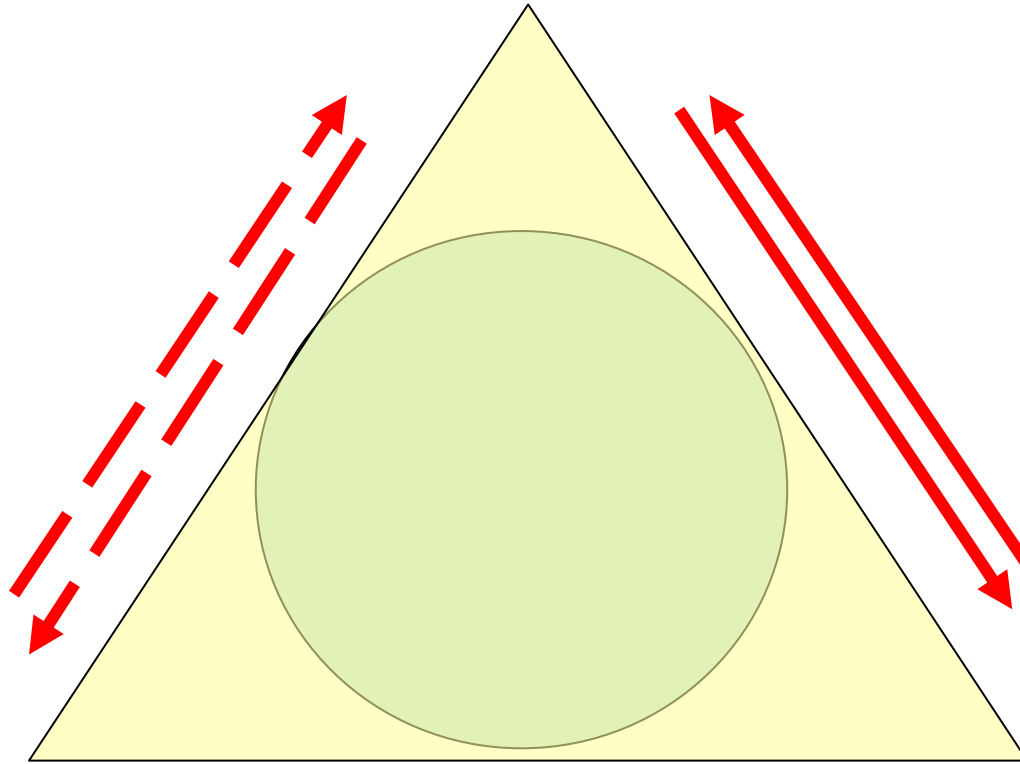


Teachers, technology, and students: Teaching outside of the triangle

Ron Owston, PhD
Institute for Research on Learning Technologies
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The teaching triangle

Teachers

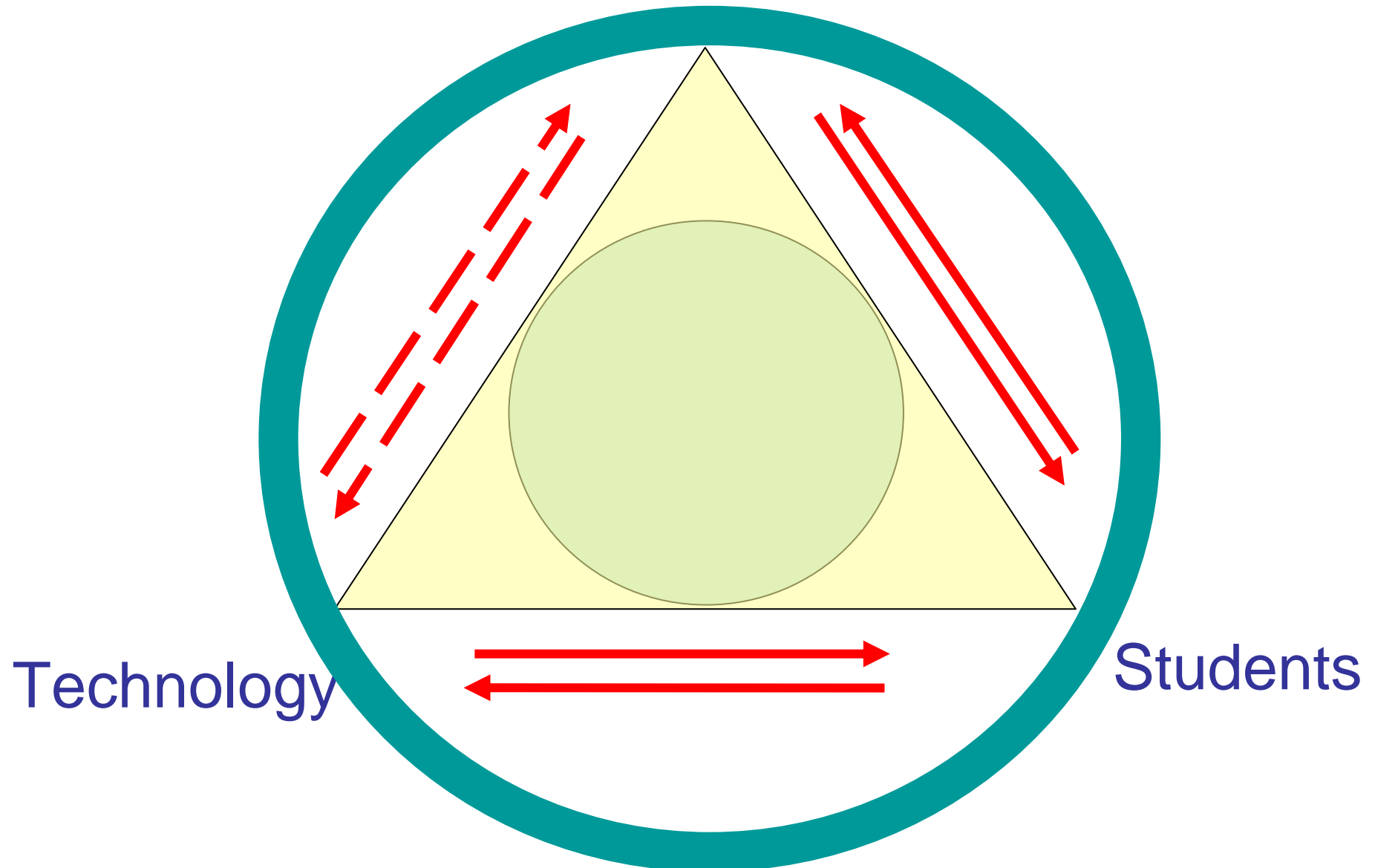


Technology

Students

Teaching “outside the triangle”

Teachers



How do we “teach outside the triangle”?

We need to...

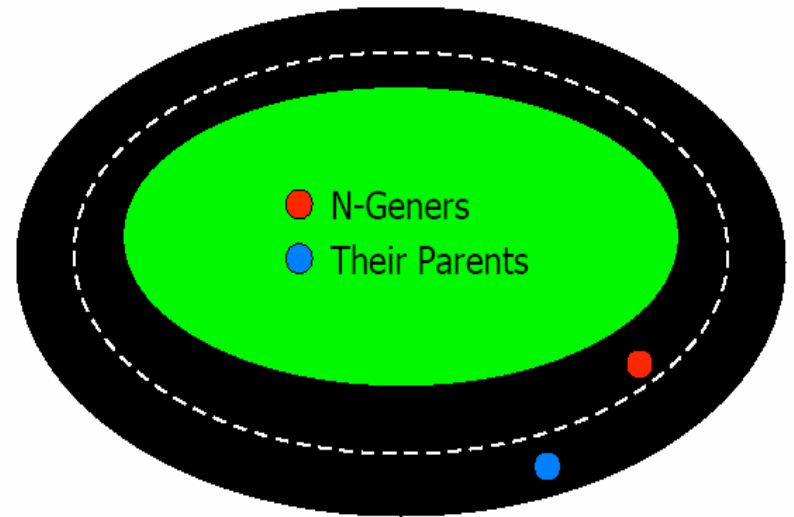
1. Understand today's net savvy **students** and their preferred ways of learning
2. Become comfortable using the new **tools** of the Web as they evolve
3. Be **continuous learners** and integrate the new tools into the curriculum

First, understand our 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

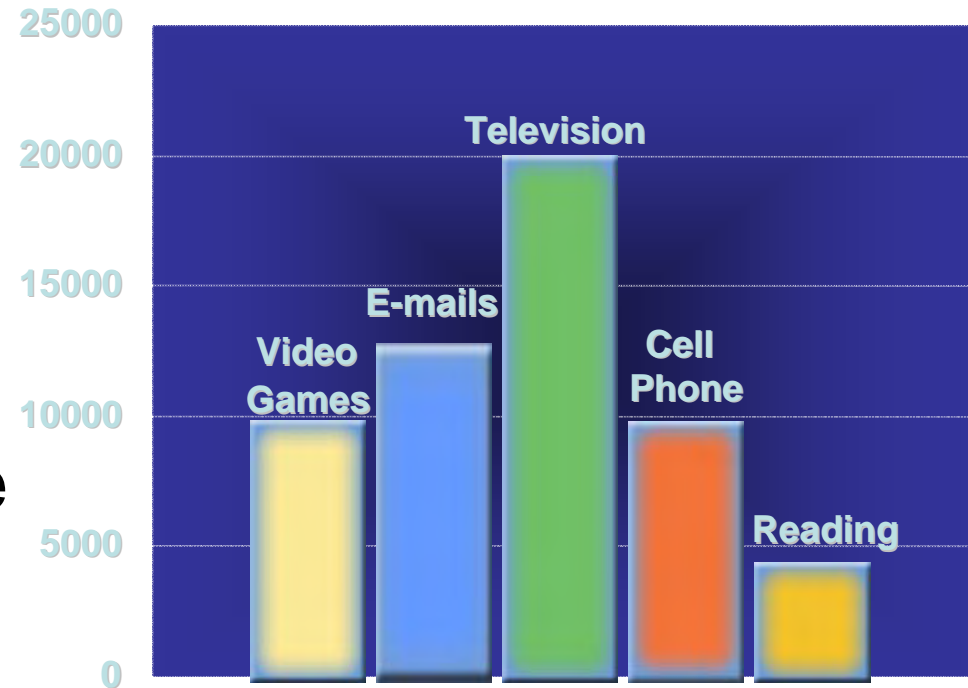
- *Digital Natives* do not know a world without the web and digital technology vs. *Digital Immigrants* (Marc Prensky, 2006)
- Things they do differently: *communicate, share, buy and sell, exchange, create, meet, coordinate, evaluate, play games, learn, evolve, search, analyze, report, program digital devices, socialize, and grow up.*
- They live “media saturated lives spending 6.5 hours/day with media” (Kaiser Foundation, 2005)



Media exposure

By age 21, the Digital Natives will have spent:

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



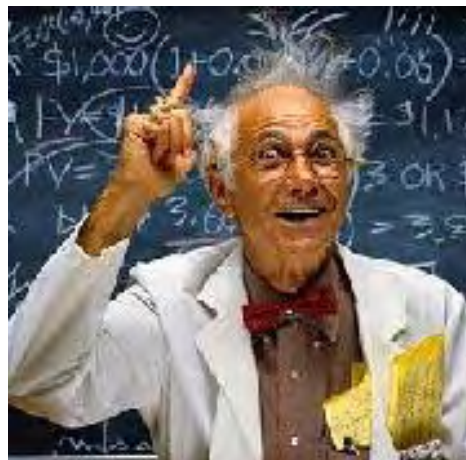
What are the implications of this?

- 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, especially when young
- 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)



Teachers/
Curriculum Designers
(Digital Immigrants)

are used to

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

Students
(Digital Natives)

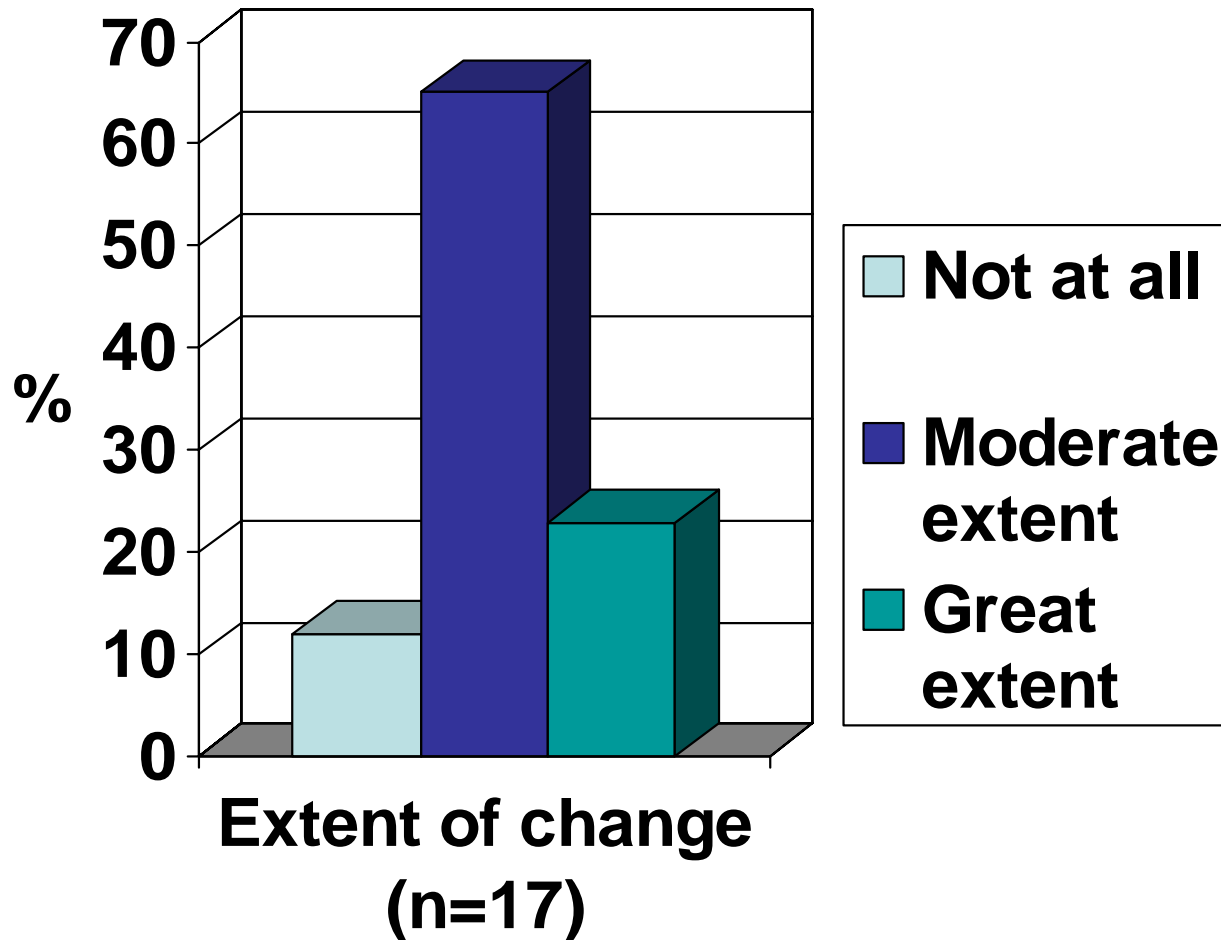
prefer

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



ENGAGEMENT

Survey: students learn differently?



Survey: how are they different?

They're used to using different tools... I'm not sure that's same as learning differently...**not at all sure their brains work any differently**; we're just more aware of the variety of ways kids learn. (M)

They have shorter attention spans and need to be entertained. (M)

Interested in different things - but **do not** really "learn differently" (Not 3-4yrs)

Expect more stimulating environment; instantaneous feedback; being connected; technology is no longer novel, it is a way of life. .. a little **less persistent** to solve a problem on their own. (M)

Second, become comfortable using new technologies



Web 2.0

(Social, Read/write, Participatory Web)

Technologies

- Blogs
- Wikis
- Podcasts

Websites

- [Flickr](#) (23): photo sharing
- [YouTube](#) (6), [Metacafe](#): video sharing
- [MySpace](#) (8), [Facebook](#) (4): social community
- [del.icio.us](#): bookmark sharing
- [Wikipedia](#) (9), *Wikibooks*: public domain content



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

Will Richardson (2006). *Blogs, Wikis, Podcasts and Other Powerful Web Tools for Classrooms*.

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!



Virtual Worlds: (Teen) Second Life



What People Learn from Games

complex



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

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!”

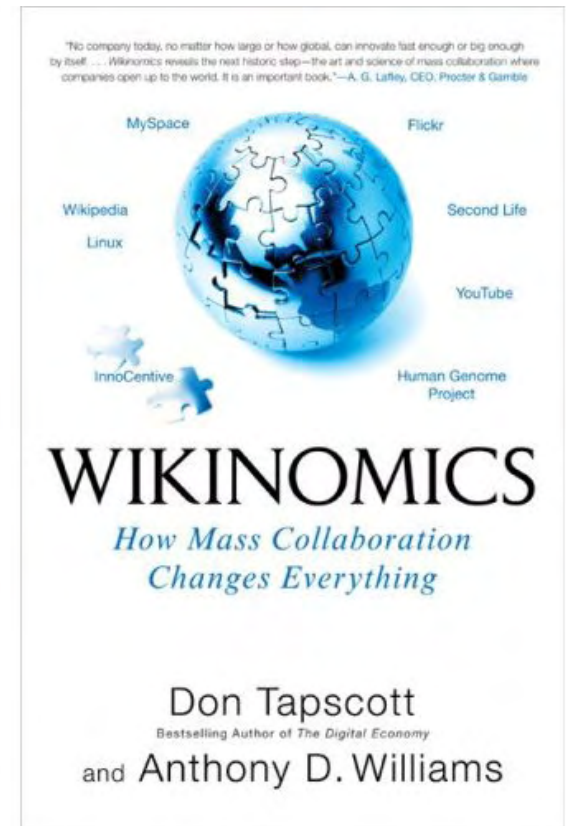
-- a (female) high school junior

“I don’t want to *study* Rome in high school. ... I *build* Rome every day in my online game (Caesar III).”

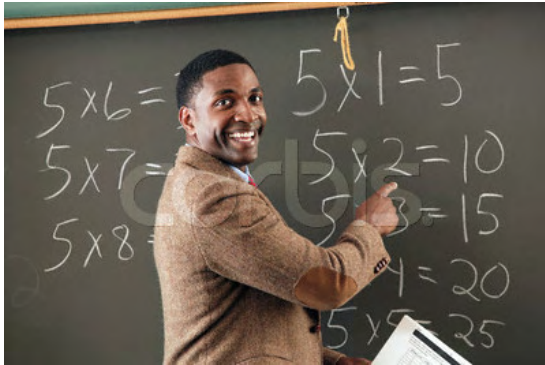
— Colin, Age 16

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



Third, become continuous learners

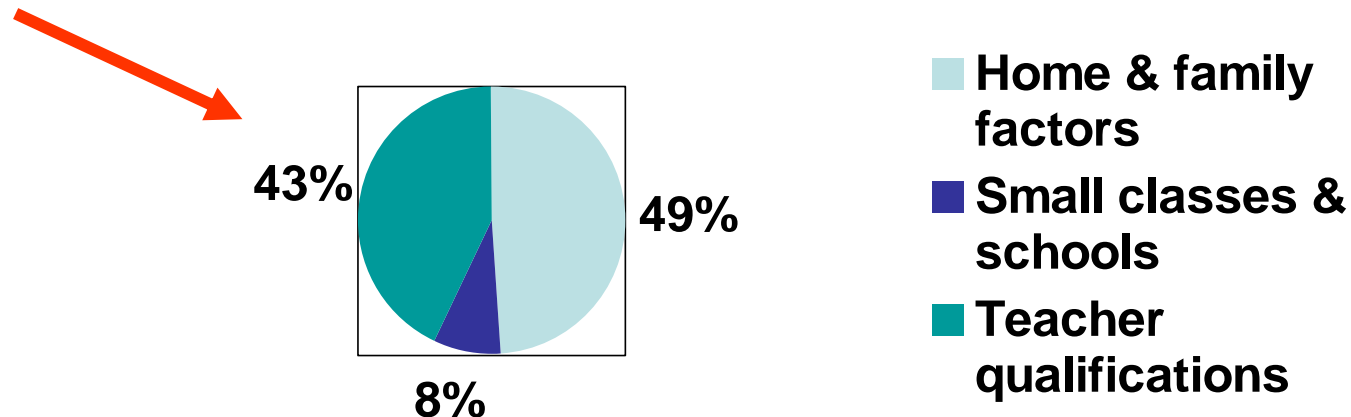


The best staff
development is
in the workplace,
not in a
workshop!



Why is teacher professional development so important?

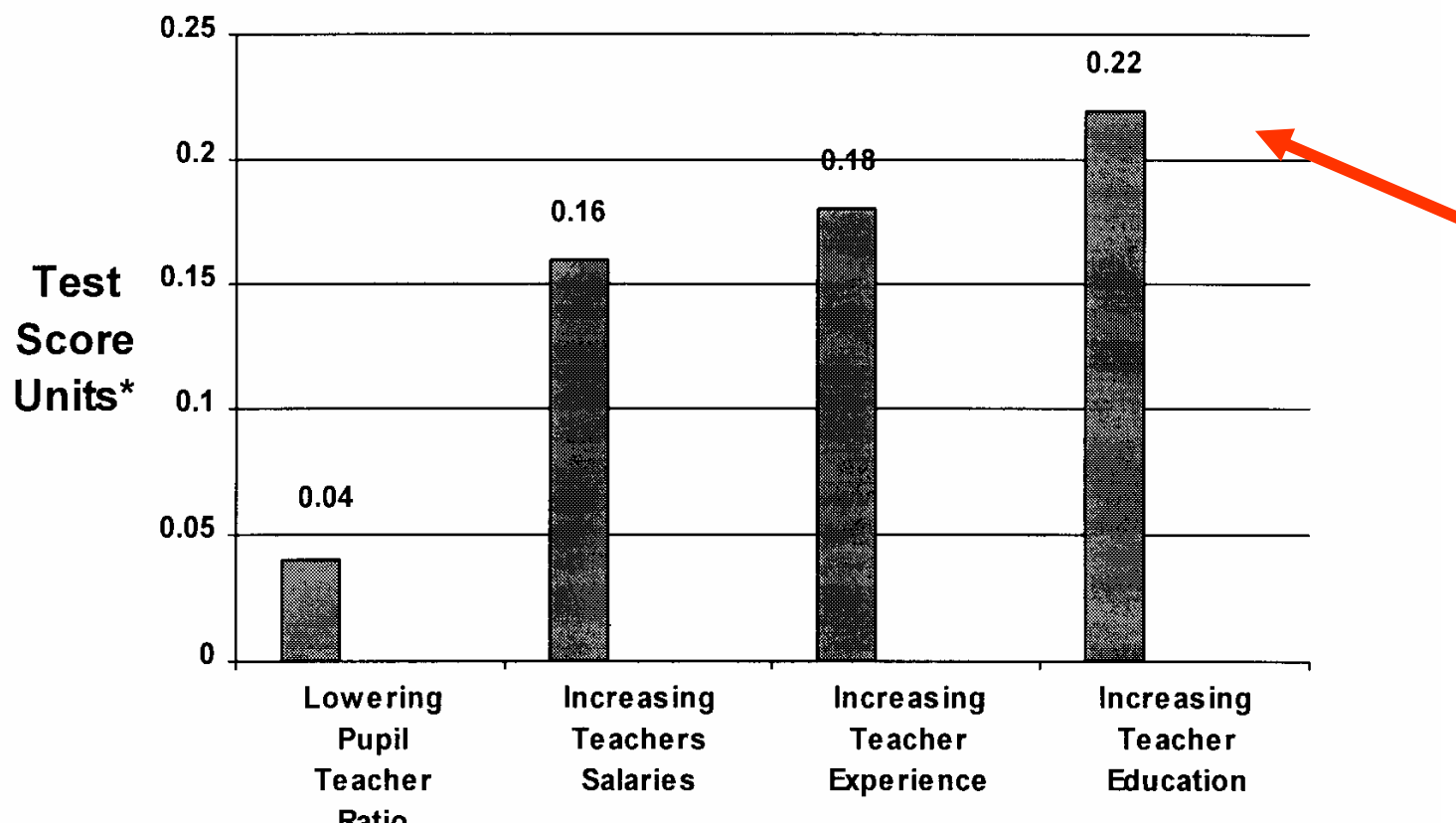
Influence of Teacher Qualifications & Student Achievement



From Darling-Hammond, 1998

It's the best investment a board can make!

Improvement in achievement for every \$500 spent



source Darling-Hammond, 1998

Principles for the Design of PD Experiences for Teachers

- Job embedded, on-going
- Focus on the subject matter teachers will be teaching
- Be driven by analysis of gap between student goals and performance
- Involve teachers in decisions about PD
- Relate to individual needs but involve collaboration with other teachers
- Be evaluated



Two York University PD Projects built on these principles



The screenshot shows the @bel broadband enabled learning website. The header features the @bel logo and the text "broadband enabled learning" and "ADVANCED BROADBAND ENABLED LEARNING". A navigation bar includes links for "About Us", "Resources", "Events/Projects", "Professional Development", "News Room", and "Login". The main content area is divided into three sections: "ABEL SUMMER INSTITUTE" with a description of the theme "Intersections: Where Learner, Literacy and Technology Meet", "INTERSECTIONS: WHERE LEARNER, LITERACY TECHNOLOGY MEET" with a large graphic, and "What's New" with a list of events including the ABEL Summer Institute 2007, March 7: Rainbow Eagle, and Orange Revolution ABEL Curricular Activity.

@bel broadband enabled learning
ADVANCED BROADBAND ENABLED LEARNING

Home | Contact Us | Search

About Us Resources Events/Projects Professional Development News Room Login

ABEL SUMMER INSTITUTE

The theme for this year's **Summer Institute** is "Intersections: Where Learner, Literacy and Technology Meet." This Summer Institute offers a range of informative presentations and hands-on workshops to meet the diverse professional needs of ABEL members and Summer Institute delegates. Currently, the ABEL Program committee is inviting you to present at this year's Institute!

INTERSECTIONS: WHERE LEARNER, LITERACY TECHNOLOGY MEET

What's New

- **ABEL Summer Institute 2007 - Call for papers and more info!**
[Click here for more details.](#)
- **March 7: Rainbow Eagle: An interactive presentation of Native American teachings.**
[Click here for more details.](#)
- **Orange Revolution ABEL Curricular Activity**
[Click here for more details.](#)
- **Connecting with Science: Collaborative opportunities for**

Abelearn.ca

Learningconnections.on.ca



The screenshot shows the Learning Connections website. The header features the Learning Connections logo and the text "LITERACY AND NUMERACY LITTÉRATIE ET NUMÉRATIE". A navigation bar includes links for "Welcome: Guest" and "Login". The main content area is divided into three sections: "Registration" with a description of the registration process and a "Community Registration" button, "Program and Registration" with a description of the Learning Connections Program and a "Need more information about the program? Want to join Learning Connections? click on Welcome to Learning Connections." link, and "Contact Information" with a "Contact Us" button.

Learning Connections
Liens d'apprentissage

LITERACY AND NUMERACY
LITTÉRATIE ET NUMÉRATIE

Welcome: Guest Login

Current Community: Guest Information

Registration

To register for Learning Connections read the materials in the module to the right and if you are eligible and wish to join Learning Connections, click on the Community Registration button below.

Community Registration

Program and Registration

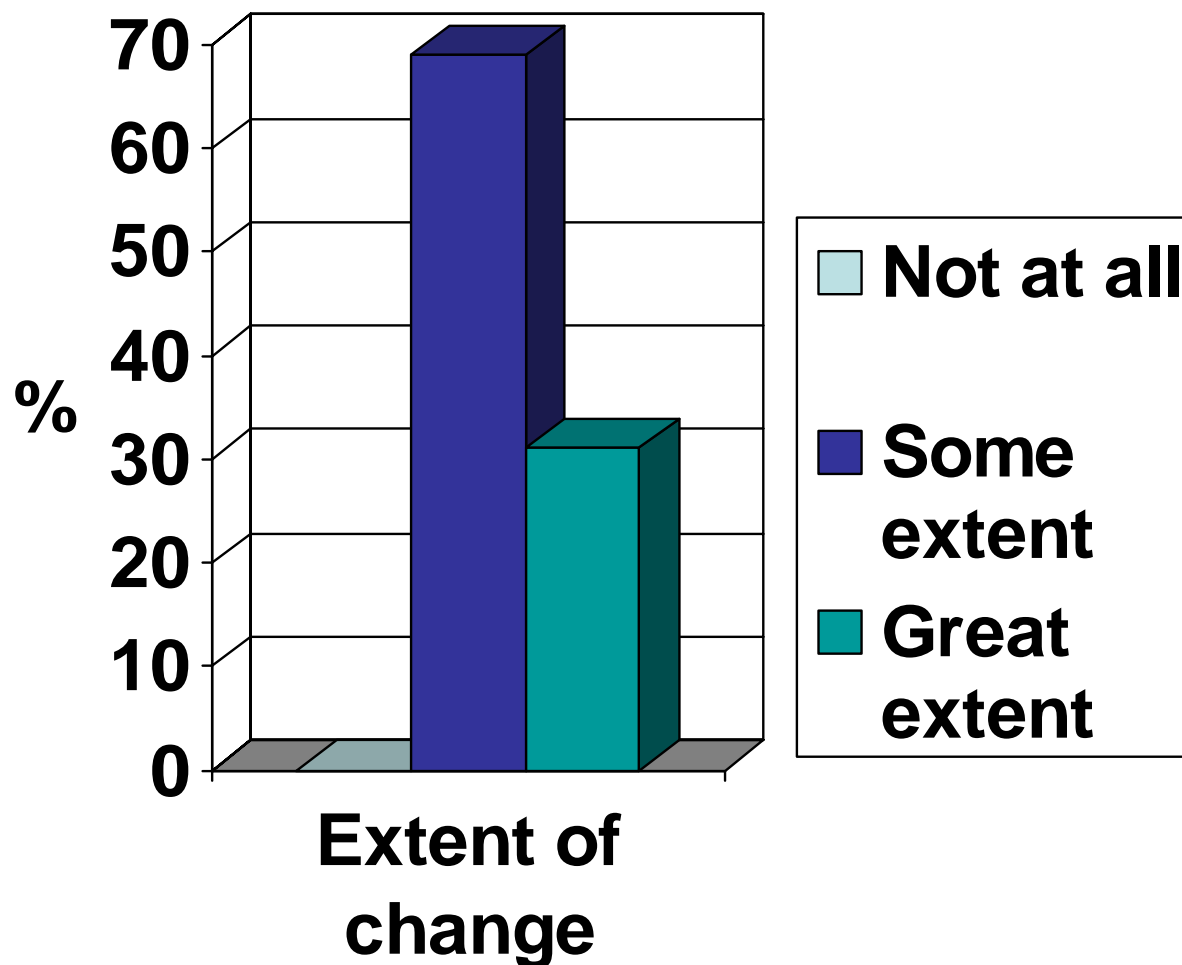
Learning Connections Program Registration

Learning Connections is a job embedded professional learning community open to junior division teachers, principals, vice principals, curriculum staff and supervisory officers in the nine Ontario District School Boards listed below. Its goal is to improve student achievement in literacy and numeracy.

Need more information about the program? Want to join Learning Connections? click on [Welcome to Learning Connections](#).

Contact Information

Survey: have you changed your teaching?



Survey: how have you changed?

I focus more on defining the skills/behaviours students will need...then give them **more control** over how they practice/acquire/demonstrate their learning (M).

Integrate technology; offer **choice** on assignments; use more of a **discovery / investigative** model to have students acquire knowledge needed to solve a problem. (M)

I have introduced **shorter activities**, technology (use a smartboard, computers etc) and have **lower expectations**. (M)

I'm **constantly changing the way I teach**, not so much in response to a generational shift in learning modes, but as to my own growing understanding of the best ways to reach every student. (G 20+yrs)

Conclusions/Challenge

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

What are you going to do now for yourself and/or to help your staff???

Contact Info

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- Institute for Research on Learning Technologies
<http://www.yorku.ca/irlt>
- Homepage:
<http://www.edu.yorku.ca/~rowston>

