prensky, 2001
• Digital Immigrants appear to have little appreciation for the NEW skills the Digital Natives have perfected and practiced throughout the years.
• Average person > 53 years old have spent less than 5 years online. -PEW
Generation — Mannheimian theory

• The relationship between biology and the social
• The nature of time
• The relationship between biography and history
• Between personal and social change
• The mechanisms of social change
• Socio-psychological connections of language and knowledge
# Generational Differences

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>GI Generation</th>
<th>Silent Generation (aka “Traditionalist”)</th>
<th>Baby Boomers (aka “Boomers”)</th>
<th>Generation X (aka “Gen X”)</th>
<th>Millennials (aka Gen Y”, “Net-Gen” and “Nexters”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age*</td>
<td>&gt;88</td>
<td>71-88</td>
<td>53-70</td>
<td>32-52</td>
<td>8-31</td>
</tr>
<tr>
<td>Defining events and trends</td>
<td>Patriotism, Great Depression, New Deal, WWII</td>
<td>Post-WWI recovery and prosperity, Cold War</td>
<td>Prosperity, a TV in every home, Vietnam War, civil rights movement, assassinations</td>
<td>Women’s rights, PCs, AIDS, latchkey kids, single-parent families</td>
<td>9/11 and terrorism, patriotism, multiculturalism, Internet</td>
</tr>
<tr>
<td>General qualities of member of the generation</td>
<td>Loyal, stable, hard-working, detail-oriented, used to hierarchical authority</td>
<td>“Company Man”, loyal to employers, reluctant to buck the system</td>
<td>Service-oriented, driven, self-centered, judgmental of differing views</td>
<td>Adaptable, independent, techno-literate, un-intimidated by authority, impatient, disaffected</td>
<td>Optimistic, community-oriented, multitasker, techno-savvy, needs structure and supervision</td>
</tr>
<tr>
<td>Generational archetype</td>
<td>Artists (Quite youth, consensus-building leadership)</td>
<td>Prophets (Coming-of-age passion, vision, values)</td>
<td>Nomads (Hell-raising youth, practical midlife leadership; survival)</td>
<td>Heroes, (Collective coming-of-age triumphs, community spirit)</td>
<td></td>
</tr>
</tbody>
</table>

*Numbers update for presentation, not actual article data*
Your Millennial score is 39!
The higher your score, the more you have in common with members of the Millennial generation.
Differences in motives between Millennial and Generation X medical Students

Nicole J Borges, R Stephen Manual, Carol L Elam and Bonnie J Jones
MEDICAL EDUCATION, 2010; 44: 570-576

- 426 medical students (97% response rate)
- Gen X = 229, matriculated 1995 & 1996
- Millennials = 197, matriculated 2003 & 2004
- Wrote a story after being shown two Thematic Appreciation Test (TAT) cards.
- Stories scored for different aspects of motives: Achievement, Affiliation, and Power
- Conclusion:
  - Gen X scored higher on motive of Power
  - Millennials scored higher on motives of Achievement and Affiliation.
Borrero et al 2008
University of Pittsburgh

• Study of residents (average age 28) and faculty (average age 42) responding to 16 vignettes depicting lapses in professional behavior in physicians
• Rated scenarios as not a problem, minor, moderate, or severe problem
• For all vignettes, wide variation in responses within each age group as to the severity of the lapse
• For only two vignettes, significant differences between groups:
  – Abuse of power by resident over intern – residents say worse
  – Resident signs out of potentially emergent patient situation to cross-cover without full alert to seriousness – faculty say worse
2008 Generational Attitudes Survey Results of AAMC GSA/OSR groups:

• Survey sent to listservs for student affairs deans and medical student representatives to OSR from all US schools
  – 466 responses from four generations (50% response rate)
    – 16 = silent
    – 138 = boomer
    – 96 = Gen X
    – 212 = Millennial
• Silent and Boomer groups are faculty
• Gen X and Millennials almost all students
During my medical school education, I attended lectures:

- All of the time
- Most of the time
- Some of the time
- Rarely or when required

![Bar chart showing attendance frequency for different generations.](chart.png)
When I didn’t attend a learning event, I felt:

- Fine, it’s my choice
- Ok, but may have missed something
- Guilty or afraid

Categories:
- Silent
- Boom
- Gen X
- Millennial
What should determine whether or not laptops can be used in class?

---

**Graph:**

- **Presenter preference**
- **Class content requires**
- **Presence of patient**
- **Should always be allowed**

**Categories:**

- Silent
- Boom
- Gen X
- Millennial

**Legend:**

**raw data**

**Knowledge and Compassion Focused on You**

**MedStar National Rehabilitation Network**
I tend to respect a person MOST highly based on:

- **Great values is a “good” person**
- **Personal value to me as a teacher, etc.**
- **Professional accomplishments**
- **High rank or title**

Silent Boom Gen X Millennial
I see being a physician as:

- A calling that directs life decisions
- A way to contribute to the world
- A type of employment
- Start of my career, other endeavors

Silent - MDs
Boom - MDs
Gen X
Millennial
How can the Millennials help us transform medicine?

“The reality is that, increasingly, the world around us is focused less on the achievements of individual experts, and more on collaboration between individuals and groups to solve complex problems ………

Our culture code needs to be…collaborative, transparent, outcomes-focused, mutually accountable, team-based, service-oriented and patient-centered.”

Darrell Kirch, M.D.
President and CEO
AAMC President’s Address
November, 2007
homo sapiens digitalensis
Internet adoption over time

The percentage of American adults who use the internet, 1995-2010
## USA Internet Users’ Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Adults</td>
<td>81%</td>
</tr>
<tr>
<td>Men</td>
<td>81%</td>
</tr>
<tr>
<td>Women</td>
<td>81%</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>83%</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>74%</td>
</tr>
<tr>
<td>Hispanic (English-speaking)</td>
<td>73%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>95%</td>
</tr>
<tr>
<td>30-49</td>
<td>89%</td>
</tr>
<tr>
<td>50-64</td>
<td>77%</td>
</tr>
<tr>
<td>65+</td>
<td>52%</td>
</tr>
</tbody>
</table>

Source: The Pew Internet Summer Tracking Survey, August 7 – September 6, 2012. N= 3,014 adults age 18+. Interviews were conducted in English. Margin of error is ± 2%
<table>
<thead>
<tr>
<th>Household Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $30,000/yr</td>
<td>68%</td>
</tr>
<tr>
<td>$30,000 - $49,000</td>
<td>86%</td>
</tr>
<tr>
<td>$50,000 - $74,999</td>
<td>95%</td>
</tr>
<tr>
<td>$75,000+</td>
<td>97%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education attainment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School</td>
<td>47%</td>
</tr>
<tr>
<td>High School</td>
<td>72%</td>
</tr>
<tr>
<td>Some College</td>
<td>90%</td>
</tr>
<tr>
<td>College+</td>
<td>96%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community type*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>81%</td>
</tr>
<tr>
<td>Suburban</td>
<td>82%</td>
</tr>
<tr>
<td>Rural</td>
<td>67%</td>
</tr>
</tbody>
</table>

Source: Same as previous slide. *The Pew Research Center’s Internet & American Life Project, April 29-May 30, 2010. N= 2,252 adults, 18 and old, including 744 cell phone interviews. Interviews were conducted in English. Margin of error is ± 2%
This picture is of an 11-year-old girl, who is sitting on a bolt of cloth patiently waiting while her mother bargains for fabric. In her hand is a palm-sized wireless device she’s using to surf the Web.
Internet

World Internet Penetration Rates by Geographic Regions - 2011

- North America: 78.3%
- Oceania / Australia: 60.1%
- Europe: 58.3%
- Latin America / Caribbean: 37.0%
- Middle East: 31.7%
- World, Avg.: 36.2%
- Asia: 23.8%
- Africa: 11.4%

Internet Users in the World Distribution by World Regions - 2011

- Asia: 44.0%
- Europe: 22.7%
- North America: 13.0%
- Lat Am / Caribb: 10.3%
- Africa: 5.7%
- Middle East: 3.3%
- Oceania / Australia: 1.0%

Source: Internet World Stats - www.internetworldstats.com/stats.htm
Penetration Rates are based on a world population of 6,930,055,154 and 2,095,006,005 estimated Internet users on March 31, 2011.
Copyright © 2011, Miniwatts Marketing Group
# Social Network

## Social Networking Users

<table>
<thead>
<tr>
<th>% of adults who use social networking sites</th>
<th>Feb/Mar 2005*</th>
<th>Aug 2006*</th>
<th>Nov/Dec 2008*</th>
<th>Jan 2010**</th>
<th>05-10 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>5</td>
<td>11</td>
<td>27</td>
<td>41</td>
<td>+36</td>
</tr>
<tr>
<td>Millennial</td>
<td>7</td>
<td>51</td>
<td>71</td>
<td>75</td>
<td>+68</td>
</tr>
<tr>
<td>Gen X</td>
<td>7</td>
<td>10</td>
<td>38</td>
<td>50</td>
<td>+43</td>
</tr>
<tr>
<td>Boomer</td>
<td>5</td>
<td>4</td>
<td>13</td>
<td>30</td>
<td>+25</td>
</tr>
<tr>
<td>Silent</td>
<td>2</td>
<td>*</td>
<td>2</td>
<td>6</td>
<td>+4</td>
</tr>
</tbody>
</table>

*Data from surveys conducted by the Pew Research Center’s Internet & American Life Project. Question wording varied from 2005 to 2008. The 2005 item was worded “Use online social or professional networking sites like Friendster or LinkedIn.” The 2006 item was worded “Use an online social networking site like MySpace, Facebook or Friendster.” The 2008 item was worded “Use a social networking site like MySpace, Facebook or LinkedIn.com.”

**Question wording: Have you ever created your own profile on any social networking site?

## Do You Have a Profile on a Social Networking Site?

<table>
<thead>
<tr>
<th>% saying “yes”</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
</tr>
<tr>
<td>Millennial (18-29)</td>
</tr>
<tr>
<td>Gen X (30-45)</td>
</tr>
<tr>
<td>Boomer (46-64)</td>
</tr>
<tr>
<td>Silent (65+)</td>
</tr>
</tbody>
</table>

All: 41
Millennial: 75
Gen X: 50
Boomer: 30
Silent: 6

*PewResearchCenter*
Facebook

192,968,260 FB Growth from 2010-2011

October 4, 2012 – 1 billion
Simulated map of Facebook Friends Connections

Learning Styles of the Digital Native
Digital Natives prefer receiving information quickly and from multiple sources that is considered by them, relevant, active and instantly useful. Gather information through a multistep process that involves grazing, a "deep dive," and a feedback loop.

- **Graze** all day on RSS news feeds on Facebook, wiki, twitter, favorite websites and blogs.
  - The news finds them, they don’t need look for it.
  - Important feature of grazing is context speed, accessibility and how well it is sorted.
    - Collaborative Referencing
    - Availability Just-in-time usually cell phones that or mobile devices
  - 83% of all teenagers sleep with cell phone next to their beds – PEW 2010

- Once determined relevant and easy to process they will **dive deep** into the trail it leads them
  - Hyperlinks
  - Download Videos, podcast, etc.

- **Feedback loop**
  - Digital Natives want to “talk back” to information
    - Blogs, video blogs, micro blogs

- Digital Immigrants usually prefer a slow and controlled release of information from limited sources.
Digital Natives multitask with parallel processing.

• 2005 KFF –approximately 1/3 of young people report “most of the time” while doing homework
  – talk on cell phone
  – instant Messaging
  – watch TV
  – listen to music
  – surf web “for fun”

• 2006 Los Angeles Times/Bloomberg poll – 1,650 teenagers while doing homework
  – 84% - listened to music
  – 47% watched TV
  – 21% 3 or more task at once
Multitasking while online

- Listen to radio while online
- Watch TV while online
- Talk on phone while online
- Visit a site mentioned by someone on the phone
- Send IM to person you're talking to
- Visit website seen on TV
- Visit website heard on radio

Base: Kids 13-17

Grunwald, 2004
Hasn’t multitasking been around for a while?
Digital Natives multitask with parallel processing.

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• “continuous partial attention”
Digital Natives prefer graphics, (pictures, sounds, color, and video) over text.

- Study have show young people choose websites based on personal preferences for graphics, color, design.
  - 5th graders ignored websites with more than one or two pages of text.

- Study by Briggs from UK: web surfers looking for information on health spent ≤ 2 seconds on any particular website before moving on to the next website.
Digital Natives are connected globally, 24/7.

- Internet allows worldwide connections

- “The availability of just-in-time, highly relevant information, often accessed on cell phones and Sidekicks (or for professionals, BlackBerries), which are located on our bodies at all times, has also become crucial for economic survival in a modern society.” — Palfrey & Gasser, Born Digital, pg 190

- US kids spend twice as much time online than estimated by parents

- 83% of all US teenagers sleep with their cell phone next to their beds — PEW 2010
Where do you place your mobile device while sleeping at night?

- 68% next to my bed
- 16% in the bedroom
- 13% in a different room from where I sleep
- 2% other/varies
- 1% in the car

Source: http://techland.time.com/2012/08/16/your-life-is-fully-mobile/
Digital Natives prefer random access to hyperlinked multimedia.

Digital Immigrant Educators prefer linear, logical and sequential formats.
Digital Natives prefer to start with group collaborations

- Educators prefer student to work independently before they network and interact.
- **WEB 2.0** - Content not delivered to learners but co-constructed with them.
Digital Natives prefer instant customized gratification.

- Internet shopping has provided a greater array of product and services.
- They believe that abundance is their birthright.
  - The Long Tail phenomena by Chris Anderson
    - Infinite inventory not just best sellers with cheap distribution
    - Consumers tend to distribute as widely as the choices
- Digital products are easily personalized.
  - Example, Digital Native have more customized cell phone ring tones than adults.
Overload

http://www.xerox.com/information-overload/enus.html

Knowledge and Compassion Focused on You
Overload

• Brain can hold 5-9 (7± 2) items in Short-Term Memory
  – STM last 20 – 30 seconds
  – New Information/Feedback/Stimulus every 7 seconds

• For information to be relevant, important and useful, it needs to be processed

• Simpler, smaller messages or ending active participation
  – Information IN is inversely proportional to Information Out. — Jones et al. Information Overload and the Message Dynamics of Online Interaction Spaces: A Theoretical Model and Empirical Exploration, Information System Research 15, no. 2 (June 2004); 194-210
  – The compensatory mechanism is to avoid processing information
    • “Behavioral economics” – seen in:
      – 401(k)
      – Medicare Part- D
    – Run the risk of narrow focus or viewpoints and suboptimal decision making

• ADHD may not be a true diagnostic disorder, but rather delayed development of the frontal lobes or the brain’s adaptation

• The compensatory mechanism Tweets, Wall Post
  • Now some universities have STOPPED issuing email

Knowledge and Compassion Focused on You
Overload

• Physiological stress of digital overload:
  • increased heart rate
  • increased cortisol and adrenaline levels
  • Migraines
  • retarded reading skills
  • reduced attention spans
  • Restlessness

• Psychological effects:
  • Stress
  • Anxiety
  • Depression
  • low motivation
  • Panic

• 2007 Poll showed 8.5% of youth gamers in the US could be classified as “pathologically addicted” to playing video games.

• 2008 iBrain, by Small & Vorgan—“An estimated 20% of this younger generation meets the clinical criteria for pathological Internet use.”
2006: 12 y/o male admitted to the first inpatient treatment program for computer addicts in London.

Young Person Technology Addiction

Dr Richard Graham, lead Young Person's Technology Addiction Consultant at Capio states 'Mental health services need to adapt quickly to the changing worlds that young people inhabit, and understand just how seriously their lives can be impaired by unregulated time online, on-screen or in-game'.

In response to this we have launched the first Young Person Technology Addiction Service.

The programmes are individually tailored to the needs of the young person and vary from intensive in-patient care, through day care to group and individual therapy. The underlying principles are to increase off-screen social activities, and strategies to deal with online problems, especially the different forms of cyber-bullying.

The three core elements to this service are:

1. Interpersonal Therapy: given the emphasis on interpersonal Sensitivity, and how this relates to discomfort in face-to-face time with others, which may precede or follow Technology Addiction.

2. Tech. Hygiene: in which the user explores with others the meaning of their relationship to technology; whether a phone, a game or social media platform such as Facebook. This group is supported by other therapies including Sleep and Energy, Relaxation and CBT, and will

12 step programs are now available
The Great Debate

  - Kvavik, Caruso & Morgan 2004 – showed that a significant proportion of students had lower level skill than might be expected of digital natives.
  - Kennedy et al 2006 – showed emerging technologies were not commonly used and identified potential difference.
  - Downes 2002 – family dynamics and level of domestic affluence to be significant factor influencing children’s home computer use.

  - Not a generation but an elite
  - In South Africa there are groups of students who do not exist in the prevailing millennial discussion.

  - Green and Hannon 2007 – different user types with their own particular expertise
  - Growing body of evidence refutes the simple notion of the ‘digital native’ and highlights the complexities of young people’s technology experience
  - “It is, we have argued, time to move beyond the ‘digital natives’ debate as it currently stands, and toward a more sophisticated, rational debate that can enable us to provide the education that you people deserve.”
Born Digital – John Palfrey and Urs Gasser, 2010

• "We don't need to overhaul education to teach kids who are born digital.

• There is a temptation among those who love technology to promote radical changes in the way we teach our students. … That instinct is wrong.

• Learning will always have certain enduring qualities that have little or nothing to do with technology"
“Shift Happens”

Shifts in Edtech

Individual growth

Group growth

Programming / drill and practice
Computer based training (CBT) with multimedia
Internet-based training (IBT)
e-Learning
Social software + free and open content

Objectivism

Cognitivism

Constructivism

Social Learning

1975
1980
1985
1990
1995
2000
2005

Harnessing the Power of Social Networks in Teaching & Learning; Alec Couros, PhD
June 5, 2009, University of Delaware

Knowledge and Compassion Focused on You
Transform your teaching practice

Take traditional pedagogy to web 2.0

Knowledge and Compassion Focused on You
Learning is increasingly **LESS** about this...

![Diagram of Typical Teacher Network](http://www.flickr.com/photos/courosa/344832659/in/set-72157615129270288/)

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**Knowledge and Compassion** **Focused on You**

... and increasingly MORE about this
Rethinking Education – Michael Wesch 2011
EDUCUASE: The Tower and The Clock Higher Education in the Age of Cloud Computing – Richard Katz
Thank You!

Questions?