Teachers, technology, and students: Thinking outside of the triangle

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The teaching triangle

Teachers

Technology  Students

Technology → Teachers → Students

Technology ← Teachers ← Students
Teaching “outside the triangle”

Teachers

Technology

Students
The rise of the ‘Net Generation’

- Children of “Baby Boomers” and those younger are a unique generation growing up in a digital world (Don Tapscott, 1997)

- The Generation Lap…

Source:
"Growing Up Digital: The Rise of the Net Generation"
Don Tapscott, McGraw-Hill, 1997
Digital Natives vs. Digital Immigrants

- *Digital Natives* do not know a world without the web and digital technology vs. *Digital Immigrants* (Marc Prensky, 2006)

- Things they do differently: communicate, share, buy and sell, exchange, create, meet, coordinate, evaluate, play games, learn, evolve, search, analyze, report, program digital devices, socialize, and grow up.

- They are connected and action-oriented. But remember—they are still “kids”
Media exposure

By age 21, the Digital Natives will have spent:

- 20,000 hours TV
- 12,000 hours email
- 10,000 hours video games
- 10,000 hours cell phone
- Under 5,000 hours reading

– Prensky in Oblinger
Digital Natives and learning

- Digital natives may actually *think differently* due to **neuroplasticity**

- i.e. the **brain changes** and “rewires” itself differently based on the inputs it receives throughout life

- Changes can occur in as short a time as 5-10 weeks with sharply focused attention (eg 100 min/da, 5 da/wk)

- Therefore…
Need for re-thinking teaching and learning

Today’s students are no longer the people our educational system was designed to teach (Prensky, 2006)
Students (Digital Natives)
prefer

- Engagement First
- Gameplay
- Frequent Decisions
- Multiple Data Streams
- Online
- Iterative

Teachers/ Curriculum Designers (Digital Immigrants) are used to

- Content First
- Presentation
- Few Decisions
- One Thing at a Time
- In Person
- Once-and-done

ENGAGEMENT

from Marc Prensky (2006)
“ENGAGE ME or ENRAGE ME”

from Marc Prensky (2006)
Technology
Web 2.0
(Social, Read/write, Participatory Web)

Technologies
- Blogs
- Wikis
- Podcasts

Websites
- **Flickr**: photo sharing
- **YouTube, Metacafe**: video sharing
- **MySpace, Facebook**: social community
- **del.icio.us**: bookmark sharing
- **Wikipedia**: public domain encyclopedia
- (Google Docs and Spreadsheets)
We are thankful!

Wednesday, November 15, 2006 at 10:50:15 AM

I am thankful that I am a nice girl to all my friends. Emily C.

I am thankful for my mom and my dad and my dog and my brother. Cassidy

I am thankful for my family and my friends, and all of the people who fought in a war. Logan

I am thankful for my mom and dad and kittens! Lincoln

I am thankful for my dog and God. Mason

I am thankful for having best friends. Malachi

I am thankful for my mom, dad, sisters, dogs, and house. Sophie

I am thankful for my friends and family. Araphat
About Our School

Arbor Heights is an elementary school (k-5) in the Seattle Public School District. We have approximately 300 students. Arbor Heights is located in an area of Seattle called West Seattle - just a short distance away from beautiful Puget Sound.

Arbor Heights has several staff trained as bilingual teachers who serve our diverse ethnic population, offering service to Spanish-speaking and Asian students.

At our school there is a full-time Speech-Language Pathologist (Speech Therapist). She serves children who show a variety of oral communication difficulties in articulation (speech production), language understanding and expression, language-related social skills, voice and/or stuttering (fluency). Some students are worked with in the "speech room" while others are seen in their classrooms. She welcomes any questions parents may have about their children's oral communication skills.

Our school is also a partner with the Macy's - the retail store. Pen pal exchanges with employees encourage writing skills and promote positive relationships with caring adults from our community. Macy's also helped finance the expansion of our computer network.

In June each student at Arbor Heights publishes a book and shares this with other students and adults in an event called the Young Authors' Conference. We also have our own student newspaper published each month, available online at this web site. Mr. Ahness also encourages his class to blog and podcast.

The parents at our school are a very active and integral part of the education process at Arbor Heights. The PTSA is a well organized group which benefits the school with proceeds from numerous fund-raisers. Parent volunteers are plentiful, and their contributions include tutoring, fund raising, driving on field trips, grounds maintenance/beautification projects, and more.
Podcasts
Tower

Comments

Alyssa Lake says:

I really like this picture. You can tell the creator put a lot of time in it because most of the images don't look like they came from the same image and there is much copying and pasting of human bodies. The foreground picture of the girl in the white dress gives the picture more emotion and depth due to her expression and hand gesture. All in all, I really dig the angle of the tower. It gives the picture itself some kind of crookedness that one wouldn't normally get if they just threw themselves into a picture. Cudos.

Posted 15 months ago. (permalink)
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Showing all documents or spreadsheets. Looking for just the latest ones? [Show active]
Richardson’s 10 “Big Shifts”

1. Open content
2. Many teachers
3. Collaborative construction of knowledge
4. Teaching as conversation, not lecture
5. Students need to learn where to find information
6. Readers need to filter information
7. Web becomes a notebook
8. Communication no longer just text
9. Products demonstrate mastery
10. Contribution becomes the ultimate goal

Games and Learning

- Games are about challenge, complexity, and engagement

- “Kids play games NOT because they are games, but because they’re the most engaging intellectual thing they have” (Prensky, 2006)

- They are about 21st century learning...
Game Training
For Laparoscopic Surgery

Dr. James Rosser, Beth Israel Hospital NYC
Video game designed to boost safety on oil rigs

Simulynx
Teaching about world hunger

United Nations Food Force
Solve Israel-Palestine Conflict!

Peacemakergame.com
Virtual Worlds: Second Life

San Diego State University EDTEC VIRTUAL CAMPUS

Ronald Sinatra
What People Learn from Games

To cooperate, collaborate & work in teams, i.e. to work effectively with others

To make effective decisions under stress

To take prudent risks in pursuit of objectives

To make ethical and moral decisions

To employ scientific deduction

To quickly master & apply new skills and information

To think laterally and strategically

To persist and solve difficult problems

To understand and deal with foreign environments and cultures

To manage business and people

from Marc Prensky, 2006
The Challenge…

- How to make classroom learning as engaging and motivating as games?

“Whenever I go to school I have to ‘power down’”
– a high school student

“A lot of teachers think they make a PowerPoint and they’re so awesome!”
-- a (female) high school junior

“I don’t want to study Rome in high school. … I build Rome every day in my online game (Caesar III).”
– Colin, Age 16

from Marc Prensky, 2006
What Digital Natives are doing online for entertainment is happening now in business

- Four principles—openness, peering, sharing, and acting globally—increasingly define how 21st century corporations compete

- Companies such as Boeing, BMW, and Procter & Gamble are leading the way
Teachers
“Teaching outside the triangle” will occur through teacher professional development, if done right!

- **First wave (largely ineffective):** beginning in 1960s
  - the focus was on generic teaching skills e.g. grouping, providing clear classroom demonstrations
  - One shot workshops

- **Second wave (more effective):** beginning in 1990s
  - research began to show that PD can affect classroom practices and lead to improved student achievement when structured in certain ways
  - On the job over extended time
What is "Teacher Professional Development"?

- Those processes and activities designed to enhance the professional knowledge, skills, and attitudes of teachers, so that they can improve student learning.
Importance of Teacher Qualifications

Influence of Teacher Qualifications & Student Achievement

From Darling-Hammond, 1998
Improvement in achievement for every $500 spent

source Darling-Hammond, 1998
Principles for the Design of PD Experiences for Teachers
1. Make sure that PD focuses on the subject matter teachers will be teaching

- General information about instructional strategies (e.g. cooperative learning) or unrelated content enrichment is **not** effective
- Focus on content students need to learn and problems they might encounter
2. Should be driven by analysis of gap between student goals and performance

- This analysis defines what teachers need to learn
- Teachers can use the analyses to explore usefulness of different teaching strategies
- Makes PD more accountable
3. Involve teachers in decisions about their PD

- Consistent with principles of adult learning
- Increase teacher motivation and commitment to learn
- Decreases cynicism and detachment
4. PD should be “job-embedded”

- Should be part of teacher’s everyday job
- Most powerful learning opportunities are those linked to authentic and immediate problems in the classroom
- Increases teacher motivation and engagement
- Does not deny out-of-school learning too
5. Should relate to individual needs but involve collaboration with other teachers

- Teachers should not be asked to change without support
- Collaborative cultures facilitate school improvement
- Problem solving teams can break down isolation, and create a shared understanding of good practice
6. PD should be continuous and ongoing

- **Not** something done just 3 or 4 times a year
- Significant reform of schools takes time: 3 yrs for primary; 6+ yrs secondary
- Ongoing support is needed for improvements to take hold
7. PD should be evaluated

- Use multiple sources of information
- Must be non-threatening
- Ideally changes in teaching and student learning should be assessed
- Provides feedback on design of future PD
Two York University PD Projects built on these principles

Learningconnections.on.ca

Abelearn.ca
Conclusions/Challenges

In order to “teach outside the triangle”, teachers need to:

- Understand today’s net savvy students and their preferred ways of learning
- Be comfortable using the new tools of the Web as they evolve
- Be continuous learners and integrate the new tools into the curriculum
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