Wireless EdTech
CONFERENCE 2011

Education Realities Today: The View from Around the World

Moderator:
Kristin Atkins, Director, Government Affairs, Qualcomm

Panelists:
Carlos Delgado Kloos, Vice-Chancellor for Infrastructures and Environment, Universidad Carlos III de Madrid
Chun Ming Tan, Principal, Nan Chiau Primary School, Singapore
Michael Trucano, Sr. ICT & Education Specialist, Human Development Network, The World Bank

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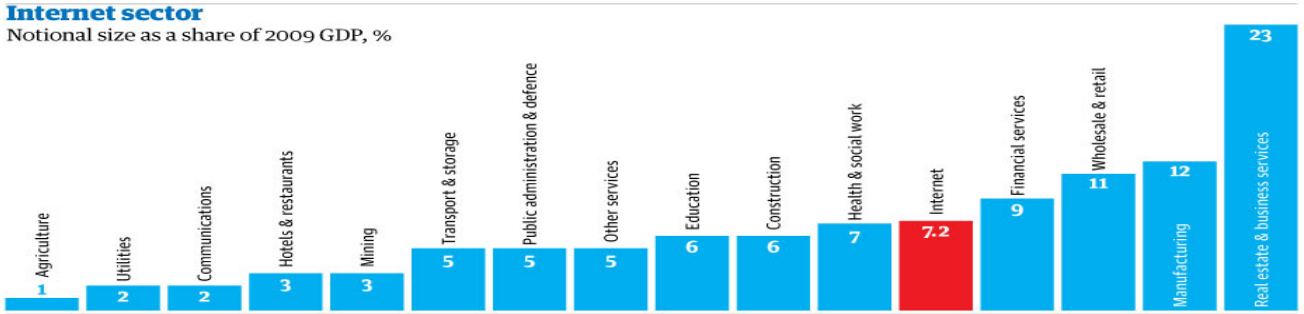
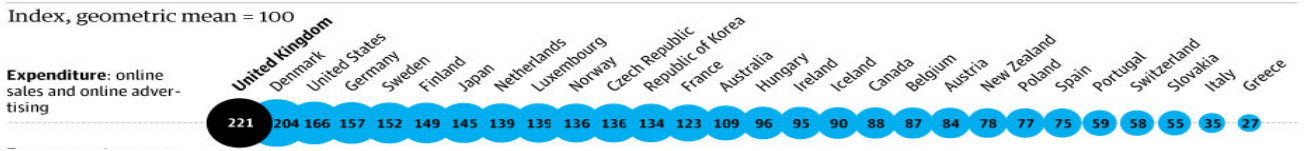
Disruption in Education?!

Carlos Delgado Kloos*
Professor and Vice-Rector
Universidad Carlos III de Madrid

* with the help of members of the GAST research group at UC3M

Disruption in Commerce

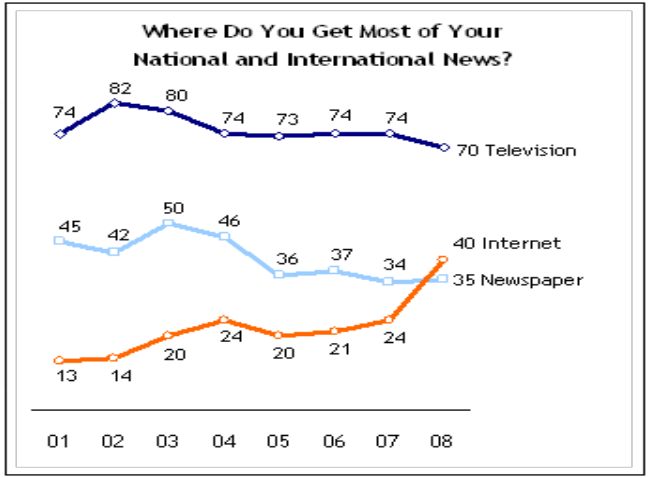




Disruption in Music

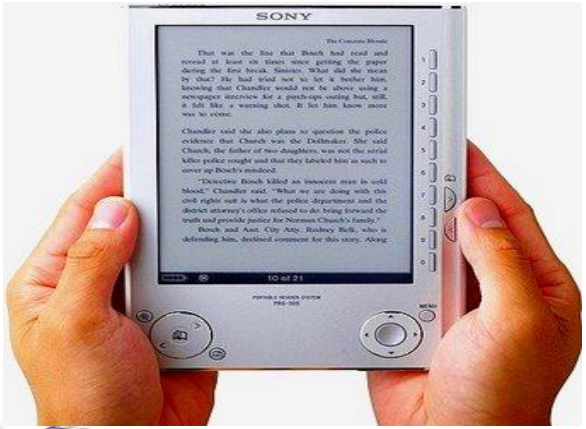
Spotify

Disruption in News



twitter

Disruption in Books



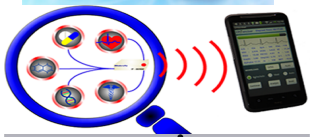
Disruption in Education?

Mobile Devices will bring Disruption in Education

- Always with you

- Always connected

- Sensor Pack



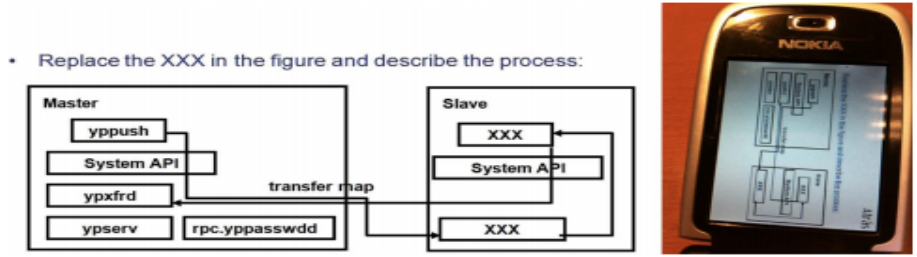
- Augmented Reality

Always with You

- Permanent company
- Light weight, small size
- Affordable prices
- Easy to use, natural touch interface

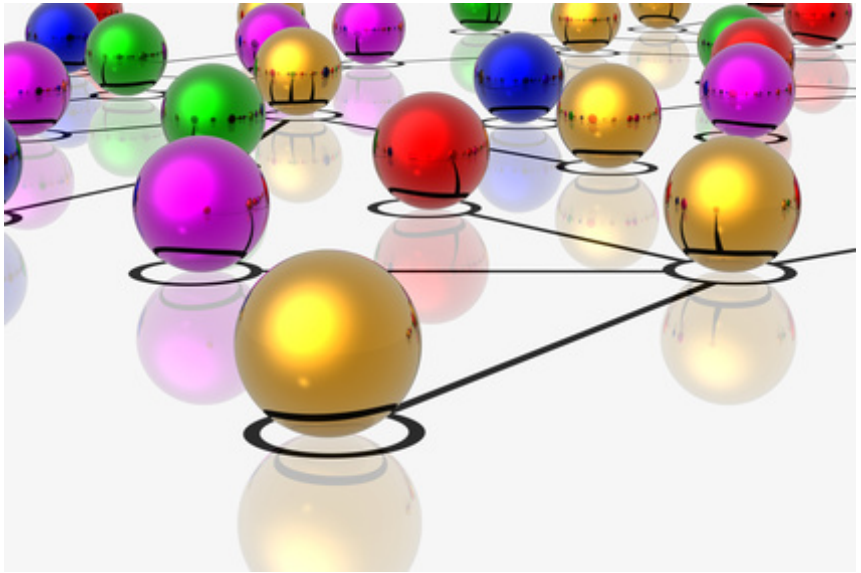
Always with You: Example (UC3M)
Enhancing Performance and Motivation

- Learning Pills



Always Connected

- Collaboration with peers
- Teacher-student communication
- Retrieval of information
- Continuous update

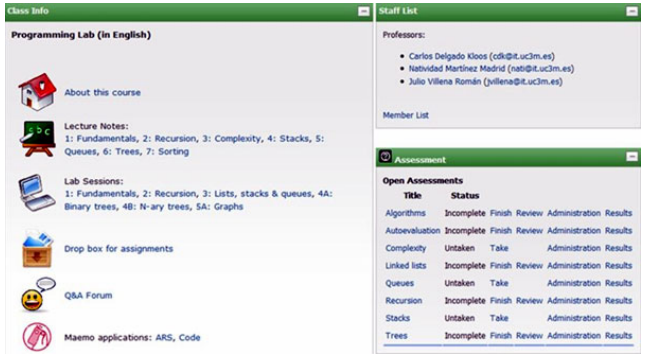


Always Connected: Example (UC3M)
Teacher-Student Comm & Student Collab

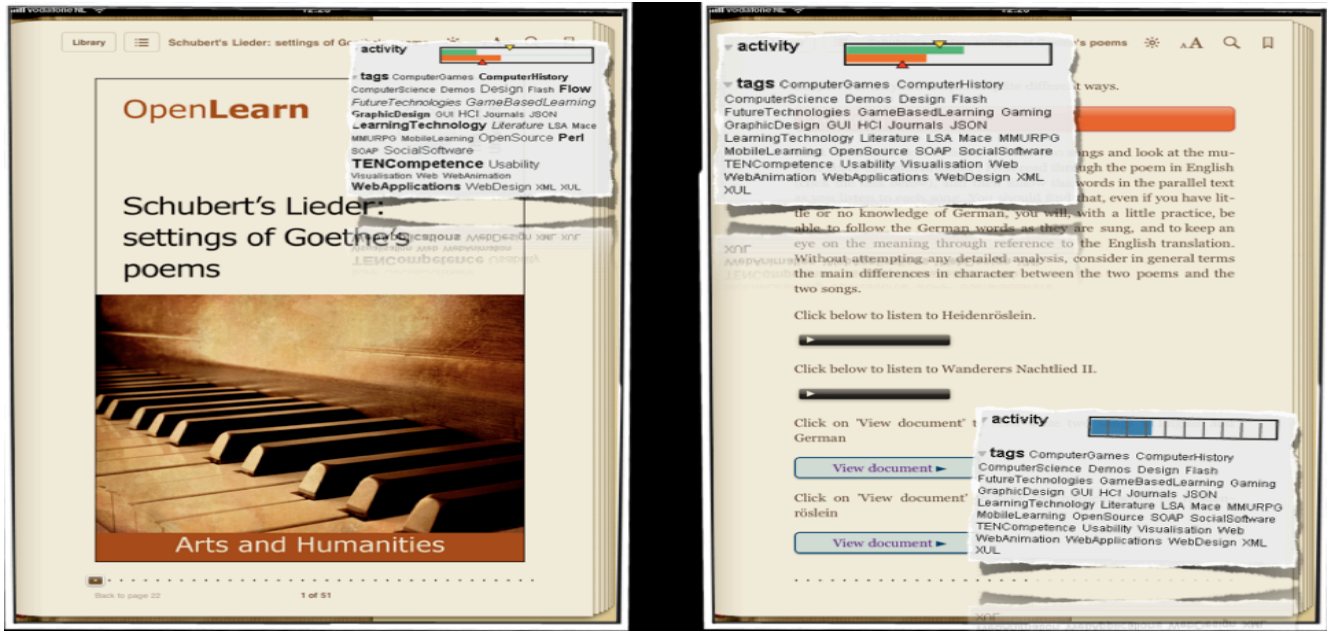
- I am following/I am lost
- Too fast/too slow
- Response of simple questions
- For the shy
- Affordable version of

  Audience Response Systems

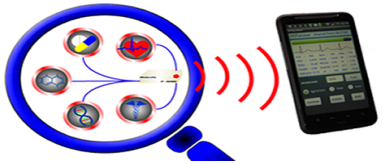
- Students help themselves
- Social learning network
- Brownie points for useful input
- Not necessarily exclusively mobile



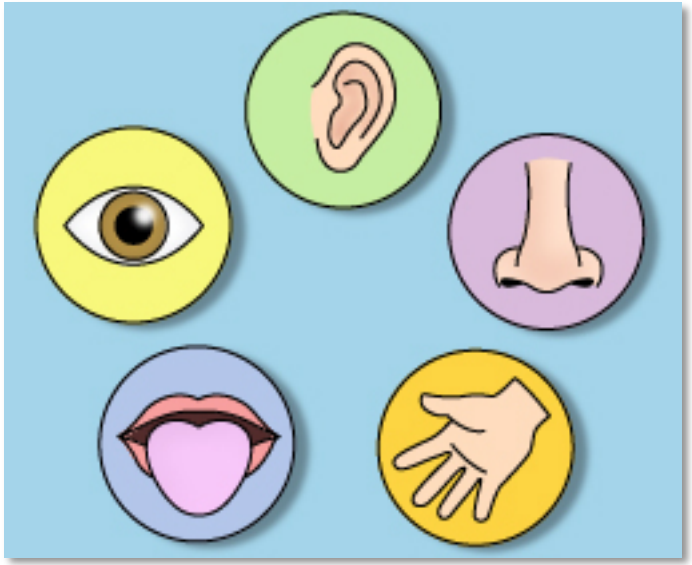
Always Connected: Example (OU)
Reflective eBooks



Sensor Pack

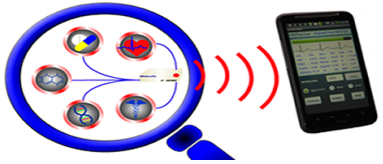


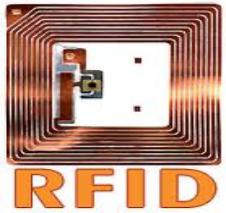
- Augment your senses
- Enrichment with context
- Multiple sensors
    - Location
    - Tilt
    - Acceleration
    - Touch
    - Light
    - Camera
    - Microphone
    - Proximity
    - Information from remote locations
    - …



Sensor Pack: Example (UC3M-UPF)
Gymkhana to know your campus

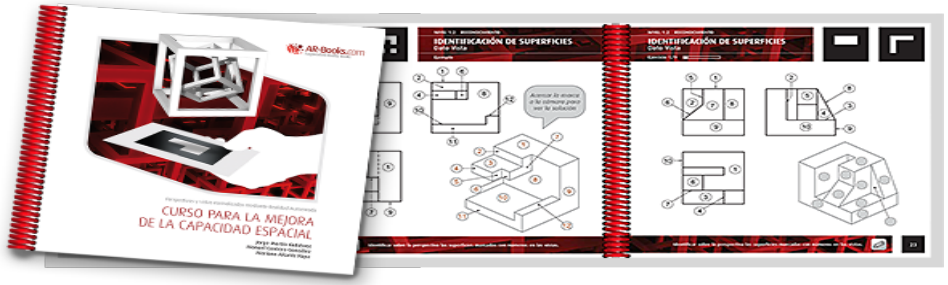
Learn³





Sensor Pack: Example (OUNL)
Audio Augmented Field Trips

Augmented Reality



BIENE-TEC
Tecnología para tu Bienestar
AR-BOOKS.com
Augmented Reality Books

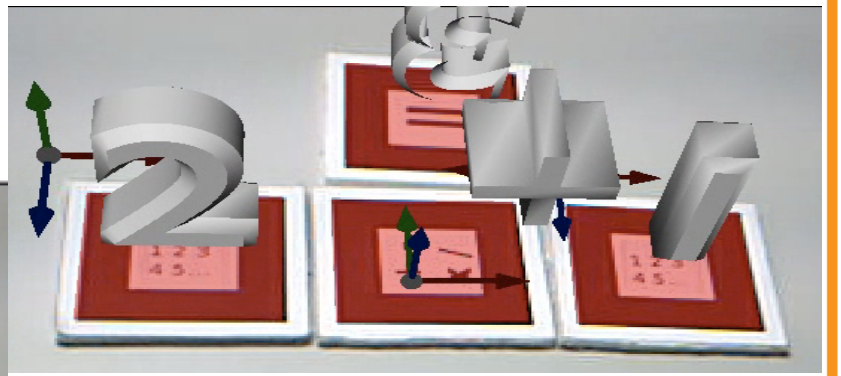
Layar

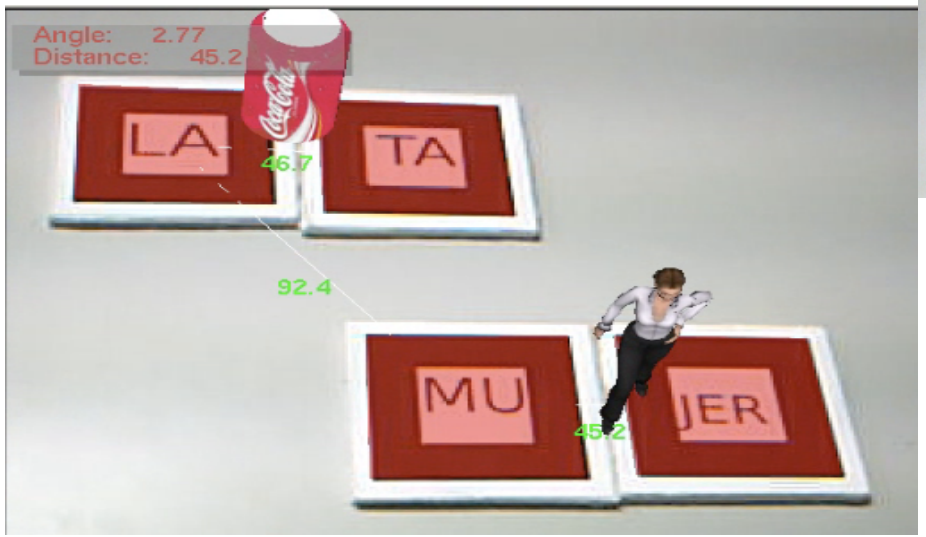
junaio

popcode

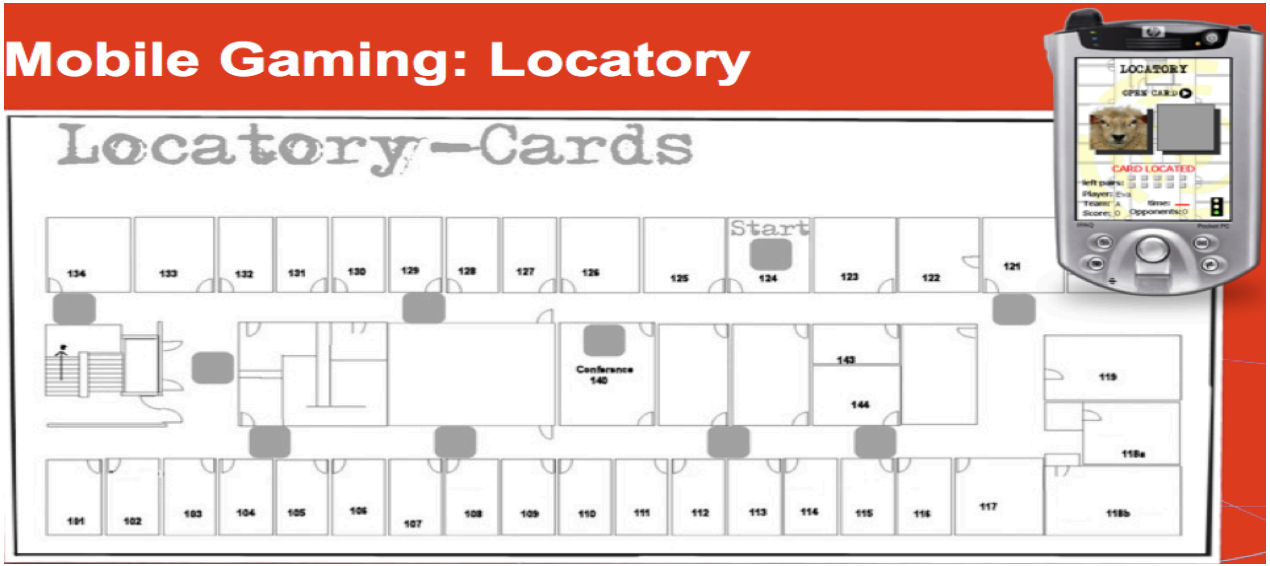
Augmented Reality: Example (UC3M)
Learn the Basics

- Simple Math
- Spelling





Augmented Reality: Example (OUNL)
Locatory Cards

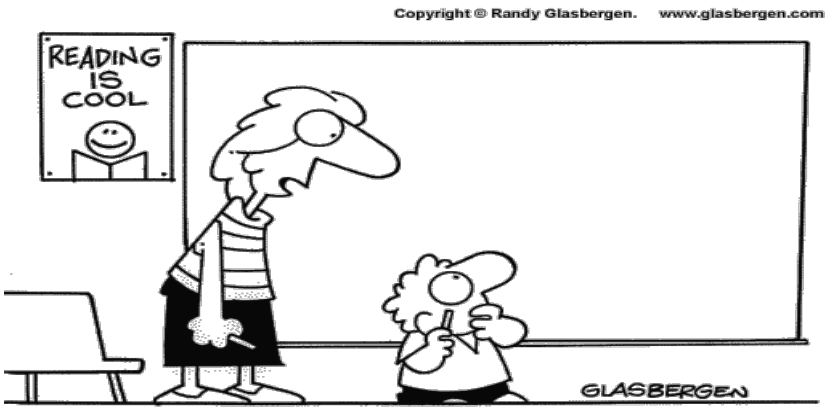


Conclusion

- Mobile devices should be used creatively and intelligently in schools rather than banned (in “school mode”)
- Mix the physical and the digital world with the sensors of your mobile device
- Higher involvement, more collaboration and interaction, liberated from classroom
- Supports situated and embodied cognition
- Learners (and teachers) acquire super-powers

Conclusion

- Mobile devices are just a tool, although a powerful one
- Pedagogies still to be developed to harness the technology
- Teacher training needed
- Educational material needs to be produced
- Authoring tools to facilitate content production



"There aren't any icons to click. It's a chalk board."

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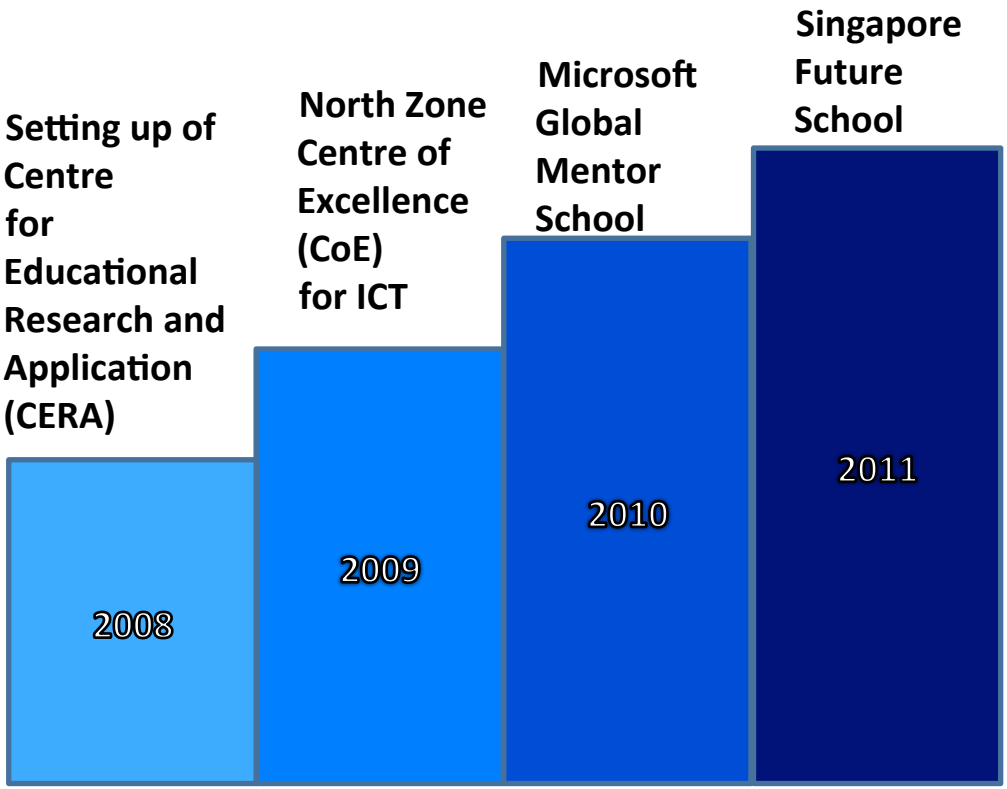
How a Future School in Singapore Leverages Mobile Technology

Chun Ming TAN
Principal
Nan Chiau Primary School

OUR LEARNING JOURNEY
IN CREATING AN INNOVATIVE SCHOOL CULTURE



"For some schools like Nan Chiau Primary School, researchers are co-located in the school. I met with a team of researchers who are currently there. These collaborations ensure that innovative teaching methods are guided by sound fundamentals and backed by research. Schools like Nan Chiau Primary School are pushing the frontiers in harnessing new technologies to help our students learn more effectively."

Dr. Ng Eng Hen
Singapore Minister for Education

"Nan Chiau is a school with tremendous leadership and vision in both ICT and its potential. The school has enthusiastic and committed teachers. The school recently received recognition as a Microsoft Innovative Mentor School."

Anthony Salcito
Vice President, Worldwide
Public Sector Education
Microsoft Corporation

Mobile Learning Leveraging on Mobile Technology

- 1 student to 1 device
- 24/7 access

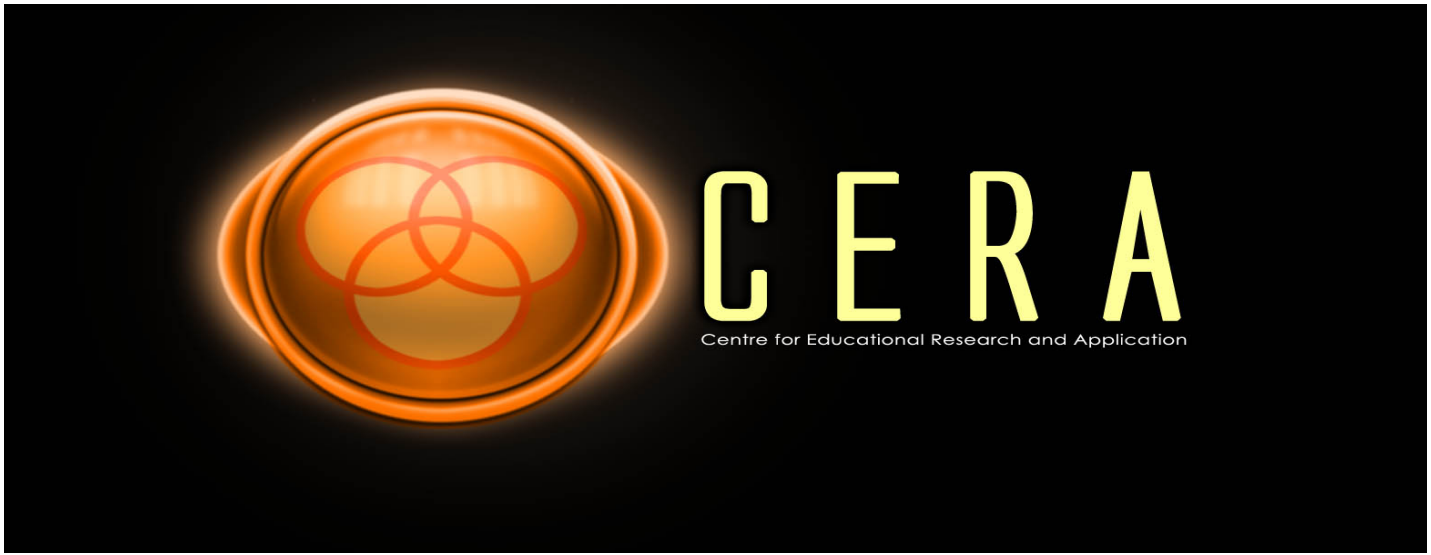
Focus on 21st Century Learning Outcomes

Domains	Learning Outcomes
Knowledge Application	Students will acquire the ability to make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills to the project task.
Communication	Students will acquire the skills to communicate effectively and to present ideas clearly and coherently to specific audience in both the written and oral forms.
Collaboration	Students will acquire collaborative skills through working in a team to achieve common goals.
Independent Learning	Students will be able to learn on their own, reflect on their learning and take appropriate actions to improve it.

Extended Learning Spaces

Out Class	***Type II*** **Intended learning out of class** e.g. field trip to an art museum which is part of a school curriculum	***Type III*** **Unintended learning out of class** e.g. capture pictures, video clips of animal and directed solely by self-interest
In Class	***Type I*** **Intended learning in class** e.g. searching for answers in the classroom	***Type IV*** **Unintended learning in class** e.g. teachable moments not planned by the teachers
	Intended	**Unintended**

Centre for Educational Research and Application



CERA Vision

Bridge research and practice to derive quality teaching and learning outcome

CERA Mission

1. Serves to draw principles for sustaining innovative practices in the use of technologies in the classroom

2. R&D serves as the impetus for curriculum innovations

3. Development of teachers into practitioner-researchers to serve the school's long-term teaching and learning goals

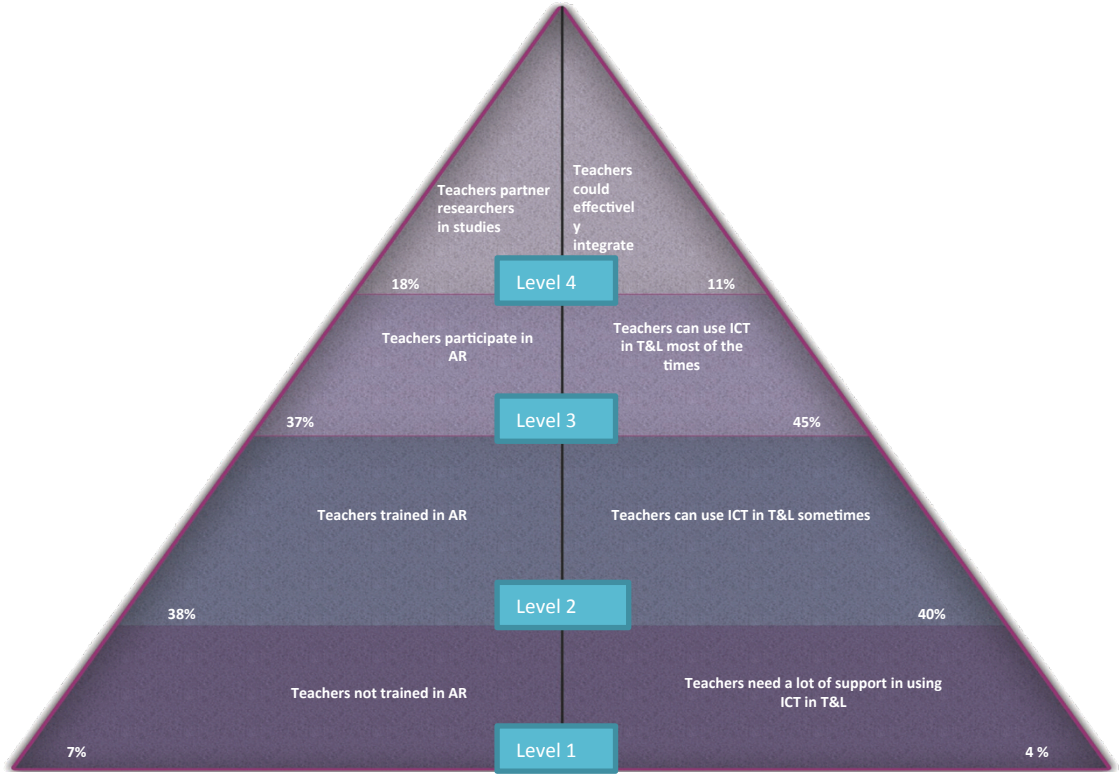
Consultants

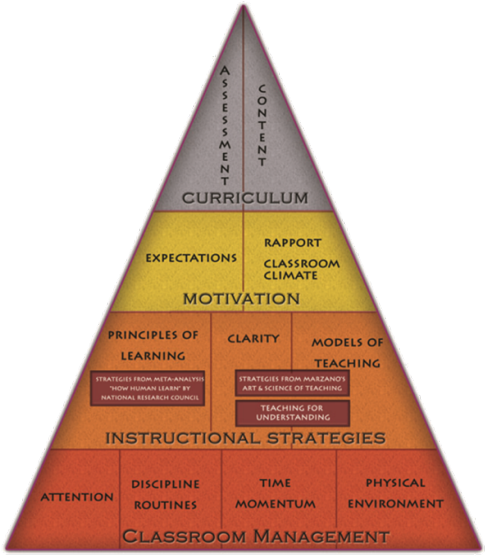
Prof Elliot Soloway
(University of Michigan)

Prof Cathie Norris
(University of North Texas)

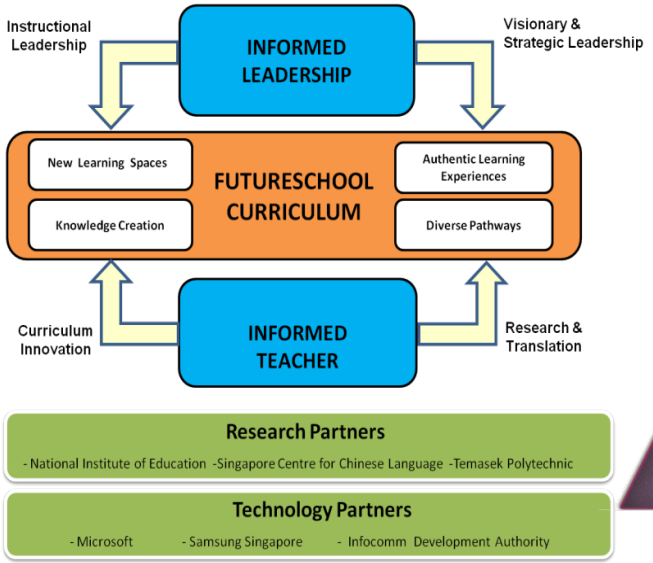
Prof Looi Chee Kit
Singapore Nanyang Technological University

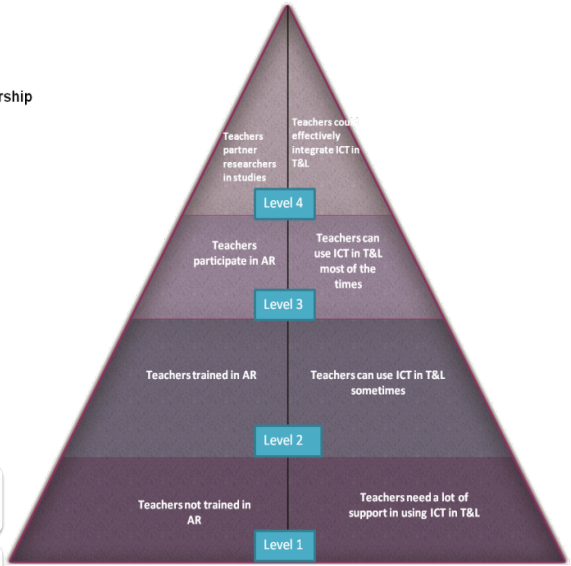
Systematic Approach in Developing Our Teachers to be Teacher-researchers





Teaching & Learning Framework





Competency Development Model

Future School Model

OUR CURRICULUM

OUR CURRICULUM

LEARNING OUTCOMES

Learners

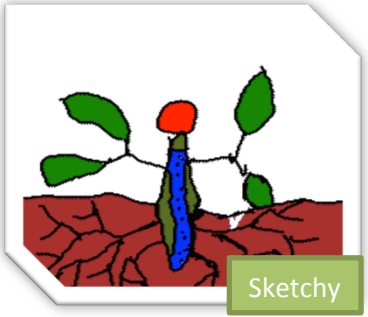
Independent

Self-directed

Collaborative

LEARNING OUTCOMES

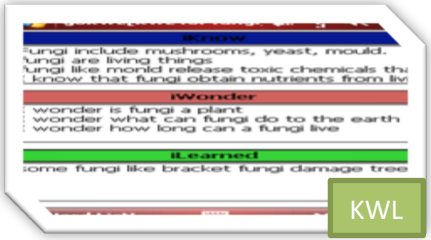
WIKI



Sketchy

Google Sites

PicoMap



KWL

Students' Artifacts

OUR CURRICULUM

TEACHERS' OUTCOMES

Reflective

Collaborative

Innovative

Teachers


Interesting
Exciting
Collaborative
Fun
Happening
seamless
Unlimited
Self-directed
Entertainment
challenging
MSN
engaged
google
internet
knowledgebuilding
online
powerful
facebook

CONTACT US:

www.ncps.moe.edu.sg

http://tinyurl.com/facebook-nanchiau

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Reading and … mobile phones?

Promising ideas and issues to consider (especially in developing countries)

Michael Trucano
Sr. ICT & Education Specialist
The World Bank

“I believe that the mobile phone is destined to revolutionize our educational system and that in a few years it will supplant largely, if not entirely, the use of textbooks. It is possible to touch every branch of human knowledge through the mobile phone. “

I believe that the motion picture is destined to revolutionize our educational system and that in a few years it will supplant largely, if not entirely, the use of textbooks. It is possible to touch every branch of human knowledge through the motion picture.

-- Thomas Edison 1922

“Get smart”

@

appropriate

relevant

effective

and, just as importantly…

inappropriate

irrelevant

ineffective

uses of technologies

to aid a variety of development objectives

including EDUCATION!

What do we know about using

technology

in education

in developing countries?

What do we know about using

technology
effectively
in education

in developing countries?

computers

radio

ICTs
=
information
&
communication
technologies

TV

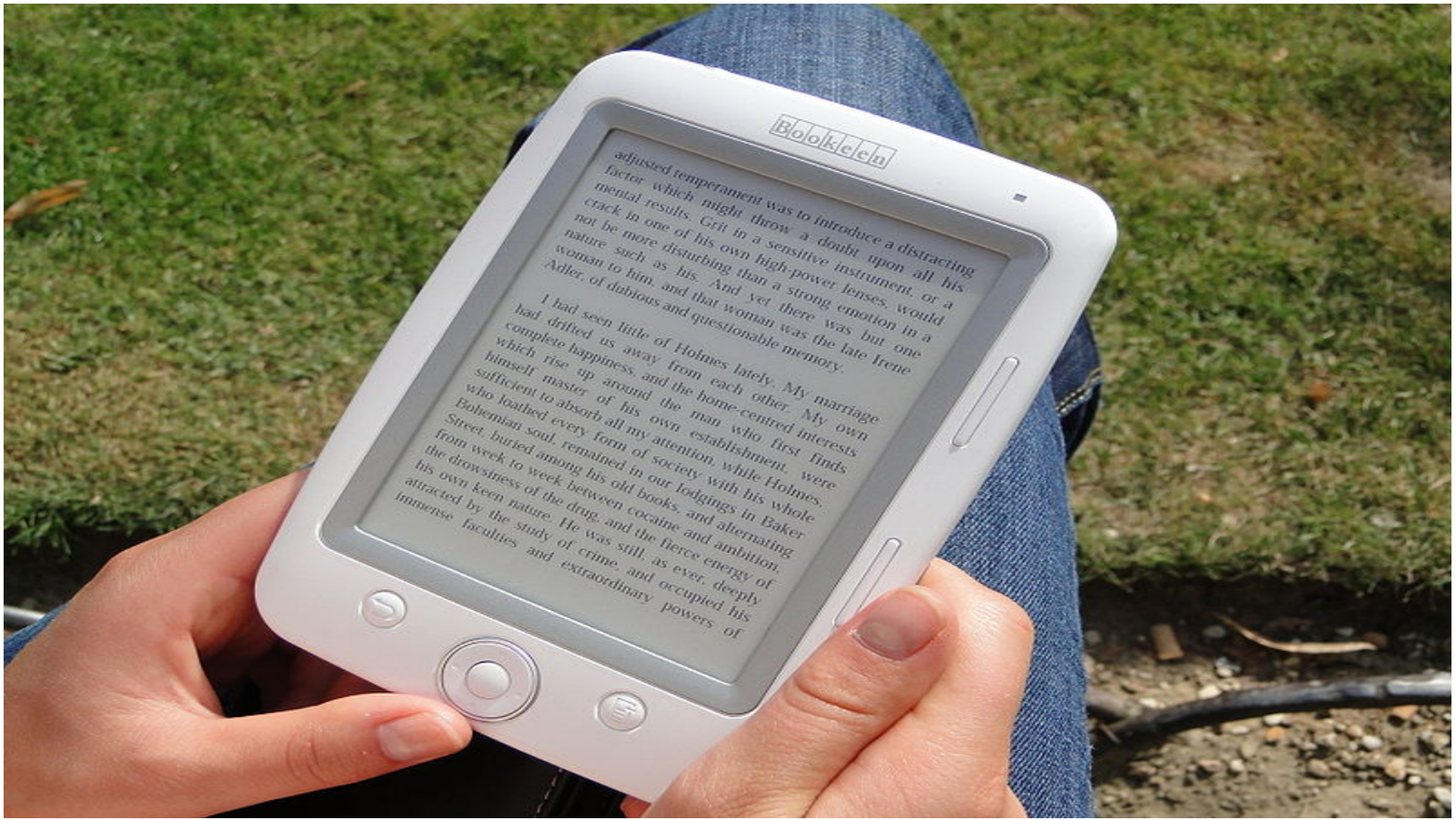
Internet

phones

devices

book → e-books

book → e-books


Bolokcen
adjusted temperament was to introduce a distracting factor which might throw a doubt upon all his mental results. Grit in a sensitive instrument, or a crack in one of his own high-power lenses, would not be more disturbing than a strong emotion in a nature such as his. And yet there was but one woman to him, and that woman was the late Irene Adler, of dubious and questionable memory.
I had seen little of Holmes lately. My marriage had drifted us away from each other. My own complete happiness, and the home-centred interests which rise up around the man who first finds himself master of his own establishment, were sufficient to absorb all my attention, while Holmes, who loathed every form of society with his whole Bohemian soul, remained in our lodgings in Baker Street, buried among his old books, and alternating from week to week between cocaine and ambition, the drowsiness of the drug, and the fierce energy of his own keen nature. He was still, as ever, deeply attracted by the study of crime, and occupied his immense faculties and extraordinary powers of

book → e-book


Frank Genese
Frank Genese AIA is the Vice President for Capital Projects at The New York Botanical Garden
A registered architect, Genese is responsible for the long term development and stewardship of the Garden's physical structures, including buildings, gardens and infrastructure.
WikiReader
search
history
random

interactive radio instruction

Nicaragua

Malawi

Sudan

Haiti

India

Kenya

Nepal

Papua New Guinea

Somalia

Guinea

South Africa

computers


THE WORLD BANK GROUP

educational television


NOKIA
16:30
1 message
received
Show
Exit

photo opportunities

Photos courtesy
Matthew Kam, MILLE.org

or

promising new opportunities for reading and literacy?

?

some data about toilets

"The number of mobile subscriptions in the world is expected to pass five billion this year, according to the International Telecommunication Union.

That would mean more human beings today have access to a cellphone than the United Nations says have access to a clean toilet."

- NY Times, 6 April 2010

“Just as Sesame Street helped transform television into a revolutionary tool for learning among young children four decades ago, advances in mobile technologies are showing enormous untapped educational potential for today’s generation."

- Joan Ganz Cooney Foundation Center at the Sesame Workshop

BBC Janala Bangladesh

Nokia Nokia Life Tools India

Pearson Mobiledu China

increasingly pervasive

increasingly powerful

increasingly inexpensive

increasingly personal

increasingly mobile

mobile

anytime **anywhere**

*but can you really **read** on them?*

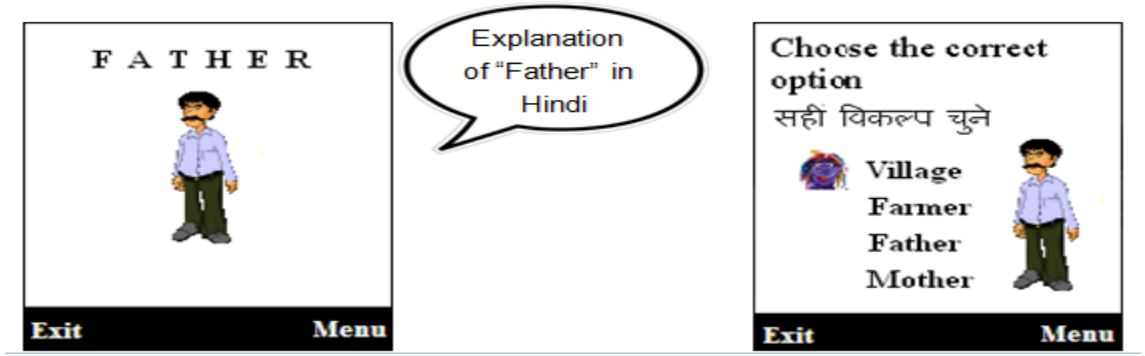
Five of the top ten best-selling novels in Japan in 2007 were* keitai shousetsu. *These "cell phone novels" were originally written and published to phones via text messaging, for the most part by and for young adults.

South Africa

[Shuttleworth Foundation, Meraka Institute]

isn’t the screen too small?

from Texas,
a research question for adults



MILLEE

mobile and immersive learning for literacy in emerging economies

There are many definitions of the disabilty called dyslexia but no consensus. The World Federation of Neurology defined dyslexia as follows: dyslexia is "a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and sociocultural opportunity." MedlinePlus, NLM and the National Institutes of Health (NIH), defines dyslexia "Developmental reading disorder, also called dyslexia, is a reading disability resulting from the inability to process graphic symbols." National Institute of Neurological Disorders and Stroke defines dyslexia "Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read. These individuals typically read at levels significantly lower than expected despite having normal intelligence. Although the disorder varies from person to person, common characteristics among people with dyslexia are difficulty with spelling, phonological processing (the manipulation of sounds), and/or rapid visual-verbal responding. In adults, Dyslexia is a brain-based type dyslexia usually occurs after a brain injury or in the context of learning disability dementia. It can also be inherited in some families, and recent studies that specifically impairs have identified a number of genes that may predispose an individual a person's ability to read. to developing dyslexia." Some of the other published definitions are purely descriptive, while still others embody causal theories. From the varying definitions used by dyslexia researchers and organizations around the world, it appears that dyslexia is not one thing but many, insofar as it serves as a conceptual clearing-house for a number of reading skills deficits and difficulties, with a number of causes. Castles and Coltheart, 1993, described phonological and surface types of developmental dyslexia by analogy to classical subtypes of acquired dyslexia (alexia) which are classified according to the rate of errors in reading non-words. However the distinction between surface and phonological dyslexia has not replaced the old empirical terminology of dysphonetic versus dyseidetic types of dyslexia. The surface/phonological distinction is only descriptive, and devoid of any aetiological assumption as to the underlying brain mechanisms, in contrast the dysphonetic/dyseidetic distinction refers to two different mechanisms:— one relates to a speech discrimination deficit, and the other to a visual perception impairment. Most people with dyslexia who have Boder's Dyseidetic type, have attentional and spatial difficulties which interfere with the reading acquisition process.

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but can you write with them?


International
Children's
Digital
Library


Story
Kit
International
Children's Digital Library

aren't they distracting?

banned in school:

~~India~~
~~Sri Lanka~~
~~South Korea~~
~~United Kingdom~~
~~Philippines~~
~~France~~

safety

privacy

inappropriate content

poor eyesight, motor skills

social exclusion

text-lish

equity

costs

standards

content

electricity

mindsets

cognitive neuroscience

ethnography

support for teachers

BridgeIT | text2teach

support for teachers

Tanzania, Philippines

early days

“mobile phone”
may be the wrong term

small
portable

(phones are used for ‘phoning’ less and less)

since 1982, the price of data storage has fallen by a factor of 3.6 million, and "if this trend continues, and the cost of storage continues to decrease, we estimate that somewhere around 2020, all the world's content will fit inside an iPod, and all the world's music would sit in your palm as early as 2015”.

on-going
World Bank
analytical and project work

what is actually happening
“on-the-ground”

outside the classroom

* What does this cost?

* What is the impact of these sorts of initiatives (and how should we measure such impact)?

* What useful implementation and procurement models are emerging?

* What challenges do these sorts of initiatives present for policymakers, and what are some useful policy responses?

* What technologies should we be considering?

To what extent -- and how -- do we need to re-engineer our education systems (teacher training, curricula, content, assessment) if we want to take advantage of such new opportunities?

informed by the ethnography of the learning (and reading)

safety

privacy

inappropriate content

poor eyesight, motor skills

social exclusion

text-lish

equity

costs

standards

content

electricity

cognitive neuroscience

ethnography

more information:

Michael Trucano
mtrucano@worldbank.org

blogs.worldbank.org/edutech
worldbank.org/education/ict