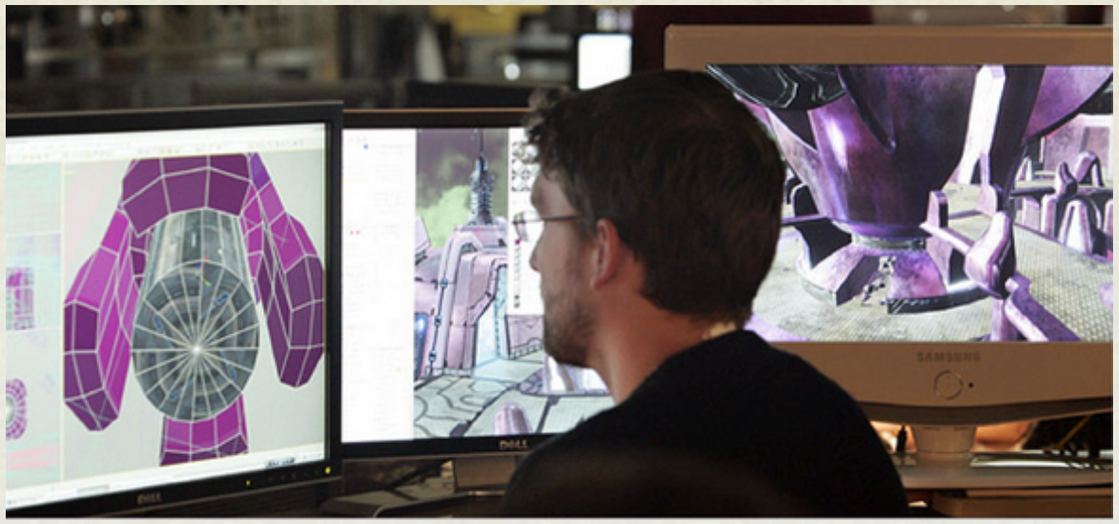
EdTech Fischer Talk

Penn State University
8 August 2017



DEVELOPMENTS IN DIGITAL LEARNING: AN INTERNATIONAL PERSPECTIVE

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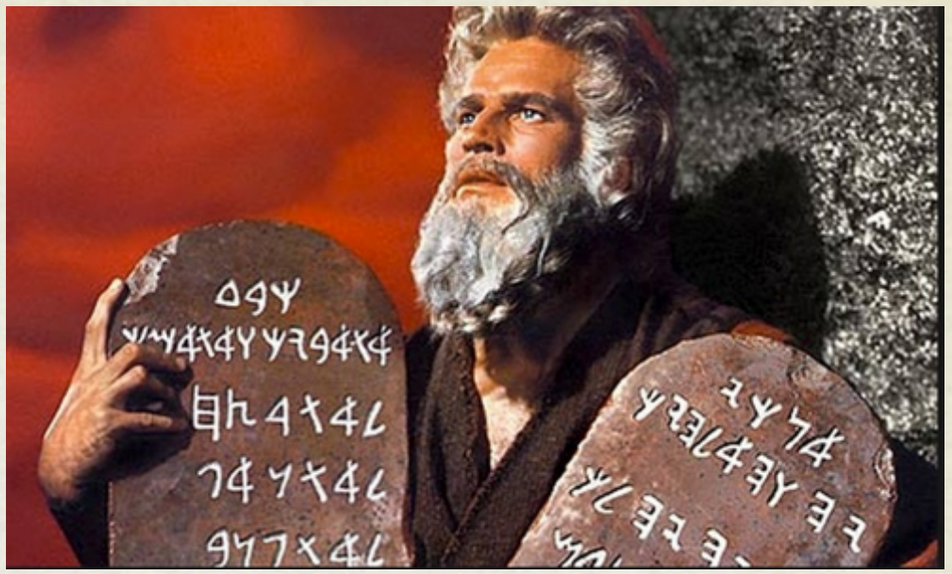
Overview

1. How did we get here?
2. Digital learning today
3. Educational technology transfer in developing countries
4. Lessons learned

How did we get here?

Pre-digital technologies

- Moses and St. Paul
- Socrates (tutorials) 400 BC
- The lecture theatre: unknown
- The printed book: 7th century AD in China; 15th century Europe
- U of London: 1858 external degree



Pre-digital technologies

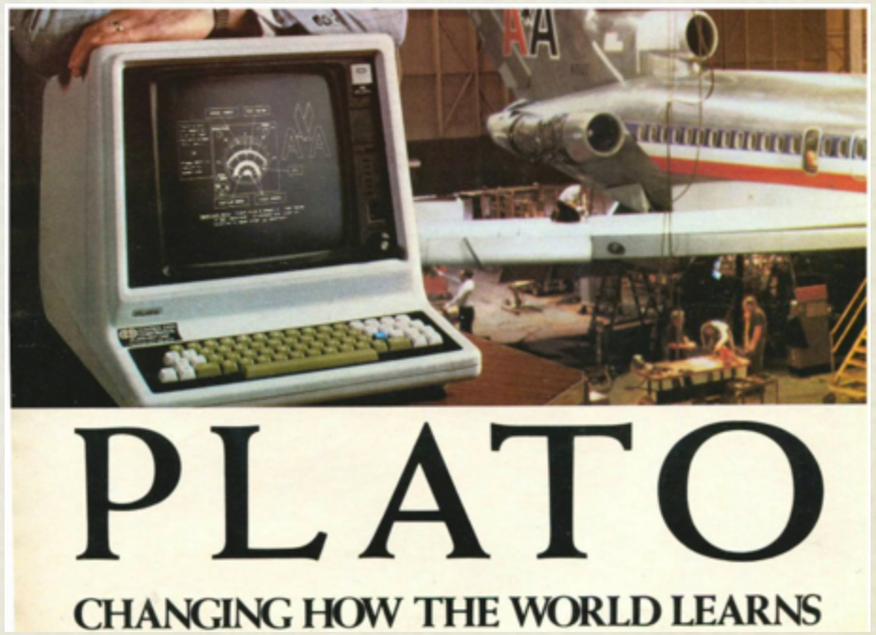
- Radio farm forums Canada 1941; radio schools, Latin America
- Chicago TV College; NYU ‘Sunrise Semester’; Sesame St.
- Schools television: Ivory Coast, Mexico, Brazil, Samoa (1970s)
- Appalachian Educational Satellite Project 1975; Satellite TV: SITE India 1975

‘Listen, discuss, act’

Indian tele-medicine project

Digital technologies

- Skinner's teaching machine 1954
- PLATO 1960; CAL 1970s:
- Internet and microcomputers, 1980s
- World Wide Web 1990
- First fully online university 1995
- Learning management systems 1995

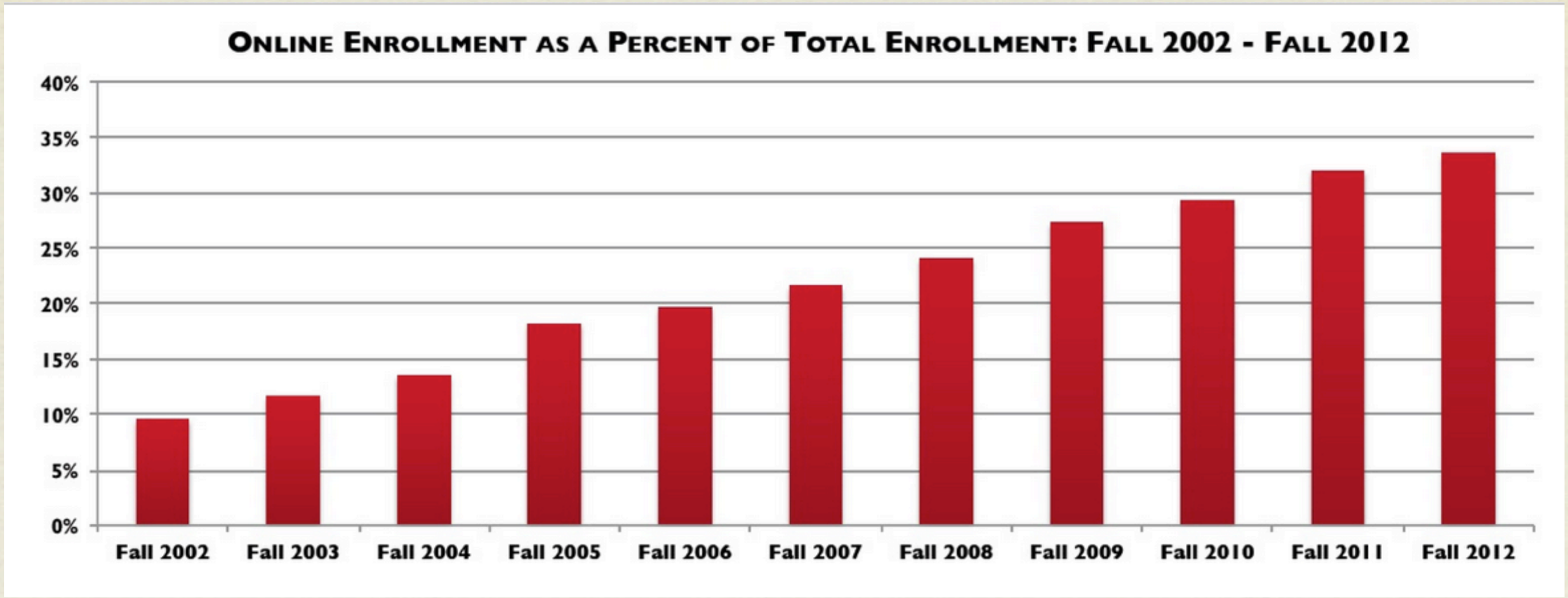


Digital learning today

Digital technologies now in common use in Higher Education

- Learning management systems
- Webcasting/web conferencing
- Video streaming
- Open digital textbooks
- Mobile phones and tablets

Growth of for-credit online learning



Source: Seaman and Allen, 2014

Online enrollments growing 5 x faster than campus enrollments

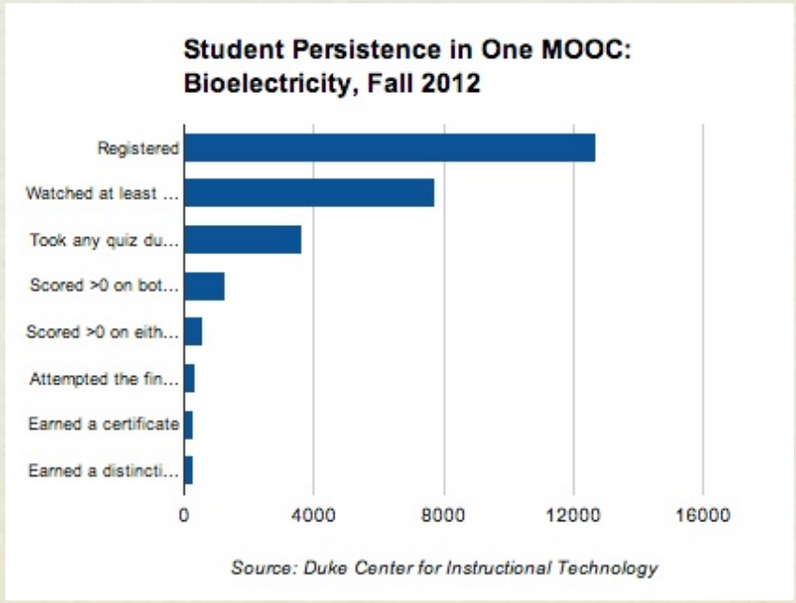
High completion rates (80-85%)

Blended and hybrid learning

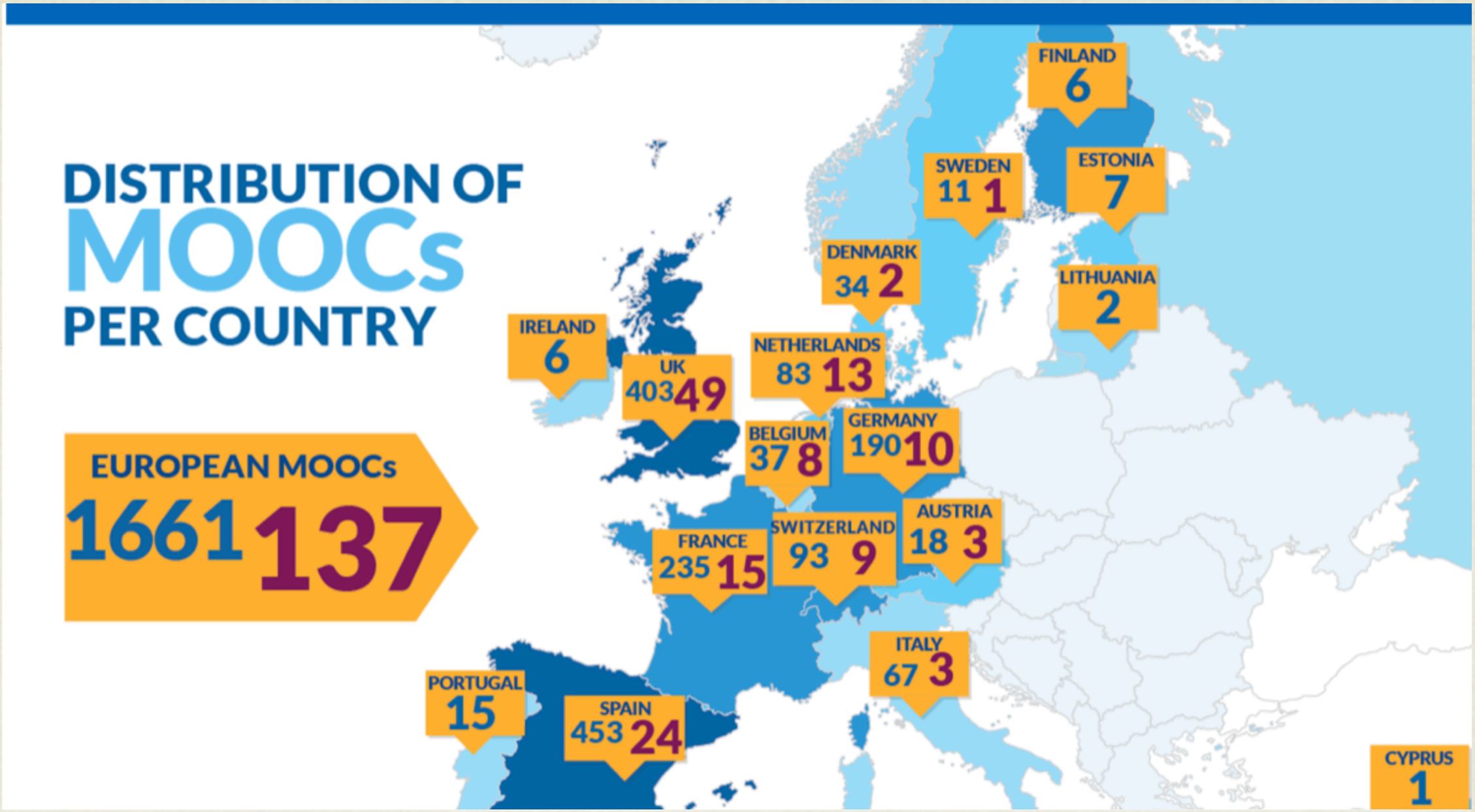
- Blended: face-to-face + online
- Hybrid: reduced face-to-face + online: re-design
- Last 2 years: big move to hybrid learning (in Canada)
- Probably 50% of all classes will be hybrid by 2020
- ‘Flipped’ teaching: BUT move towards re-design

MOOCs

- Driven by Stanford, Harvard, MIT
- Attempts at accreditation but assessment a massive challenge
- Ignored prior research from credit online courses; good content, poor pedagogy
- No credible business models yet
- BUT: useful for non-credit continuing education

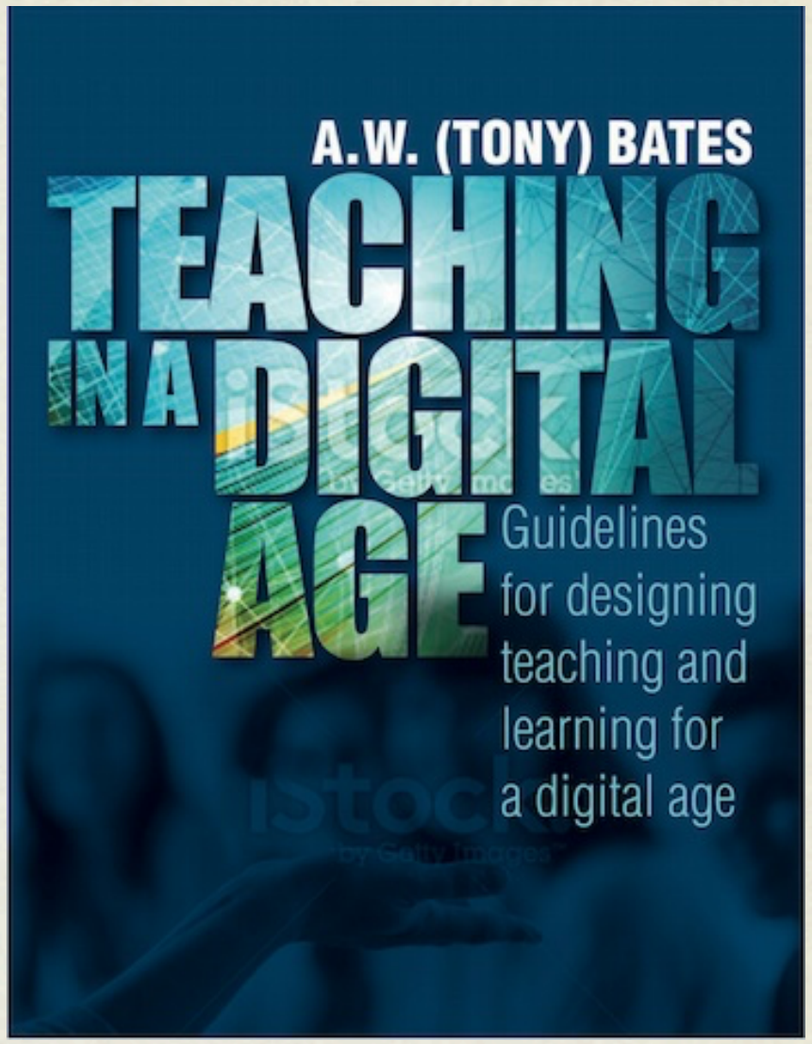


MOOCs in Europe (2015)



Open publishing

- Free, online, open textbooks
- Bccampus Open Textbook project
- 165 books: reviewed/adapted/ designed by local instructors
- Adopted in 21 of 25 HE institutions
- Saved students $2 million so far
- My book: 50,000 downloads; 10 languages

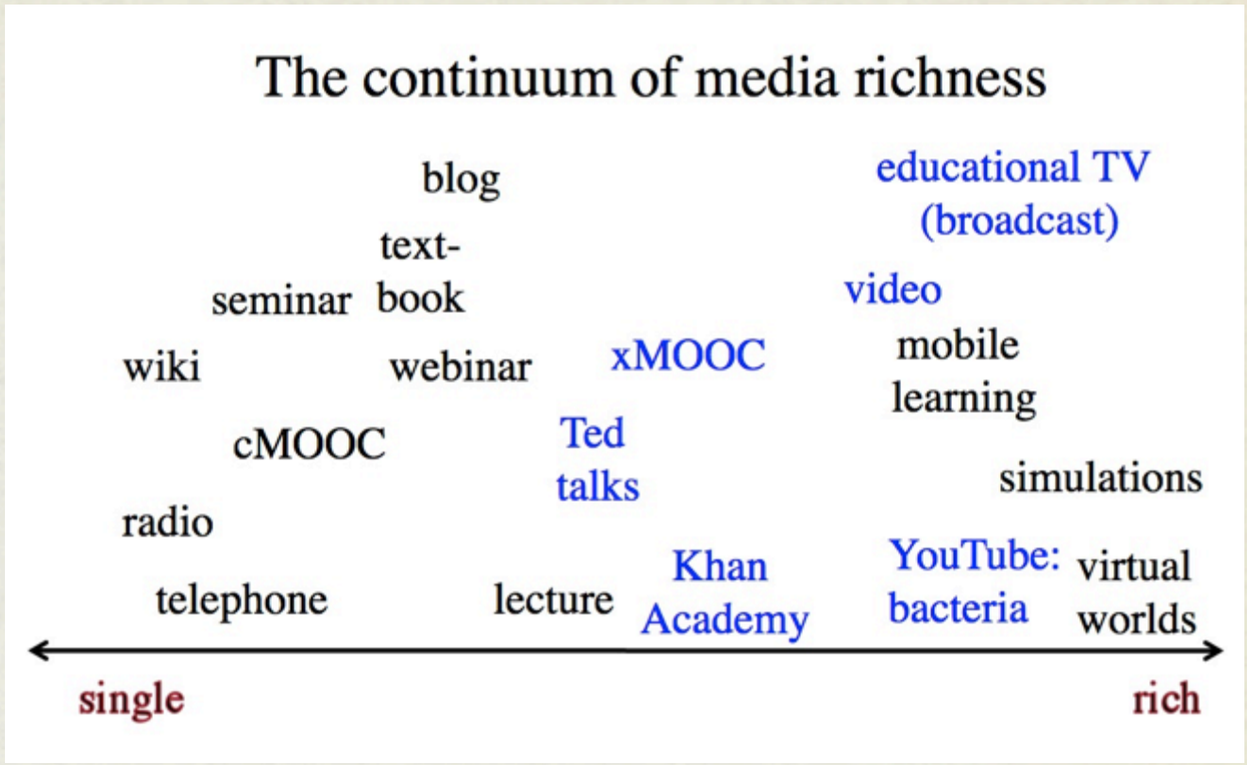


Open education

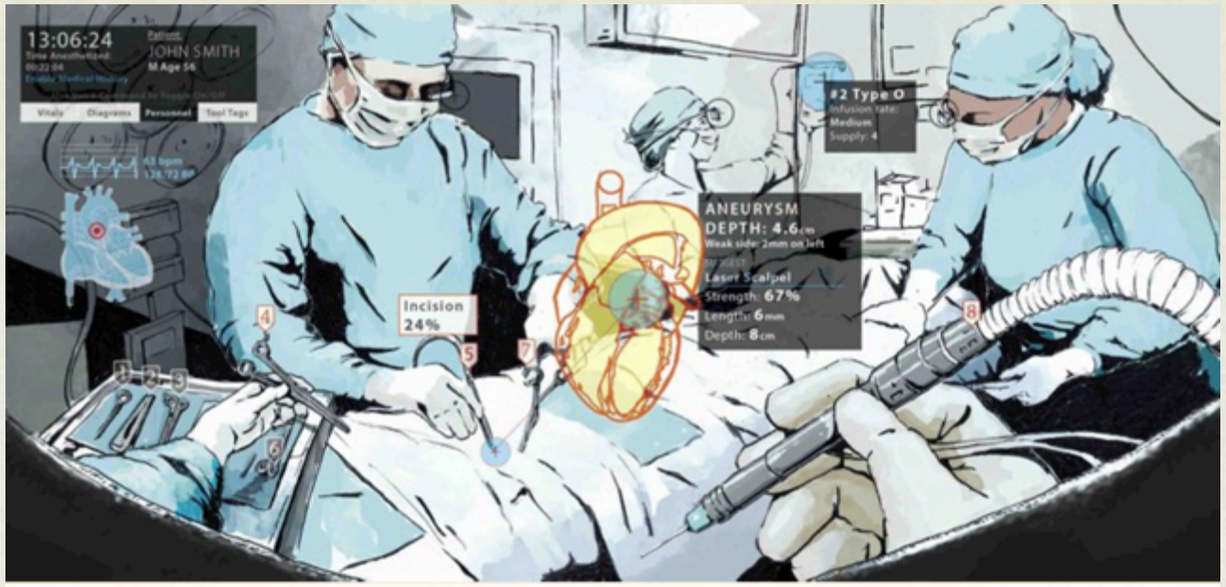
- open textbooks
- open research
- open educational resources (OER)
- content will be free, abundant and all online
- teaching + learner support key quality differentiator
- **the real game-changer**

Multi-media

- Print and talk historically dominant; abstract, linear
- Knowledge now represented through many different media: text, audio, video, computing, virtual reality
- Research shows learning enhanced by multiple representations of knowledge



Multi-media



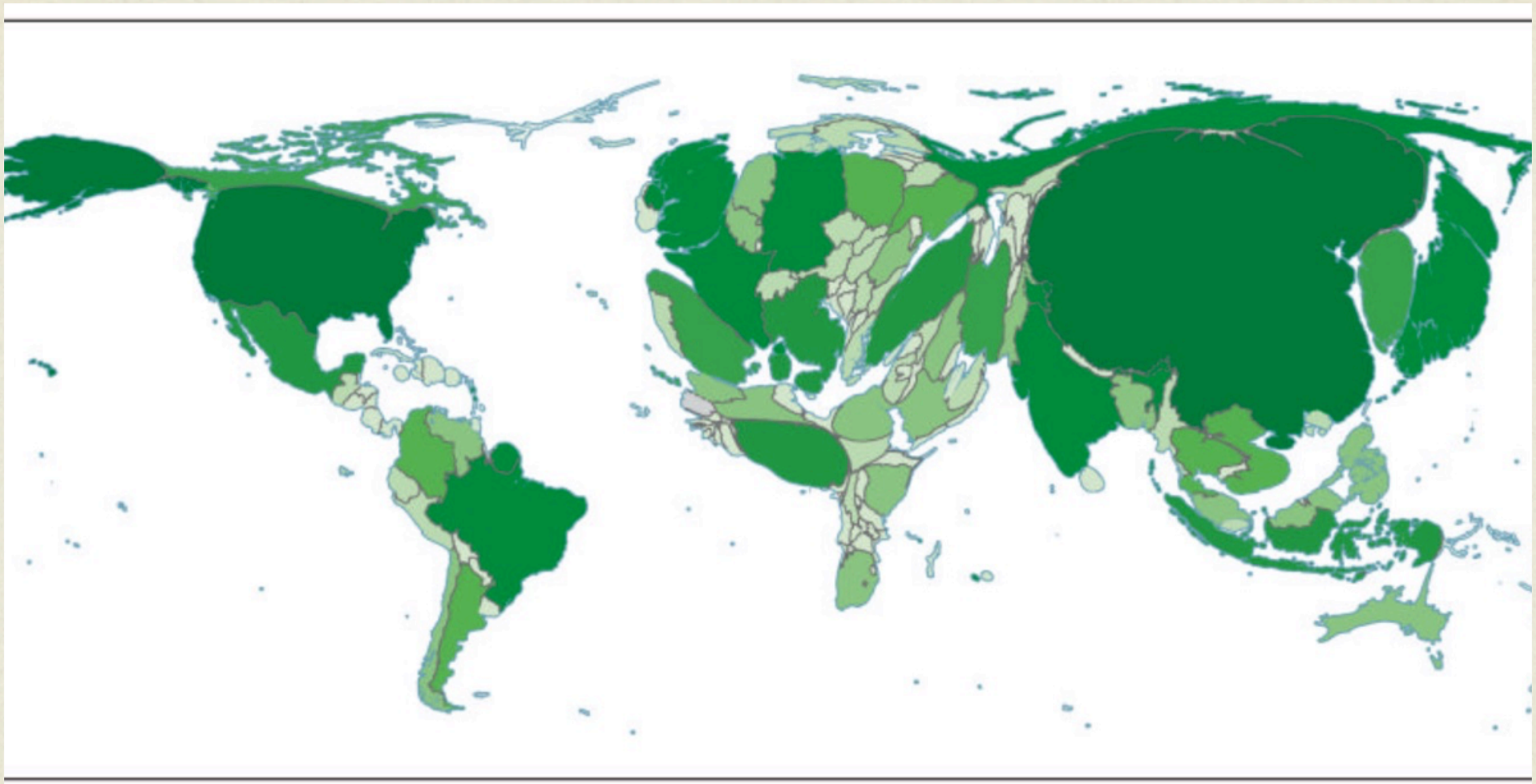
Virtual and Augmented Reality from the Augmentarium at the University of Maryland

- Importance of recording: stop/start/repeat
- Allows learners to work at their own pace
- Facilitate move from concrete to abstract and reverse
- Meets individual preferences for learning

Digital technologies in the pipeline

- Virtual and augmented reality
- Learning analytics
- Open educational resources
- AI-based adaptive and personalized learning

Digital learning in developing countries



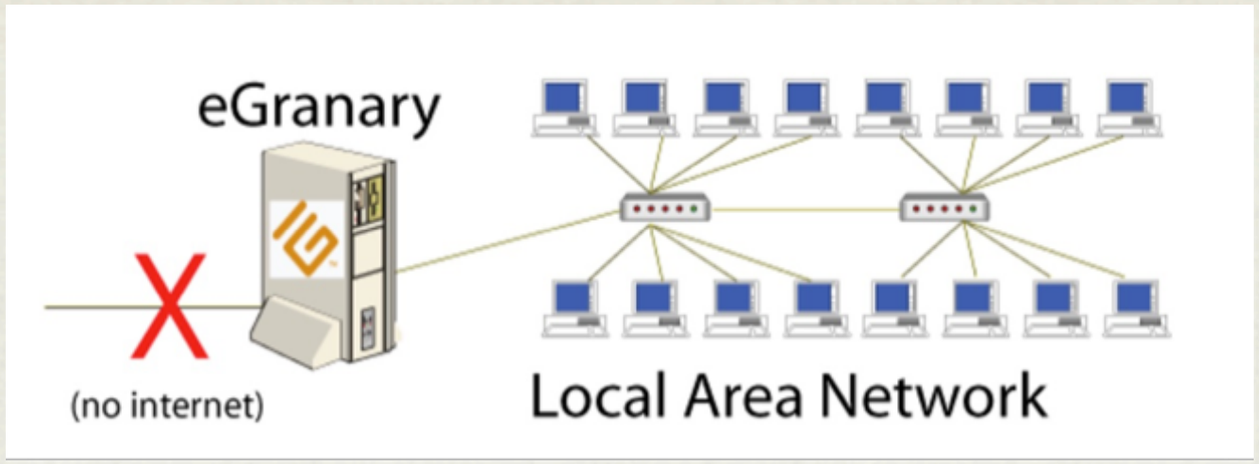
orld Bank. Data at http://bit.do/WDR2016-MapO_1.

Successful educational technology transfer

UNESCO: Audio-cassettes in Afghanistan, 1974

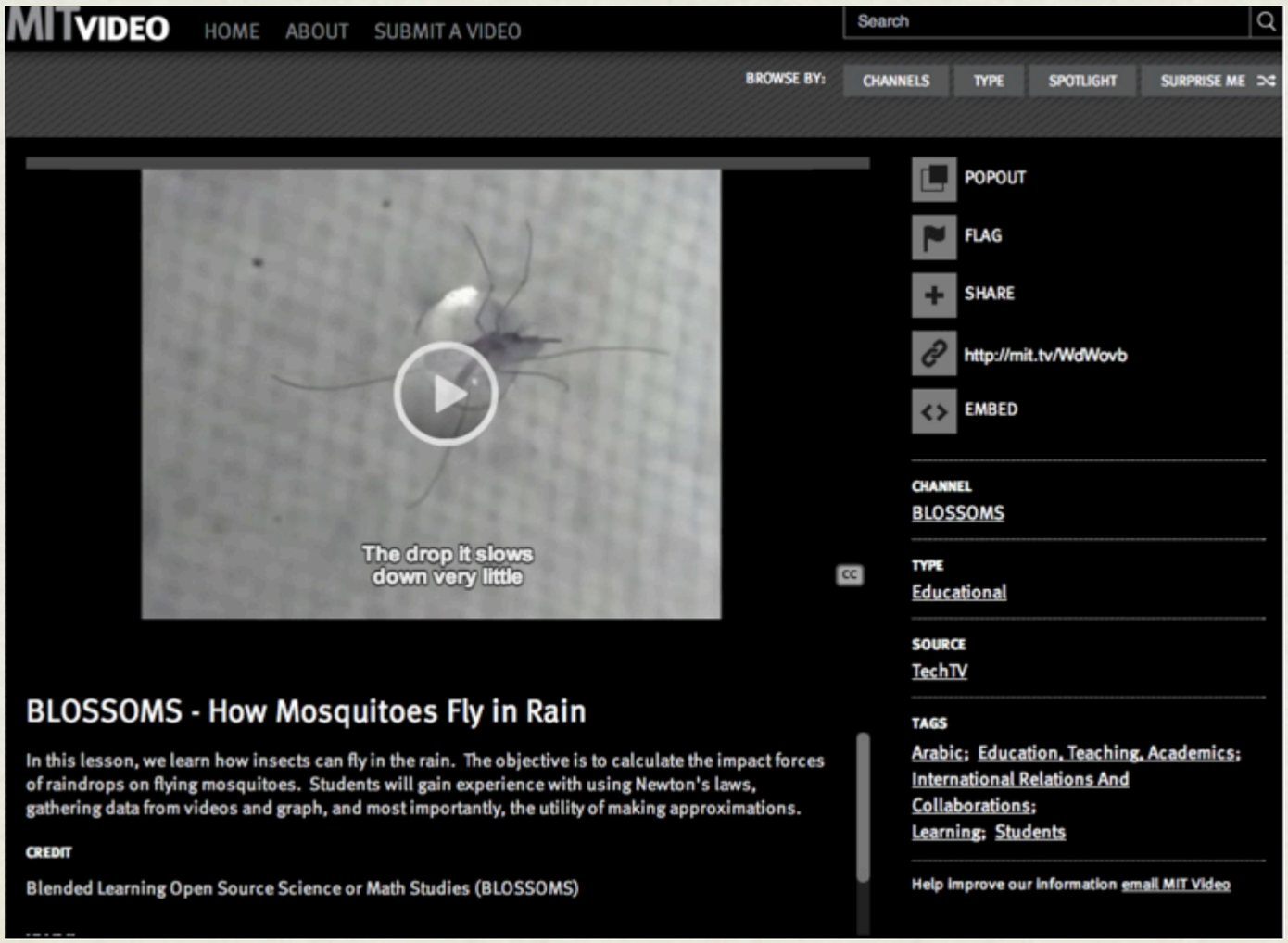
Successful educational technology transfer

UNC: WiderNet/eGranary: local intranets; Internet in a box



Successful educational technology transfer

MIT BLOSSOMS Project:
Math and Science Video for High Schools



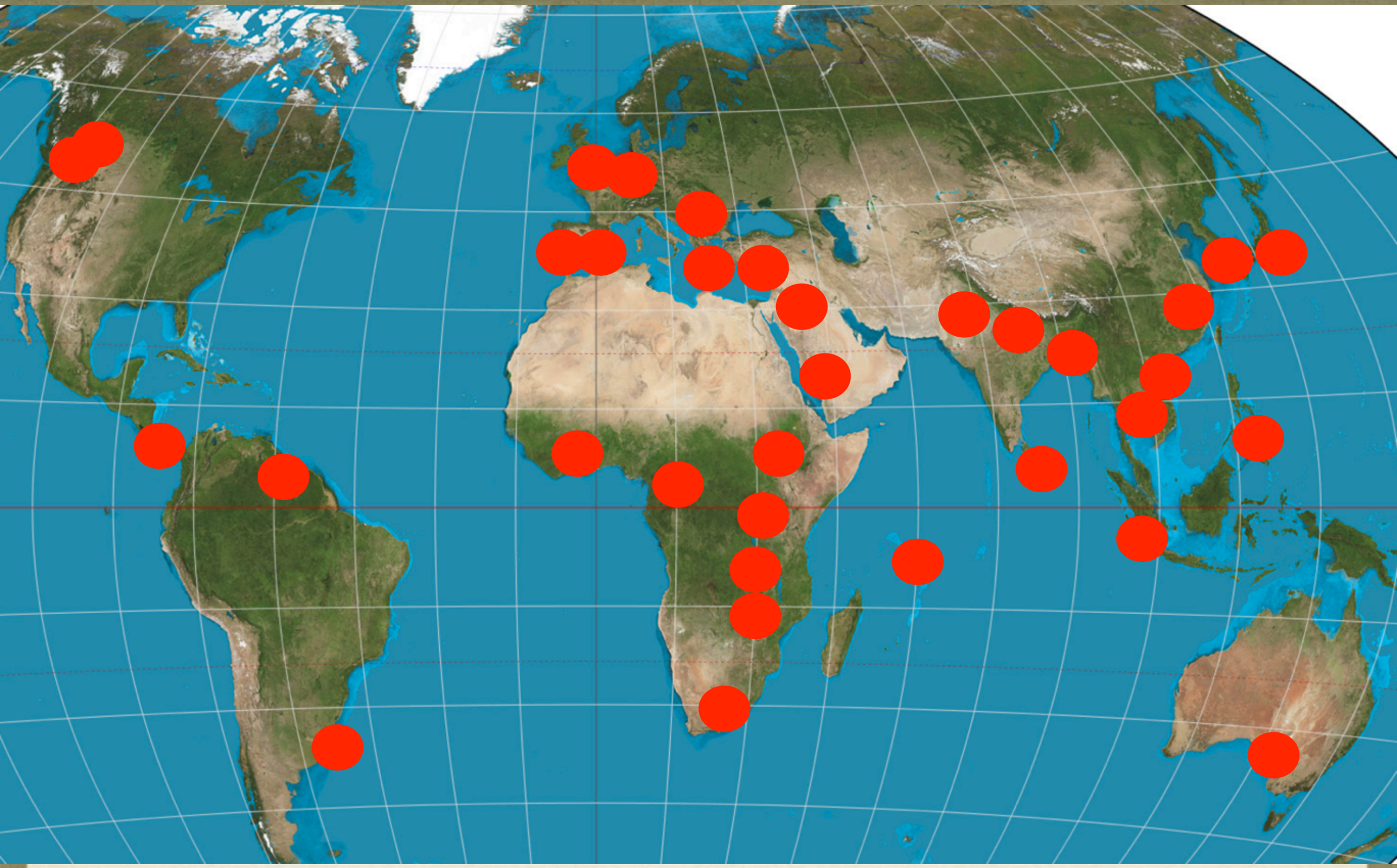
Successful educational technology transfer

iCow: ‘local’ mobile app for breeding cycles in Kenya

Open universities

- No or very low fees
- Open access: no prior qualification
- Very large
- Distance, using multiple media
- Instructional design
- Strong learner support (tutors)
- 15-40% completion rates (degrees)

University of South Africa (UNISA)



Open universities around the world

- 63 open universities worldwide:
- First (1971): UK Open University: 200,000 students
- Indira Gandhi National OU India: over 4 million students
- OU of China: 3.59 million students (1.5 million undergraduate)
- Anadolu OU, Turkey: 1.4 million students
- none in the USA (Open SUNY?)

Walton Hall, HQ of the UK OU

UOC, Barcelona

Lessons learned from educational technology transfer

‘Everyone has a mobile phone’

In Africa:

- Less than 14% have Internet access
- US$2 to download a 7 minute video: a day’s pay
- Main use: text messaging; financial transactions: one message 25 cents
- MOOCs: a week’s wages to download one

Lessons learned from educational technology transfer

- Sustainable, local funding, not once-off grant funding (OUs)
- Small steps: pilots that work and can be expanded
- Local adaptation and ownership
- Affordable, reliable technology
- Local programming
- Teacher training

Photo: Duke Mwancha

Learning on tablets in a Dadaab Refugee Camp, Kenya

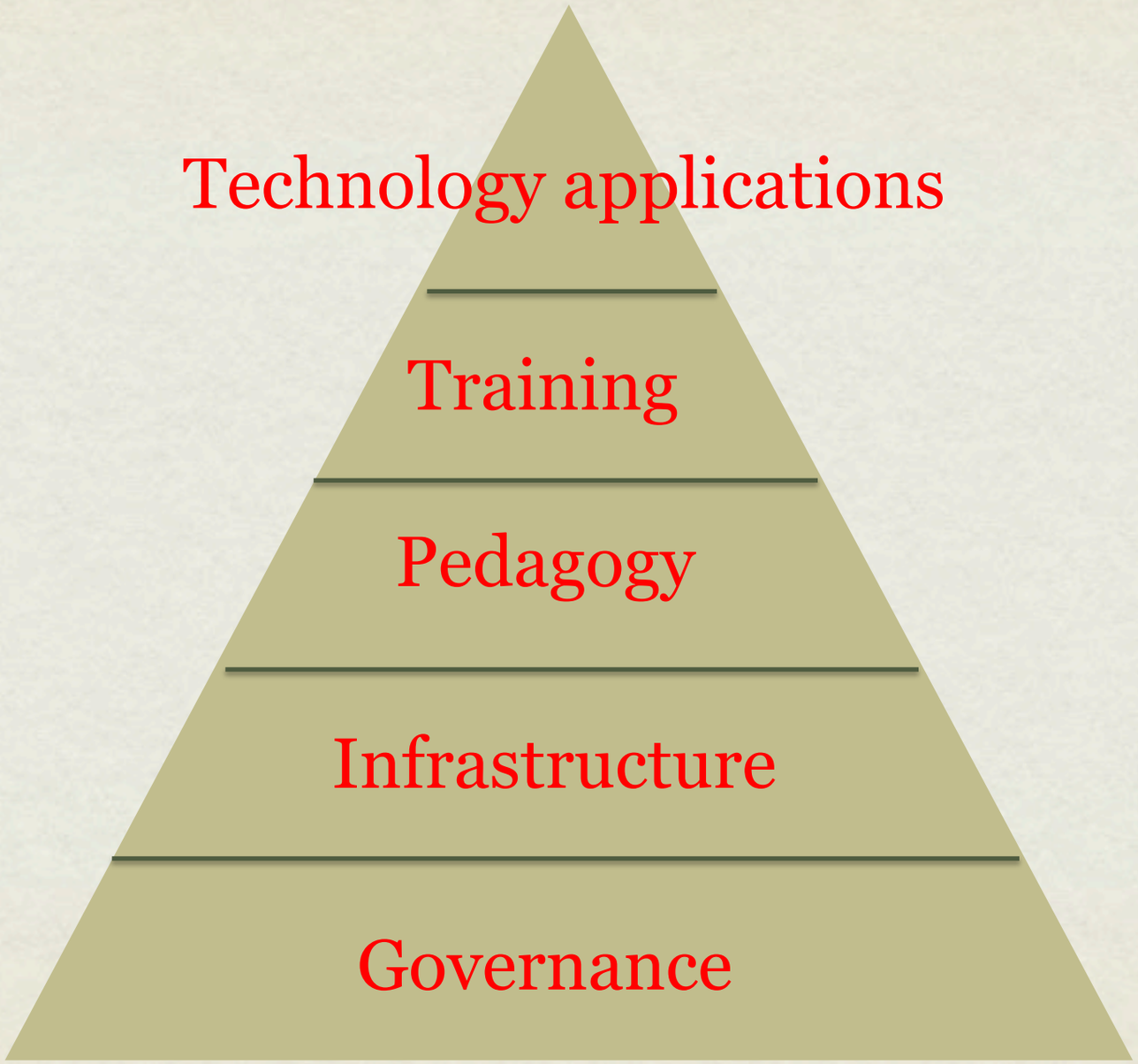
Lessons learned from technology transfer

Technology needs to be integrated within a system, which means:

- Good governance at all levels (e.g. security)
- Reliable and extensive infrastructure (e.g. electricity, networks): it must work
- Associated pedagogy and goals (e.g. skills development, increased access)
- Trained teachers/instructors

Photo: Duke Mwancha — Learning on tablets in a Dadaab Refugee Camp, Kenya

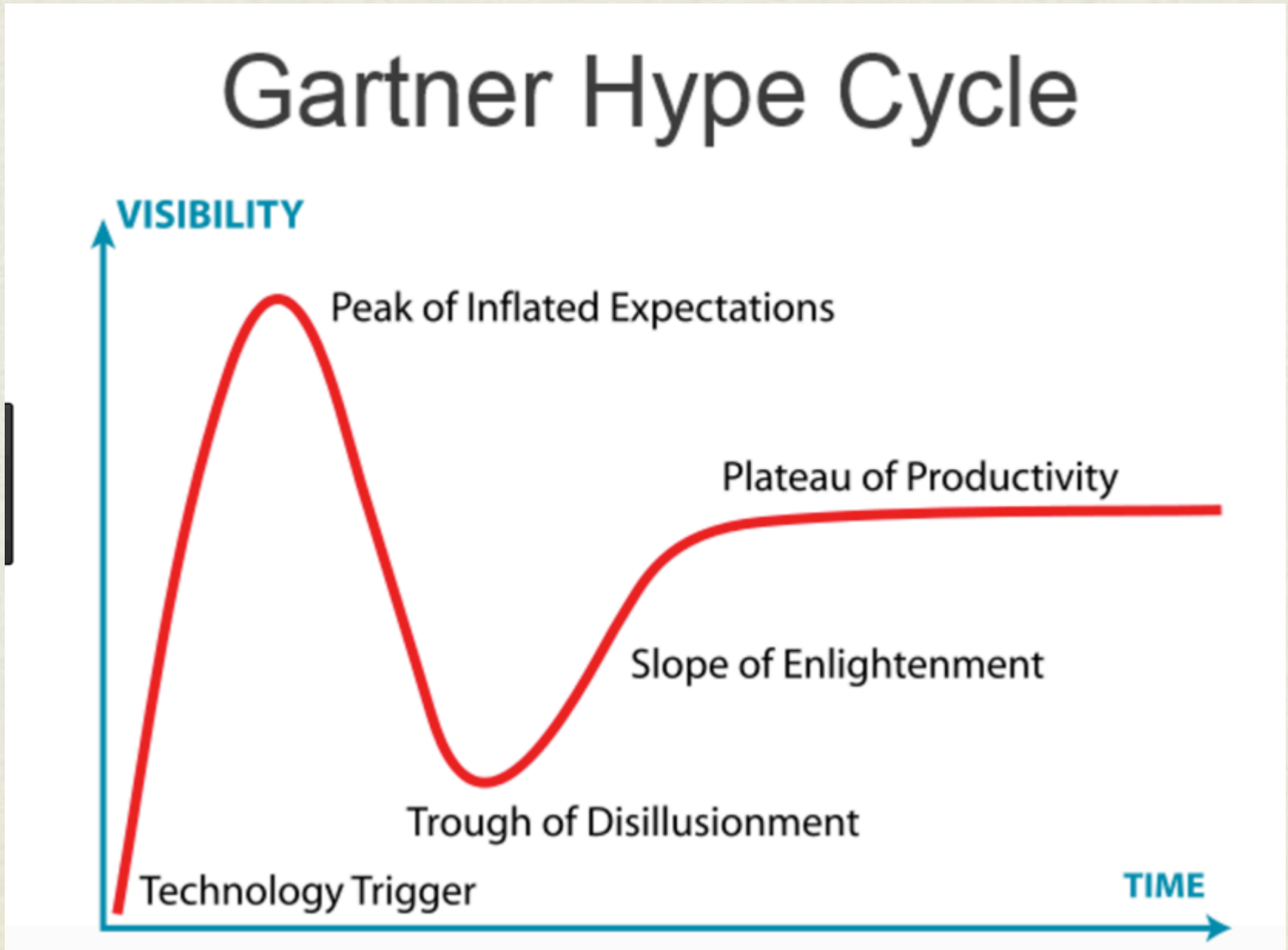
Lessons learned from educational technology transfer



What we know about digital learning

Lessons learned about digital learning

A new technology is always overhyped



Lessons learned about digital learning

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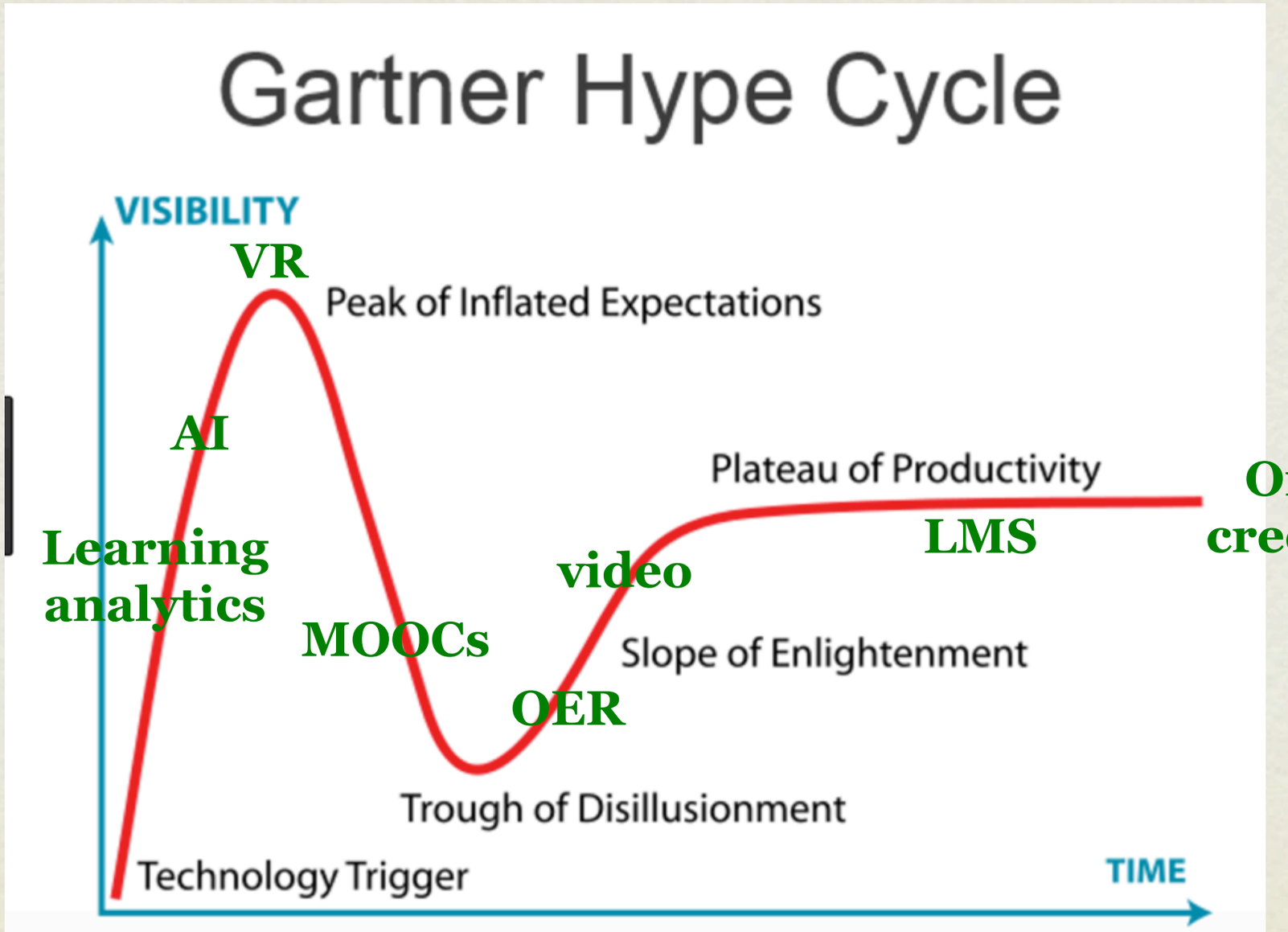


Digital learning today: some conclusions

- Digital learning is now the norm, not the exception
- <30% of all HE students in the USA are taking at least one fully online course for credit
- Most students now spend 50% or more of their study time online

What kind of course?

blended

fully online

face-to-face

classroom aids

flipped

hybrid

(distance)

no technology

(mode of delivery)

all technology

Digital learning today: some conclusions

- Faculty/instructors are totally unprepared for this
- What is best done face-to-face and what online?
- When and how to use technology for learning?

Digital learning today: some conclusions

Need to rethink the way we teach

Focus on the needs of a digital society:

- 21st century skills
- Diverse students (individualization)
- Technology literacy
- Content is free; focus on knowledge management
- Faculty as learning consultants

Conclusions

- Digital economy requires high-level intellectual skills
- Teaching methods must include opportunities for skills development
- Technology enables more flexible delivery and ways to practice skills
- But all within a specifically designed learning environment that supports learners

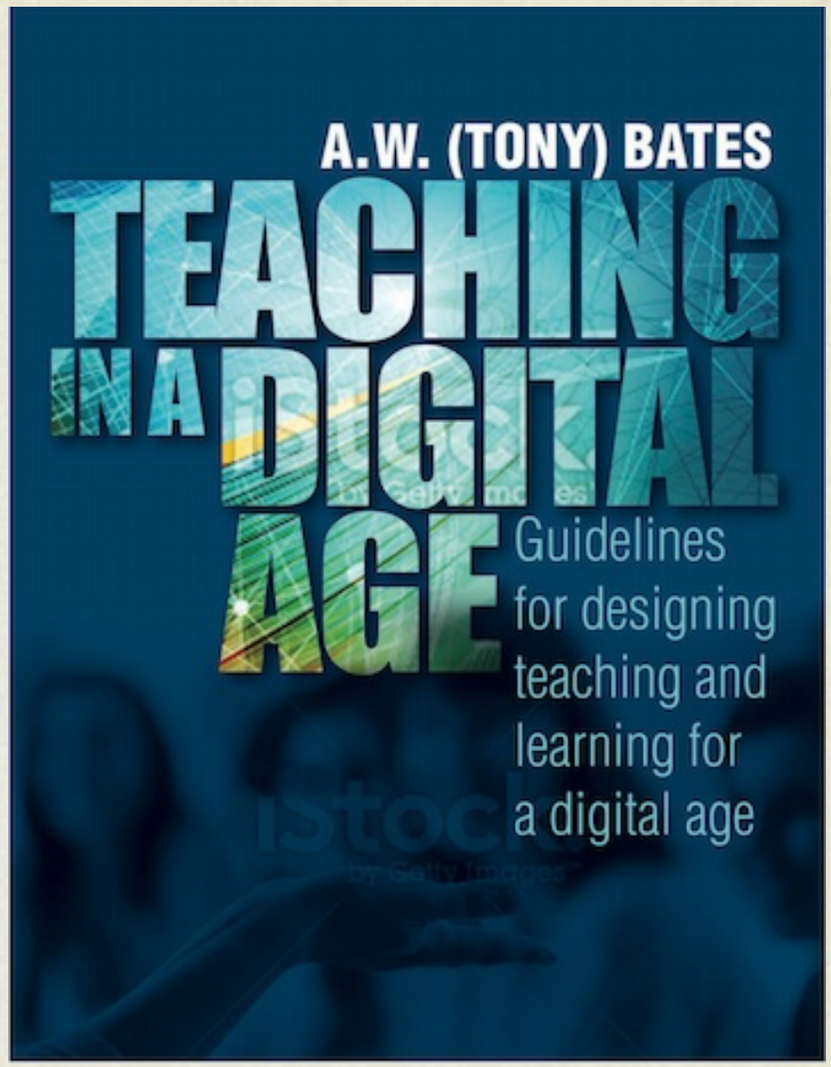
Conclusions

- Digital learning not just a challenge for developing countries
- An even bigger challenge for us here and now
- But: the countries that master digital learning will be the new masters of the universe

- Teaching in a Digital Age: https://opentextbc.ca/teachinginadigitalage/

- Blog: Online Learning and Distance Education Resources: http://www.tonybates.ca/

- E-mail: tony.bates@ubc.ca



1. Digital learning today
DE universities offering programs in China

- Harvard Extension
- Boston University Online
- IGNOU, India
- UOC, Spain
- UNISA, South Africa
- OUs: UK; Philippines; Netherlands; Hong Kong;
- Thompson Rivers University, Canada
- Open Polytechnic, New Zealand