IV Conference. Russian Association of Higher Education Researchers
Moscow, Russia. Sep. 26, 2013

"Are universities in jeopardy: Keeping traditions while taking a look into the future"

Francisco Marmolejo
Tertiary Education Coordinator
The World Bank
fmarmolejo@worldbank.org

The future.

Today?

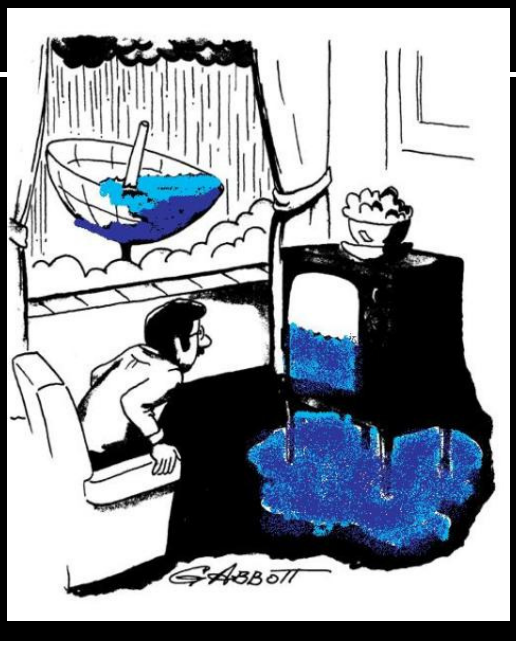
South Africa
Univ. of Johannesburg
10/10/2012
Courtesy of Daphne Koller & Andrew Ng
Stanford University & Coursera

Santiago de Chile
BANCO MUNDIAL FUERA!

Athens, Greece

España

Towards an Increasingly Interdependent World



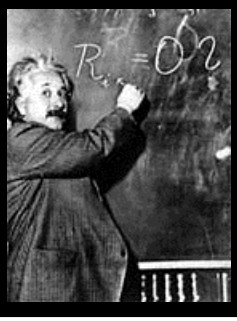
"A new reality…

…to be seen with different lenses"

I never think of the future…

…It comes soon enough

ALBERT EINSTEIN



"When I think about the future… I become scared of the present"

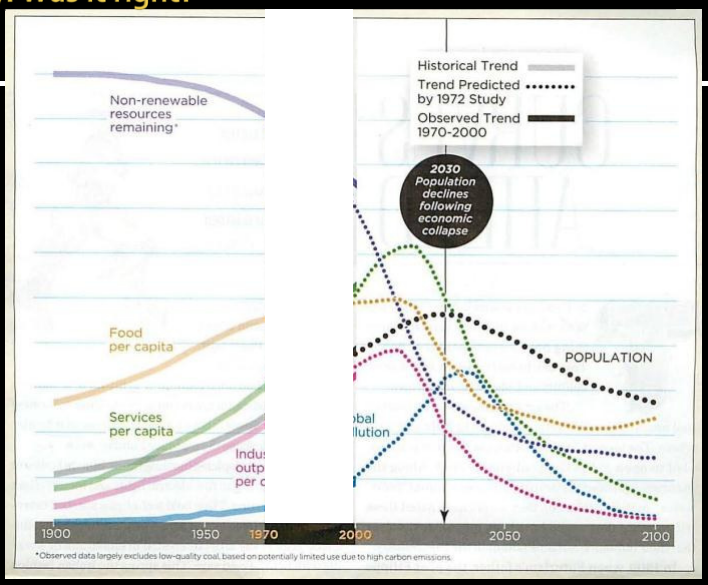
Is this a true prediction?

"Universities won't survive…higher education is in deep crisis…The college campus won't survive as a residential institution. Today's [college] buildings are hopelessly unsuited and totally unneeded"

Peter Drucker, 1997

…or it is just an exageration?

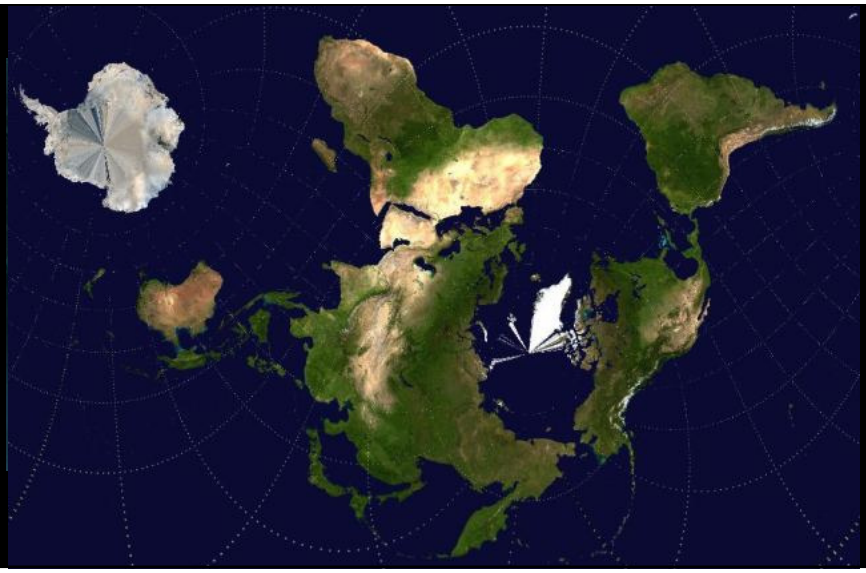
Forty years ago, a landmark study predicted the end of plenty. Was it right?



Source: Meadows, D.H. et al (1972). The Limits to Growth. New York: Universe Books.
Turner, G.M. (2008). A Comparison of the Limits to Growth 30 Years of Reality. Global Environmental Change 18(3): 397-411.

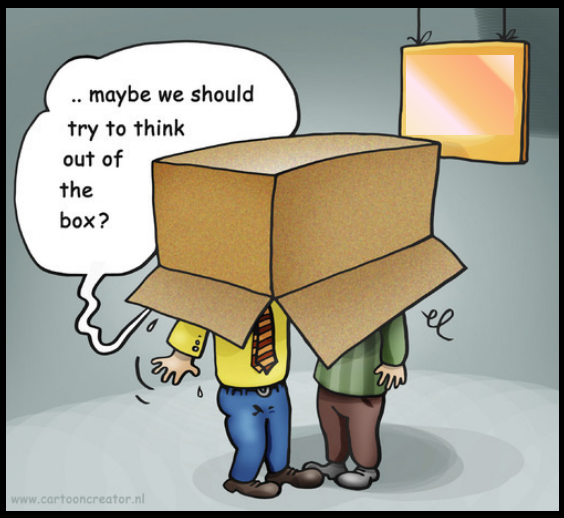
Smithsonian.com April 2012

Who told us that the South is in the South?

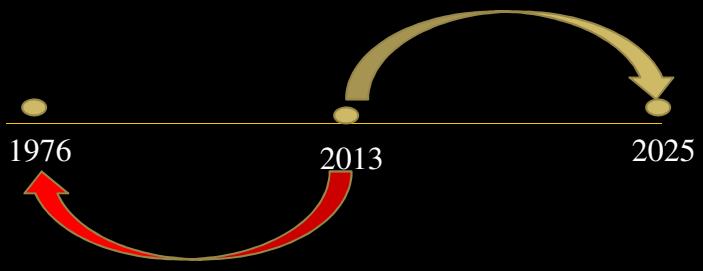


Moscow…the center of the world

The larger picture



Back to the Future…



1976…
It looks like it happened yesterday

Superar la Educación Universitaria es una Responsabilidad Tripartita

- Falta Unidad de Maestros-Alumnos y Paterfamilia
- Dos Estudiantes Señalan las Deficiencias

Por Octavio ROSTRO PICO

Francisco Javier Marmolejo Cervantes y Abel Gustavo Montoya Rivas, ambos estudiantes de la Universidad Autónoma de San Luis Potosí, opinan sobre el sistema de enseñanza universitaria y encuentran serias deficiencias apuntando las causas que las originan y aceptando la parte que corresponde al estudiante en ellas.

Los dos fueron representantes de San Luis Potosí en el Concurso Nacional Cultural de INJUVE, en donde lograron un cuarto lugar para la entidad. Francisco cursa el cuarto semestre de Preparatoria y obtuvo en el Concurso Estatal 1976-1977 el primer lugar en Cultura General, así como en Ciencias Sociales y Humanas.

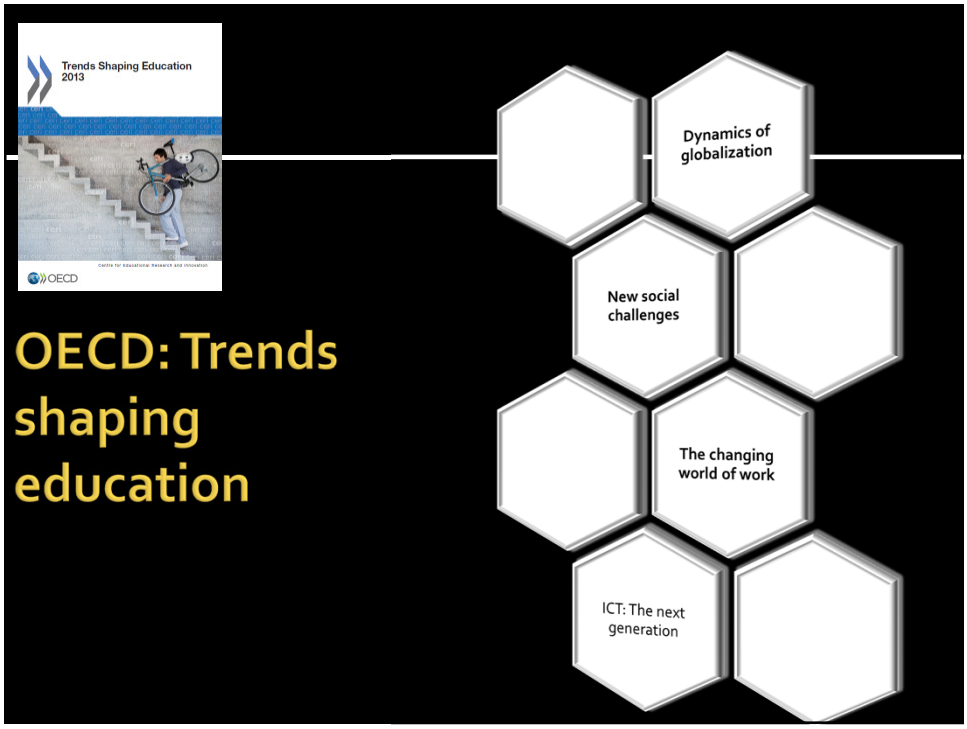
Por su parte Abel Gustavo en el mismo concurso obtuvo el primer lugar en Ciencias Básicas e Ingeniería y el Segundo en Cultura General. Cursa actualmente el sexto semestre de la carrera de Administración de Empresas. Los dos recibieron

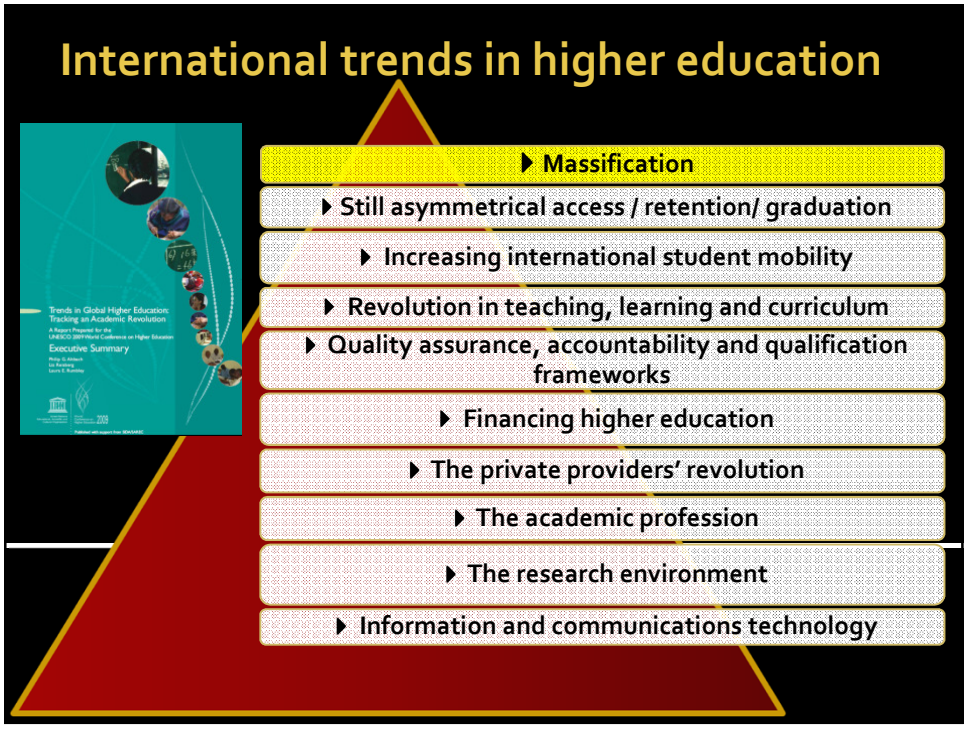
Pasa a la 5-A

Foto. Javier Marmolejo R.

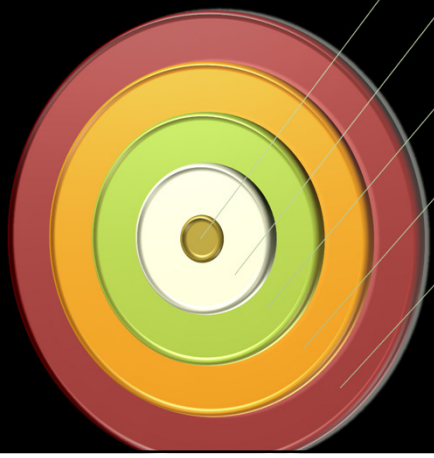
Different scenarios

...and what is the role of higher education?


Trends Shaping Education 2013
OECD
OECD: Trends shaping education
Dynamics of globalization
New social challenges
The changing world of work
ICT: The next generation


International trends in higher education
Trends in Global Higher Education: Tracking an Academic Revolution
Executive Summary
Massification
Still asymmetrical access / retention/ graduation
Increasing international student mobility
Revolution in teaching, learning and curriculum
Quality assurance, accountability and qualification frameworks
Financing higher education
The private providers' revolution
The academic profession
The research environment
Information and communications technology

A new world and regional economy



Global

Highly Competitive

Technology driven

Constantly Changing

Knowledge Based

…with persistent inequity

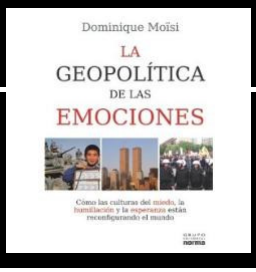
Distant realities…

Realidades distantes

Distant realities

The poor know how the rich live, and vice versa. As a result, it has become increasingly difficult for the rich to ignore the world's poor, whose anger they witness on the evening news.

Dominique Moisi.
Geopolitics of Emotions (2009)

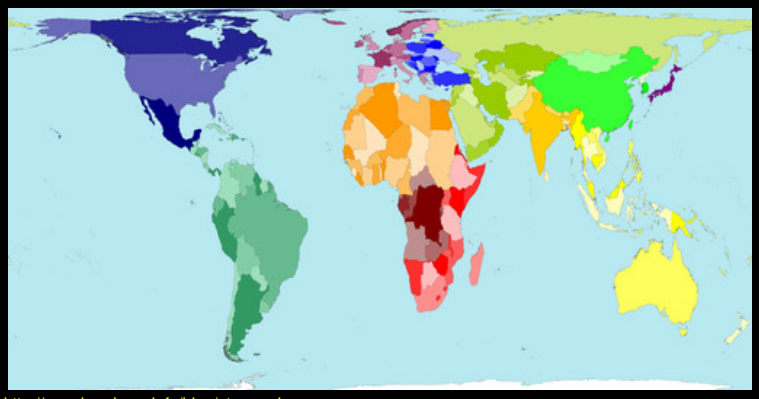


The demographic factor

2050
9 billion people

Courtesy of Paul E. Lingenfelter

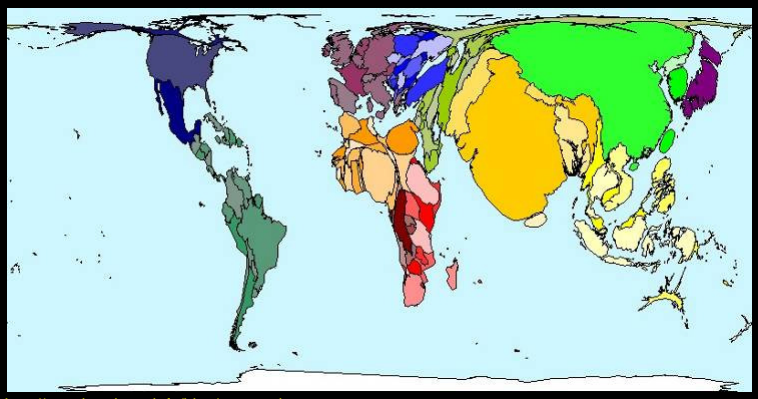
Seeing the world with different lenses



http://www.beerkens.info/blog/atom.xml

...Geographic distribution

Seeing the world with different lenses

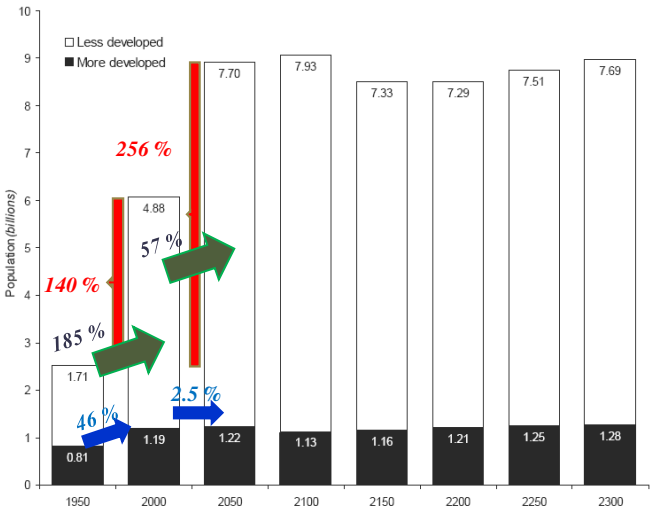


http://www.beerkens.info/blog/atom.xml

...Population distribution

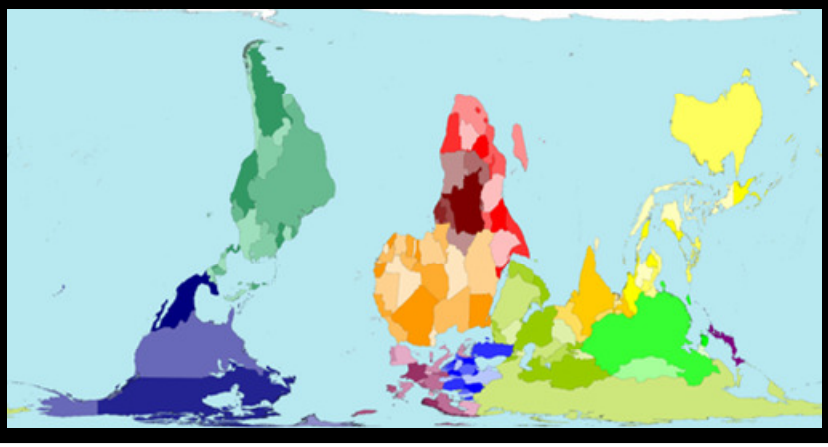
The fastest population growth in world's history... and more unequal

Figure 12. Total population, more developed and less developed regions, estimates and medium scenario: 1950-2300



A Geography Test...

¿Where are located Bangladesh, Mexico, Ethiopia, Brazil, Pakistan, Uganda, Nigeria, Vietnam and the Democratic Republic of Congo?

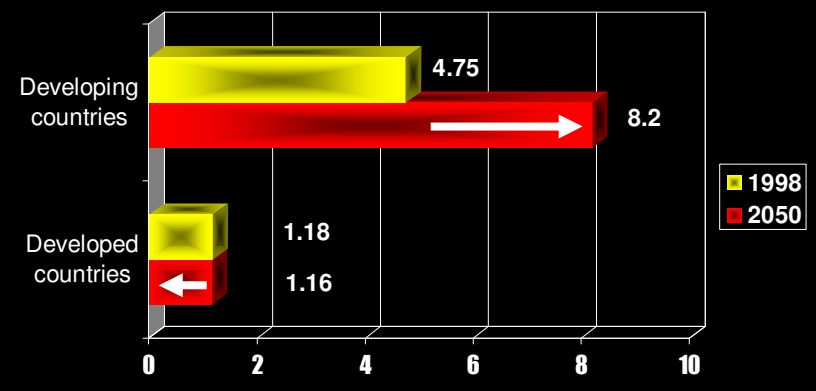


World's most populated countries. 1950-2050

RANK	COUNTRY	1950	COUNTRY	2000
1	China	554.8	China	1,275.2
2	India	357.6	India	1,016.9
3	USA.	157.8	USA	285.0
4	Russian Federation	102.7	Indonesia	211.6
5	Japan	83.6	Brazil	171.8
6	Indonesia	79.5	Russia	145.6
7	Germany	68.4	Pakistan	142.7
8	Brazil	54.0	Bangladesh	138.0
9	Great Britan	49.8	Japan	127.0
10	Italy	47.1	Nigeria	114.7
11	France	41.8	Mexico	98.9
12	Bangladesh	41.8	Germany	82.3
13	Ukraine	37.3	Philipines	75.7
14	Nigeria	29.8	Turkey	68.3
15	Spain	28.0	Egypt	67.8
16	Mexico	27.7	Iran	66.4

Fuente: ONU (2004). World Population to 2300.

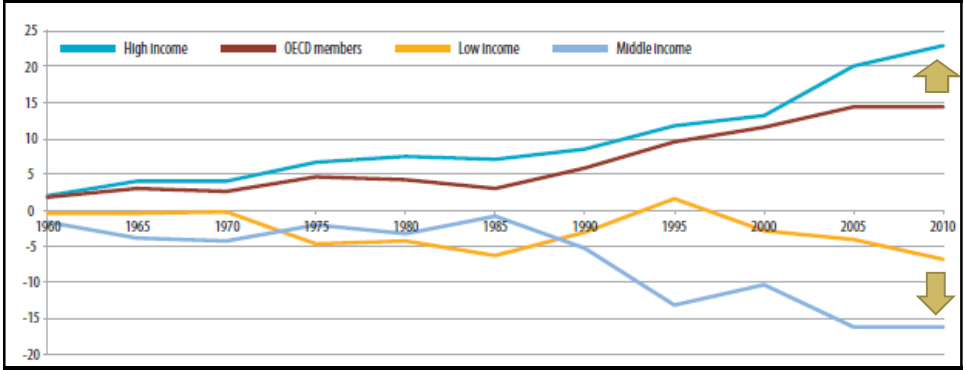
Diverting futures: Projected population growth



Source: UN 1998 World Population Report

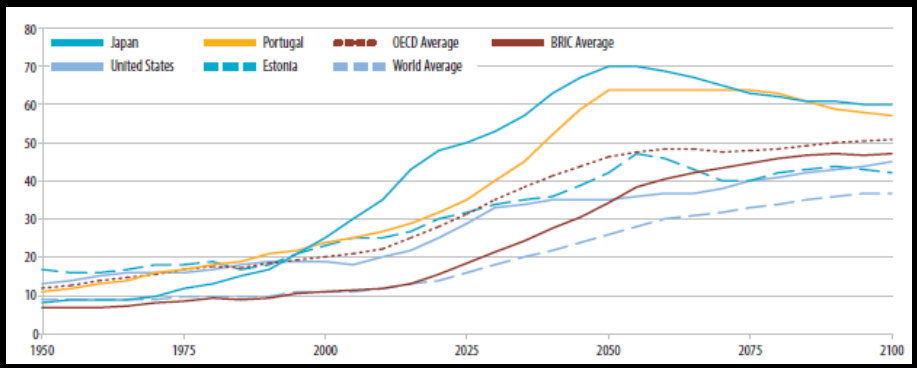
Increasing Migration Towards the Developed World

Net Migration (in millions of people). 1960-2010



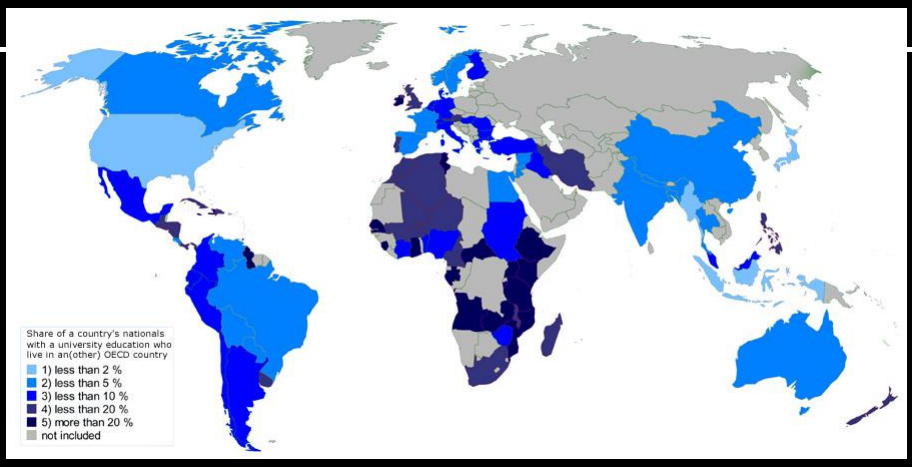
Source: World Bank (2012). World Databank: Net Migration

Population aged 65 years and over per 100 persons aged 15-65 years



Source: United Nations Population Division (2010), World Population Prospects: The 2010 Revision

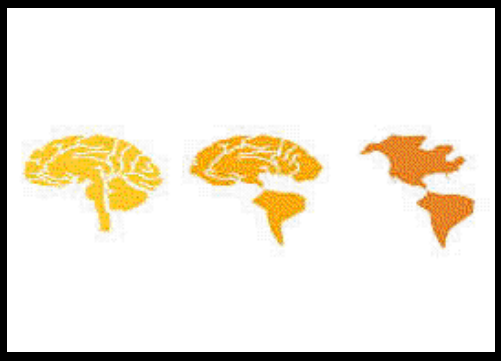
2025: Brutal pressure for talent



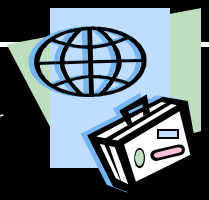
***Note**: The emigration rate of highly educated persons from country i is calculated by dividing the highly educated expatriate population from country of origin i by the total highly educated native-born population of the same country (Highly educated native-born(i)= Expatriates(i) + Resident native born(i)). Highly educated persons correspond to those with a tertiary level of education.*

***Source**: OECD Database on Foreign Born and Expatriates; Employment, Labour and Social Affairs, 2006 and Cohen D. and M. Soto, 2001, Growth and Human Capital: Good Data, Good Results, OECD Development Centre WP n°179.*

Our today's reality: A mobile society



"There are an estimated 214 million international migrants worldwide, or 3.1 percent of the population. (International Organization for Migration, 2010.) Approximately 60 percent of international migrants reside in the more developed regions, representing 10 percent of the population; in the developing world, migrants comprise only 1.4 percent of the population. ".



F. Marmolejo, S. Manley y S. Vincent-Lancrin
Immigration and access to tertiary education: Integration or marginalisation?"

OECD, 2009

中國
酒

怡心園

©Jan Egil Kirkebø

Is this sustainable in the long run… and what is the impact on higher education?

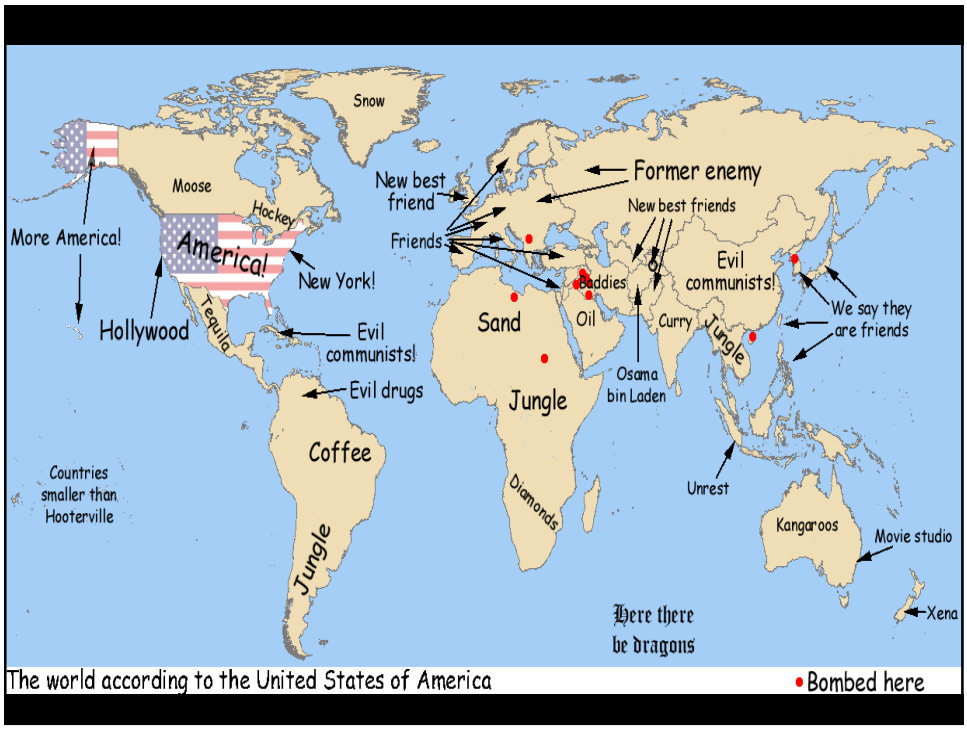
http://conahec.org

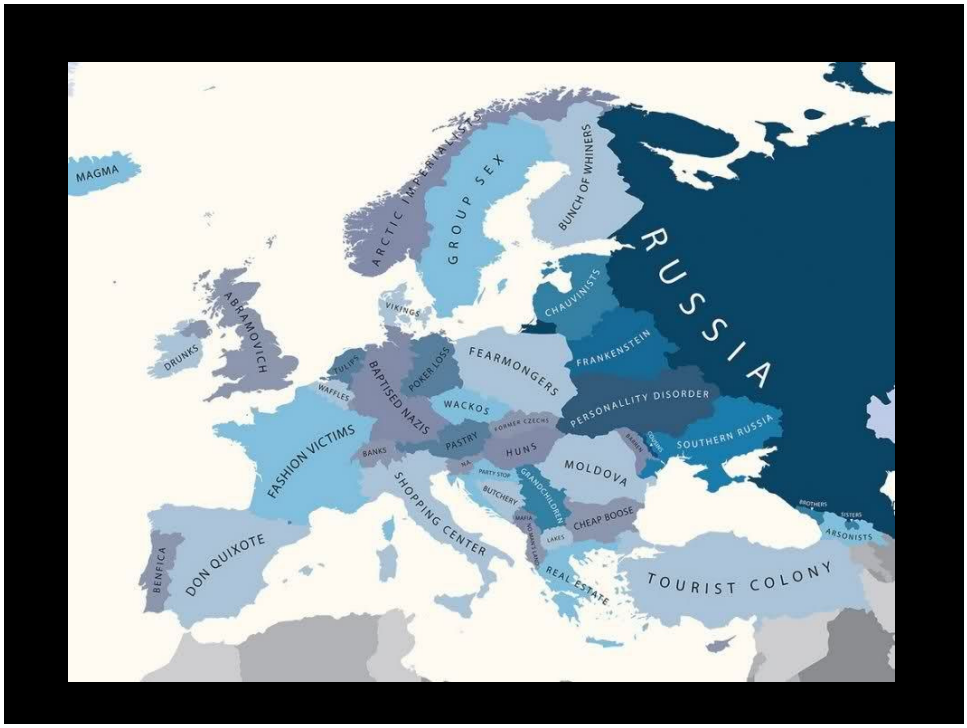
A diverse world

Tribalism and modernity

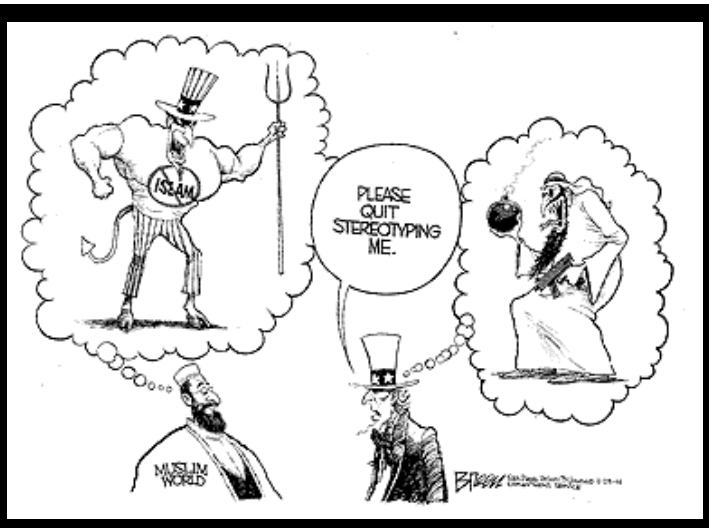
- There are more than 5,000 ethnic groups in the world and only 190 countries.
- In the Sub-Sahara region exist 1,300 linguistic groups in only 62 countries

Source: Rodger Doyle. Ethnic groups in the world. Scientific American. Sep. 1998.





Talking about stereotypes



Steve Breen. The San Diego Union-Tribune

Ten most spoken languages in the world (including second language)

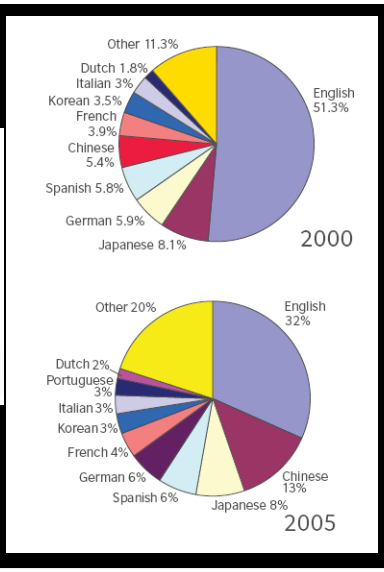
1	Mandarin	1,052
2	English	508
3	Hindi	487
4	Spanish	417
5	Russian	277
6	Bengali	211
7	Portuguese	191
8=	German	128
8=	French	128
10	Japanese	126

By the year 2050 the most widely spoken languages in the world will be:

- 1 Mandarin
- 2 English
- 3 = Spanish
- 3 = Hindi/Urdu
- 3 = Arabic
- 4 Portuguese

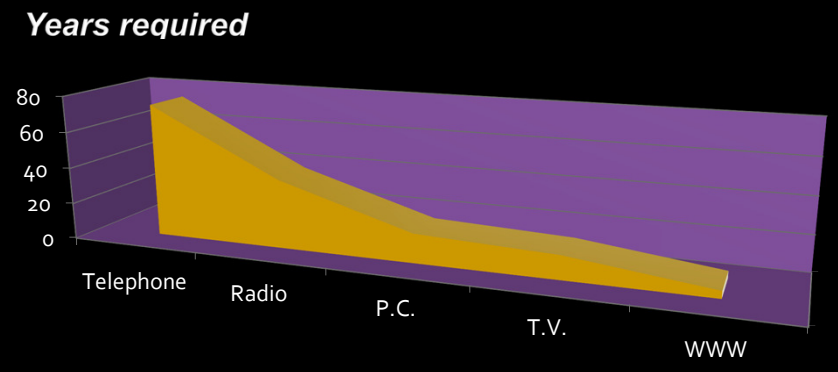
Fonte: English Next (2007). The British Council

Internet Users. Classification by native language



Source: English Next (2007). The British Council

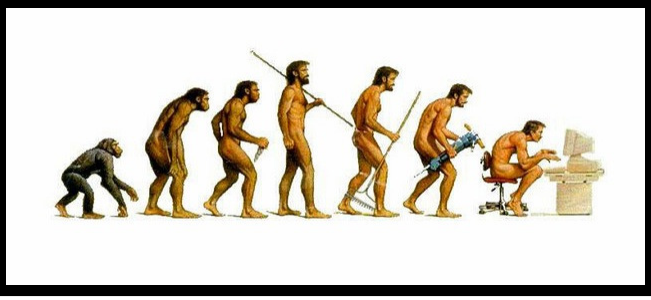
Adoption of Technology in 50 million households worldwide



Telephone	Radio	P.C.	T.V.	WWW
74	38	16	13	4

Source: ITU, 1999

Back to the Future…

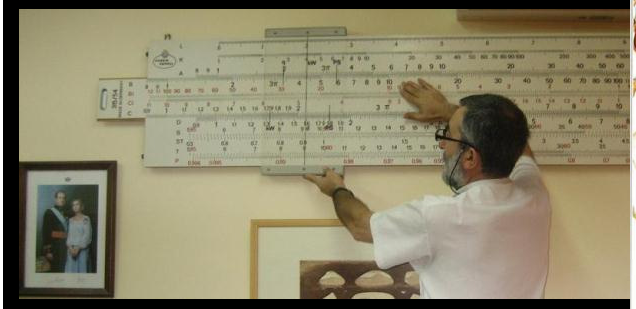


Technology in 1968

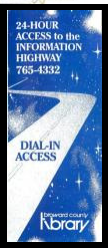
- Intel Corporation is founded.
- Larry Roberts publishes ARPANET program plan.
- UCLA is selected to be the first node on the Internet as we know it today.
- The movie "2001: A Space Odyssey" is released.
- Seiko markets a miniature printer for use with calculators.
- Doug Englebart publicly demonstrates Hypertext.

Source: http://www.computerhope.com/history/196080.htm

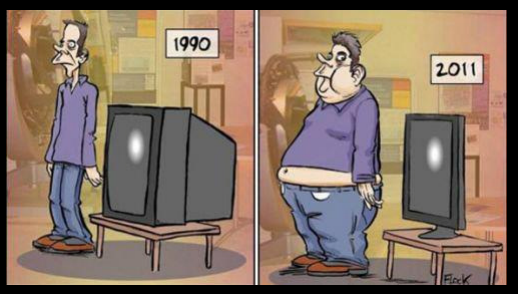
Do you remember the Slide Rule?



Our technology



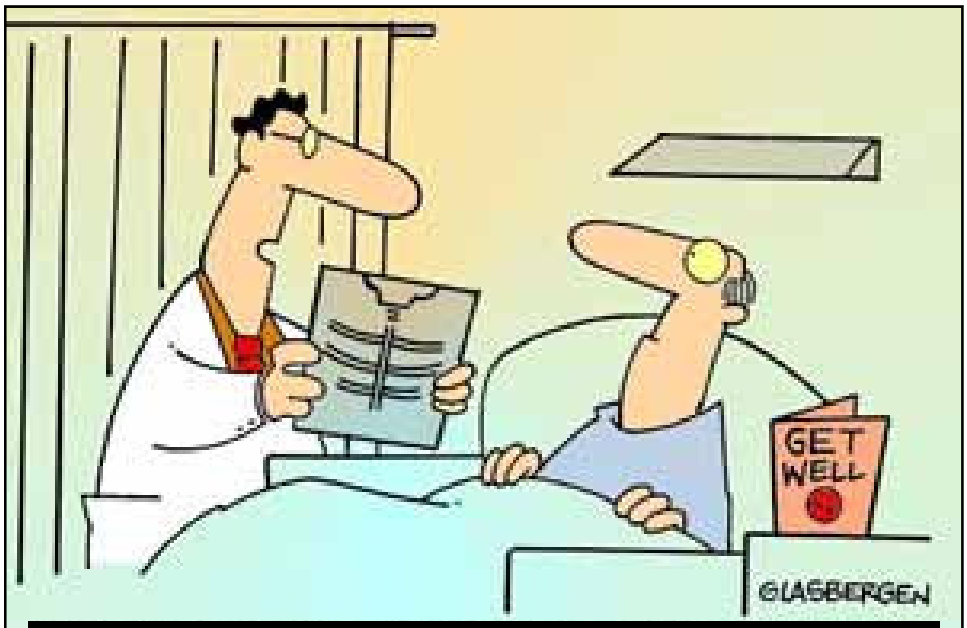
Our technology



"Today twenty households with average broadband usage generate as much traffic as the entire Internet carried in 1995"

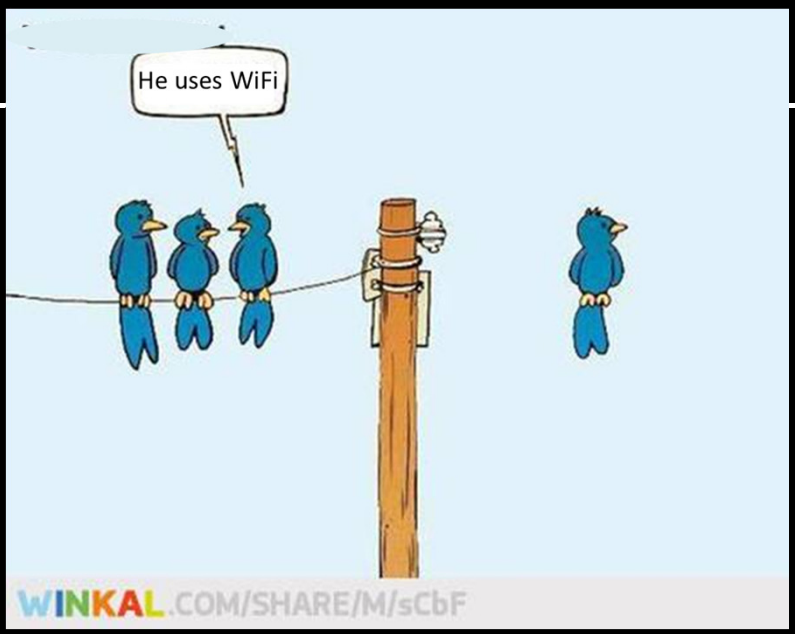
Katie McAuliffe, Digital Liberty

Source: IEEE Spectrum. Jan. 2013. Dataflow. p80



Your X-Rays show a broken rib, but it has been Photoshopped

Leaving a legacy



World Connection Density

MOOCs: Too good to be true?

- A **massive open online course** (**MOOC**) is a type of online course aimed at large-scale participation and open access via the web. MOOCs are a recent development in the area of distance education, and a progression of the kind of open education ideals suggested by open educational resources

Source: http://en.wikipedia.org/wiki/Massive_open_online_course

edX
coursera
UDACITY
UoPeople
UNIVERSITY
OF THE PEOPLE
Tuition-Free Online University

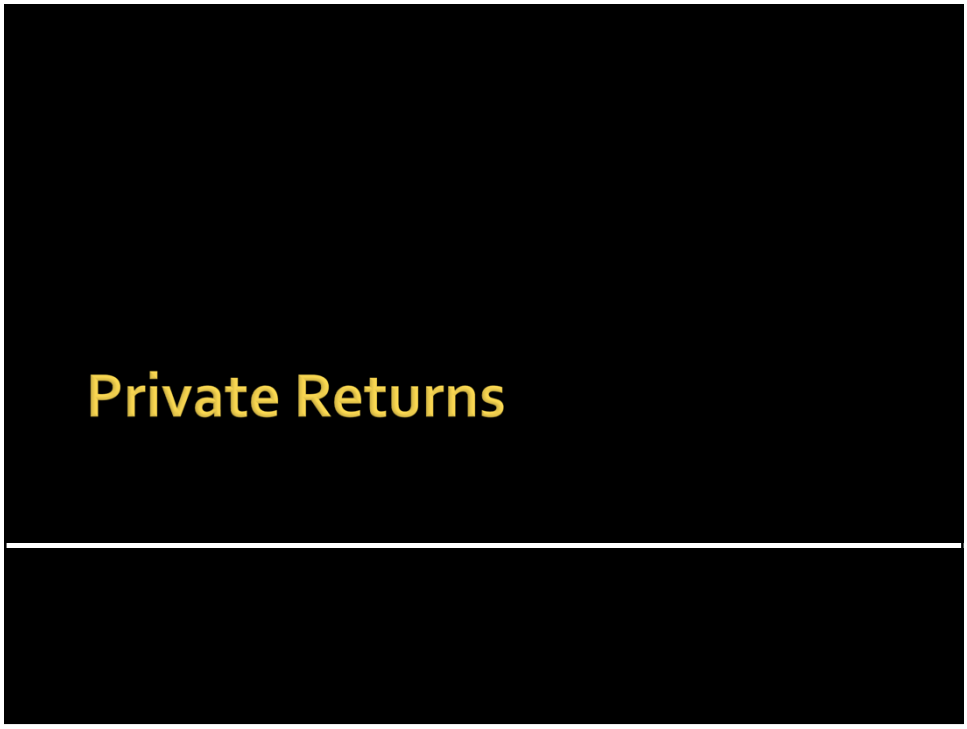
62 Universities
Discussion forum
313 courses
Video lectures
2.7 million students
Community
196 countries
1.45 million enrolls/month
Assessments

Stanford
University of Michigan
Penn
Princeton University
University of Washington
University of Virginia
University of Minnesota
Illinois
Wisconsin
UC Santa Cruz
UCSF
University of California San Francisco
University of Florida
Vanderbilt University
UC San Diego
University of Maryland
The Ohio State University
UCIrvine
Icahn School of Medicine at Mount Sinai
Duke University
Northwestern University
Rice
CalArts
Caltech
Johns Hopkins University
University of Colorado Boulder
Brown
Emory University
Georgia Tech
University of Rochester
Berklee college of music
University of Pittsburgh
Columbia University in the City of New York
Curtis Institute of Music
Rutgers
Penn State
The University of North Carolina at Chapel Hill
Case Western Reserve University
Wesleyan University

香港中文大學
The Chinese University of Hong Kong
DTU
fe business school
The Hebrew University of Jerusalem
University of Copenhagen
Sapienza Università di Roma
EPFL
École Polytechnique Fédérale de Lausanne
The University of Edinburgh
University of Toronto
National Taiwan University
UAB
Universitat Autònoma de Barcelona
The University of Melbourne
a place of mind
The University of British Columbia
The University of Tokyo
Technische Universität München
University of London International Programmes
UNAM
Universidad Nacional Autónoma de México
Université de Genève
NUS
National University of Singapore
香港科技大學
The Hong Kong University of Science and Technology
Universiteit Leiden
Tecnológico de Monterrey
LMU

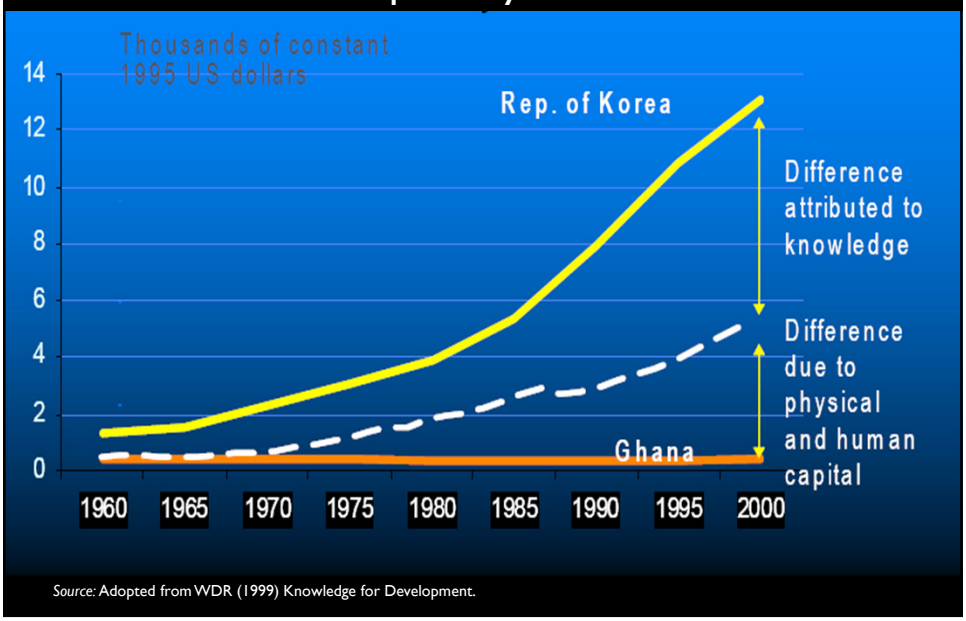
What is the impact on higher education?

An evident connection:
Education – Economic Development –
Social Development

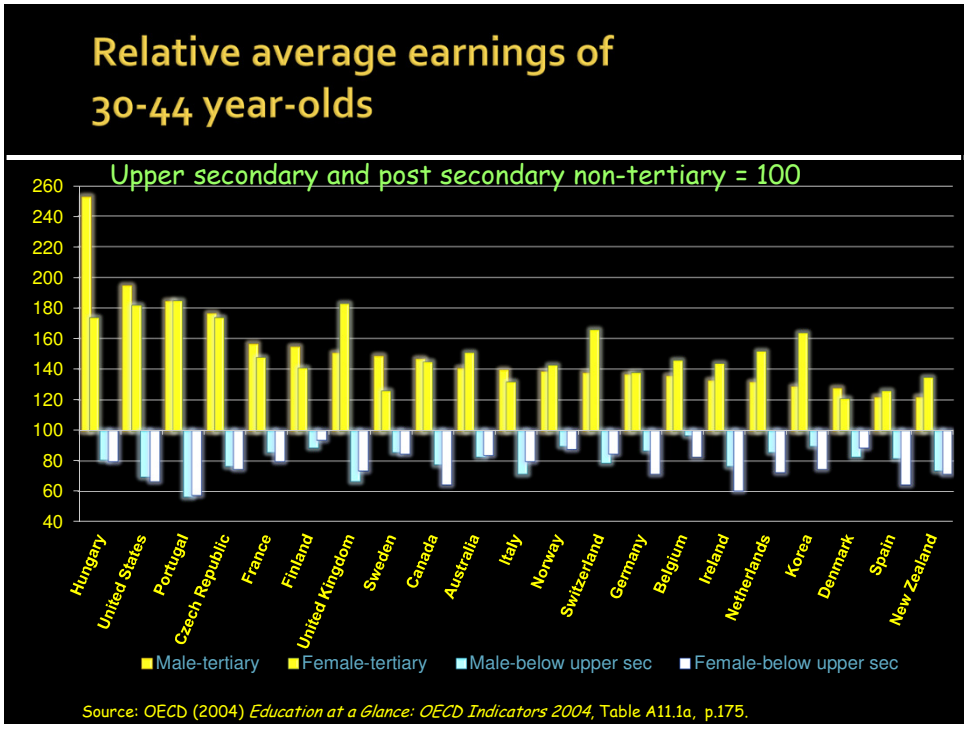

Private Returns

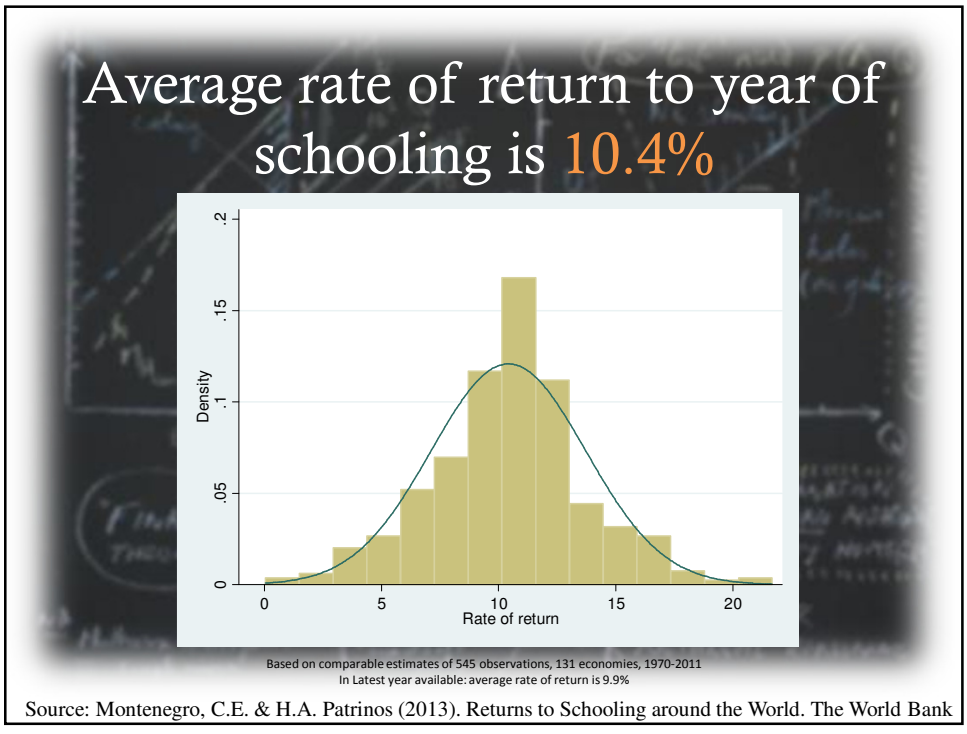
Societal Economic Returns

Knowledge makes the difference between poverty and wealth



Source: Adopted from WDR (1999) Knowledge for Development.


Relative average earnings of 30-44 year-olds
Upper secondary and post secondary non-tertiary = 100
260
240
220
200
180
160
140
120
100
80
60
40
Hungary
United States
Portugal
Czech Republic
France
Finland
United Kingdom
Sweden
Canada
Australia
Italy
Norway
Switzerland
Germany
Belgium
Ireland
Netherlands
Korea
Denmark
Spain
New Zealand
Male-tertiary
Female-tertiary
Male-below upper sec
Female-below upper sec
Source: OECD (2004) Education at a Glance: OECD Indicators 2004, Table A11.1a, p.175.


Average rate of return to year of schooling is 10.4%
Density
0
.05
.1
.15
.2
0
5
10
15
20
Rate of return
Based on comparable estimates of 545 observations, 131 economies, 1970-2011
In Latest year available: average rate of return is 9.9%
Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling around the World. The World Bank

Returns highest at Tertiary Level

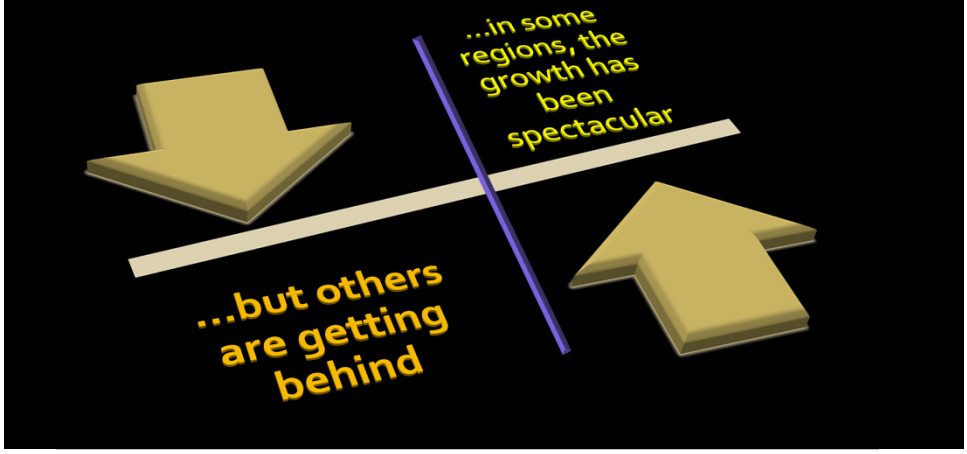
Table 3: Returns to schooling by educational level and region (latest available year between 2000-2011)

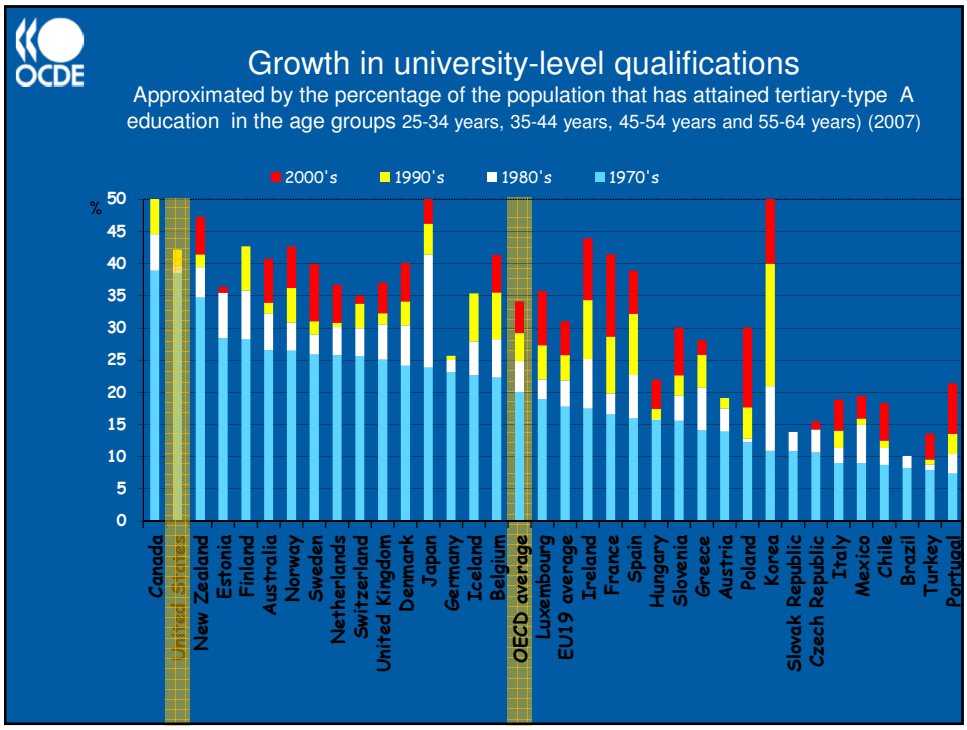
Region	Primary	Secondary	Tertiary	GDP/pc (PPP 2005)	N
World	10.3	6.9	16.8	6,719	74
Middle East and North Africa	9.4	3.5	8.9	3,645	7
South Asia	9.6	6.3	18.4	2,626	4
Eastern and Central Europe	8.3	4.0	10.1	6,630	7
High Income Economies	4.8	5.3	11.0	31,748	6
East Asia and Pacific	11.0	6.3	15.4	5,980	6
Latin America and Caribbean	9.3	6.6	17.6	7,269	20
Sub-Saharan Africa	13.4	10.8	21.9	2,531	24

Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling around the World. The World Bank

Implications for Higher Education

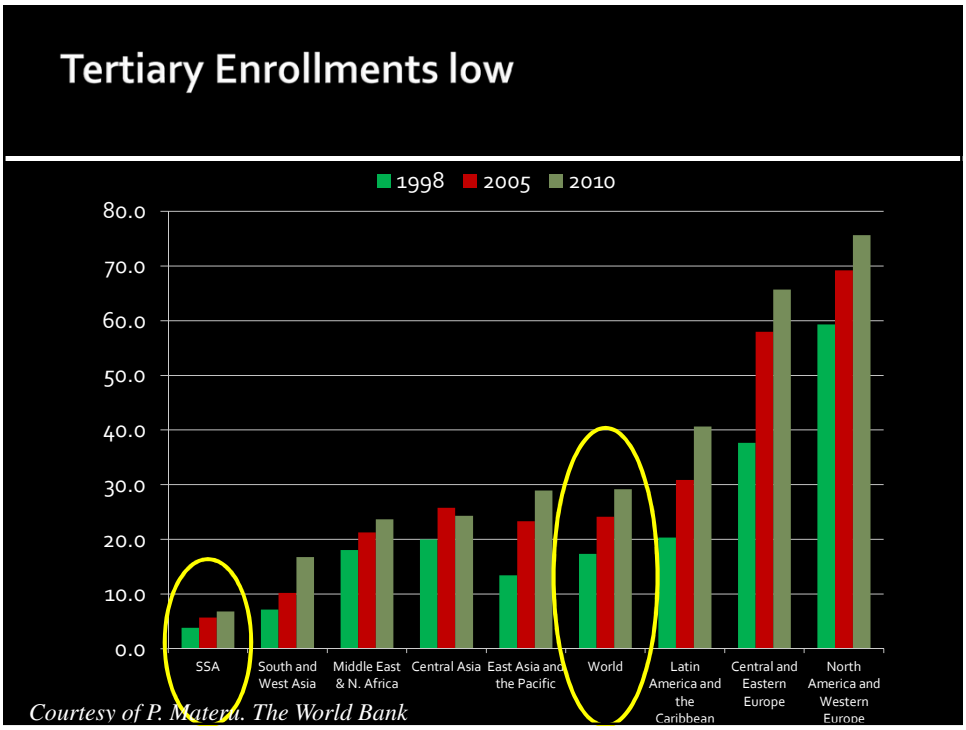
More than ever more people are having access to higher education ...



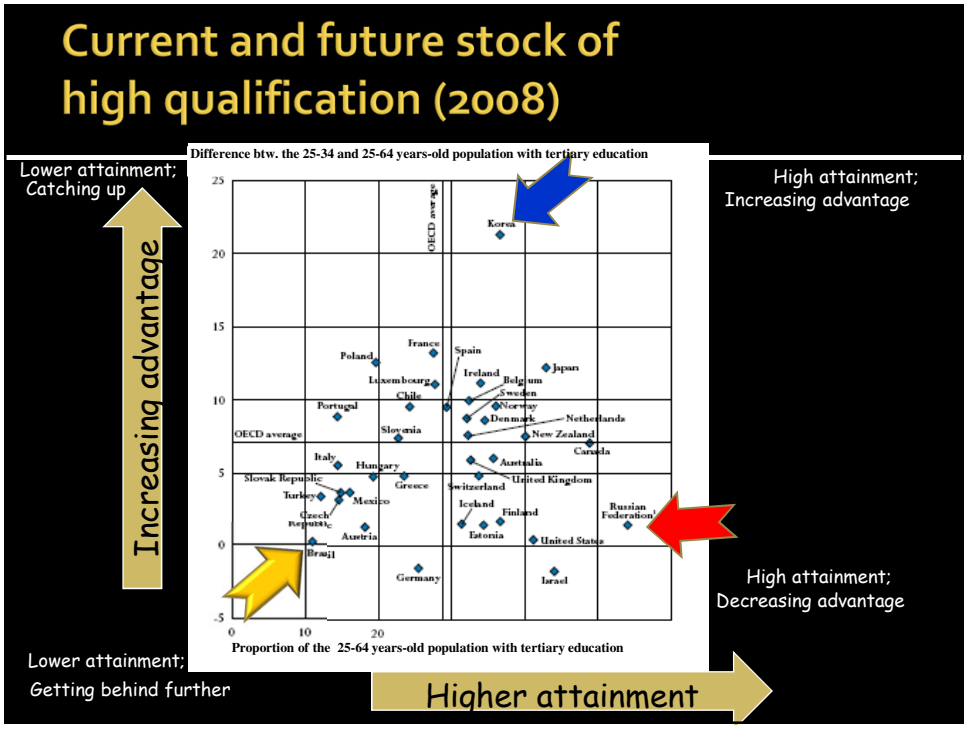


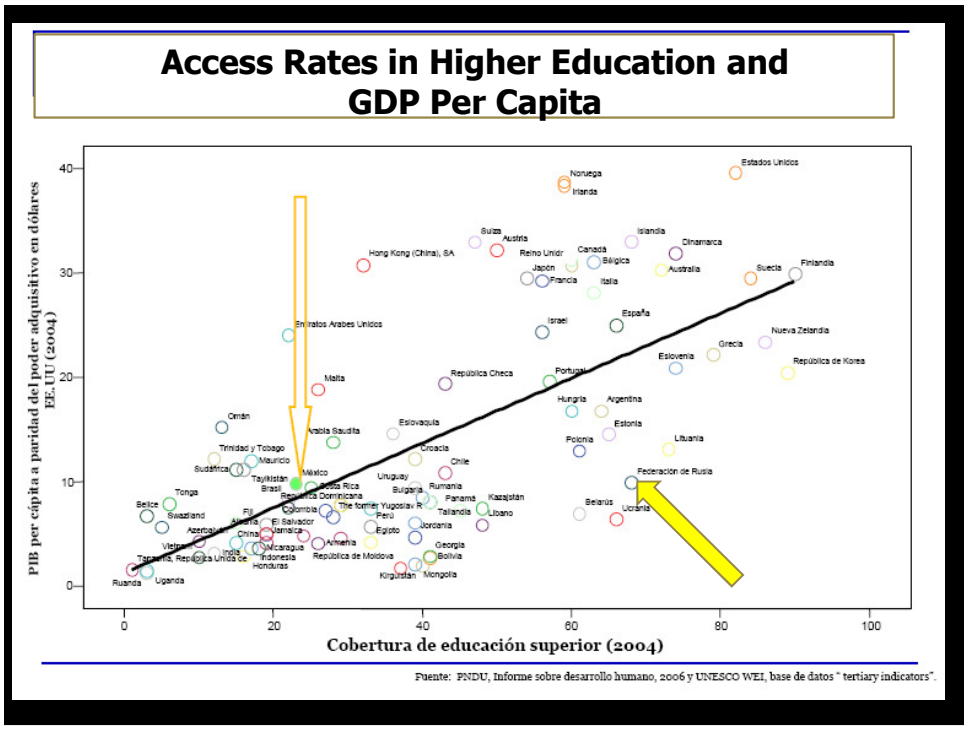
Higher education, still a privilege for a few

Tertiary Enrollments low

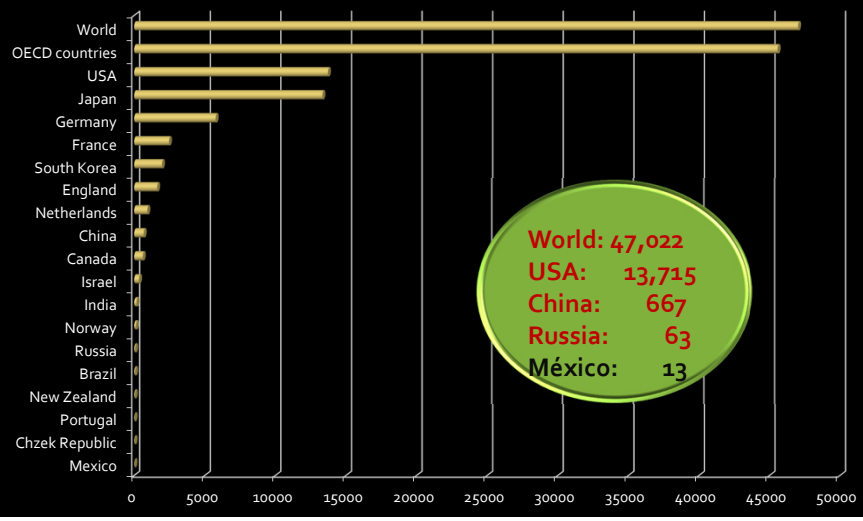


Courtesy of P. Materu. The World Bank


Current and future stock of high qualification (2008)
Difference btw. the 25-34 and 25-64 years-old population with tertiary education
Proportion of the 25-64 years-old population with tertiary education
Lower attainment; Catching up
Increasing advantage
High attainment; Increasing advantage
High attainment; Decreasing advantage
Lower attainment; Getting behind further
Higher attainment
OECD average
Korea
France
Spain
Poland
Ireland
Japan
Luxembourg
Belgium
Chile
Sweden
Portugal
Norway
Denmark
Netherlands
Slovenia
New Zealand
Canada
Italy
Hungary
Australia
Slovak Republic
Greece
Switzerland
United Kingdom
Turkey
Mexico
Iceland
Finland
Russian Federation
Czech Republic
Austria
Estonia
United States
Brazil
Germany
Israel

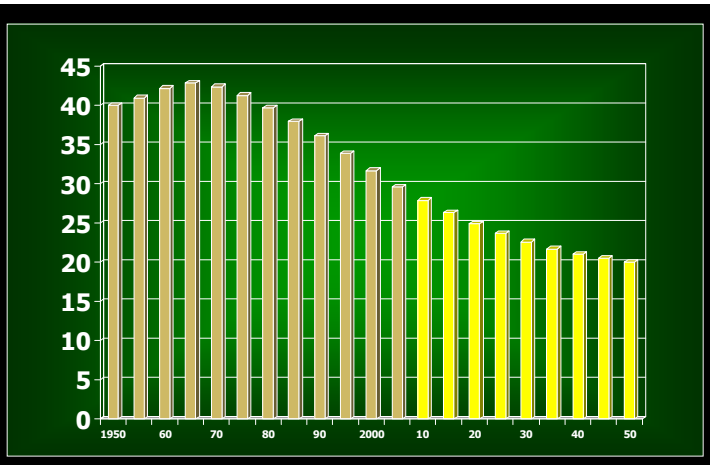

Access Rates in Higher Education and GDP Per Capita
PIB per cápita a paridad del poder adquisitivo en dólares EE.UU (2004)
Cobertura de educación superior (2004)
Fuente: PNDU, Informe sobre desarrollo humano, 2006 y UNESCO WEI, base de datos " tertiary indicators".

Triadic Patent Families. 2009 (OECD)

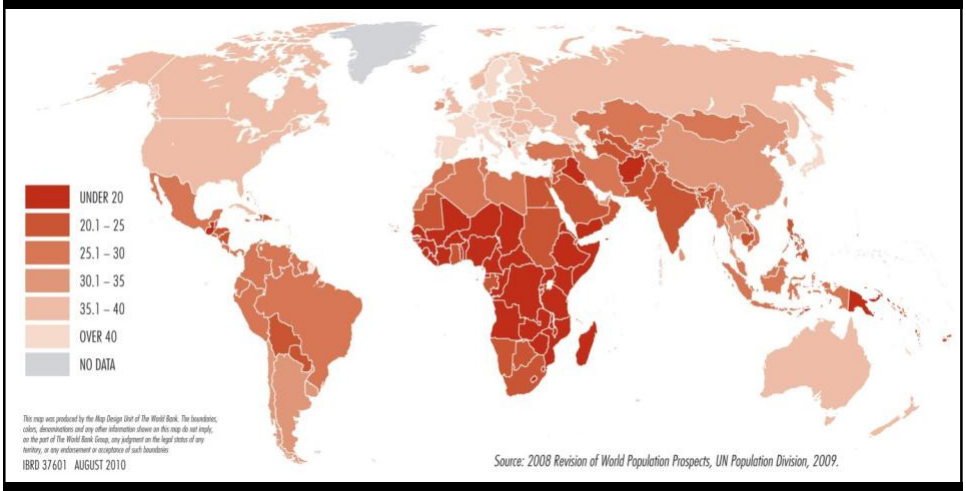


Increased pressure for access to higher education…. but not for many years.

Latin America and the Caribbean: Percentage of population under 15 years of age



Demographics - Youth in Africa



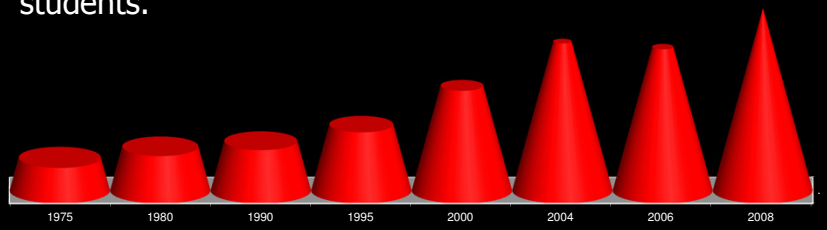
Global Median Age in 2010

117

2025: More internationalized higher education institutions

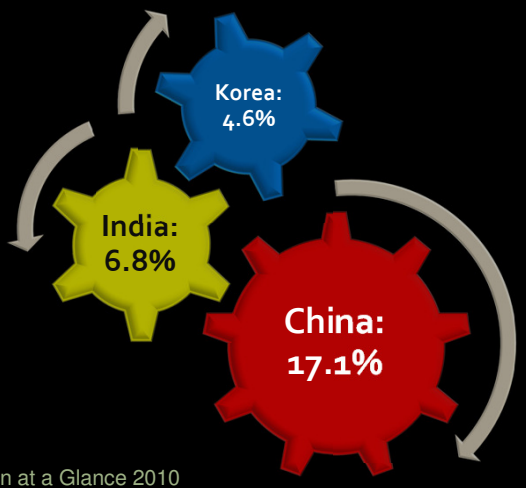
Long term growth in the number of students enrolled outside their country of citizenship (1975-2008)

More than 3.3 million students abroad.
It is forecasted that by 2020 there will be 7 million international students.



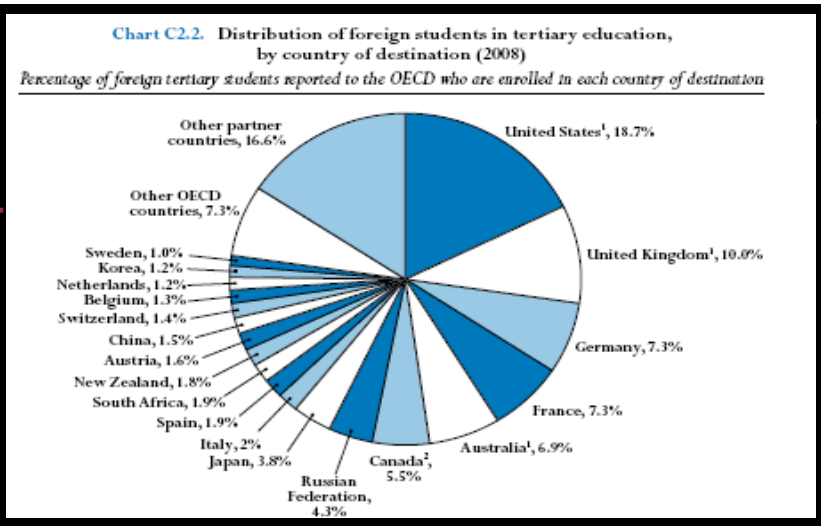
Source: OECD and UNESCO Institute for Statistics (for data on non-OECD countries and up to 1995).

Top three student sending countries to OECD member nations



Source: OECD Education at a Glance 2010

Distribution of international students at OCDE countries. (2002) (2006) (2008)



Who needs international education anyway?

"In the 21st Century there will be only two kinds of people: Those who think globally, and those who are looking for work"

Peter F. Drucker

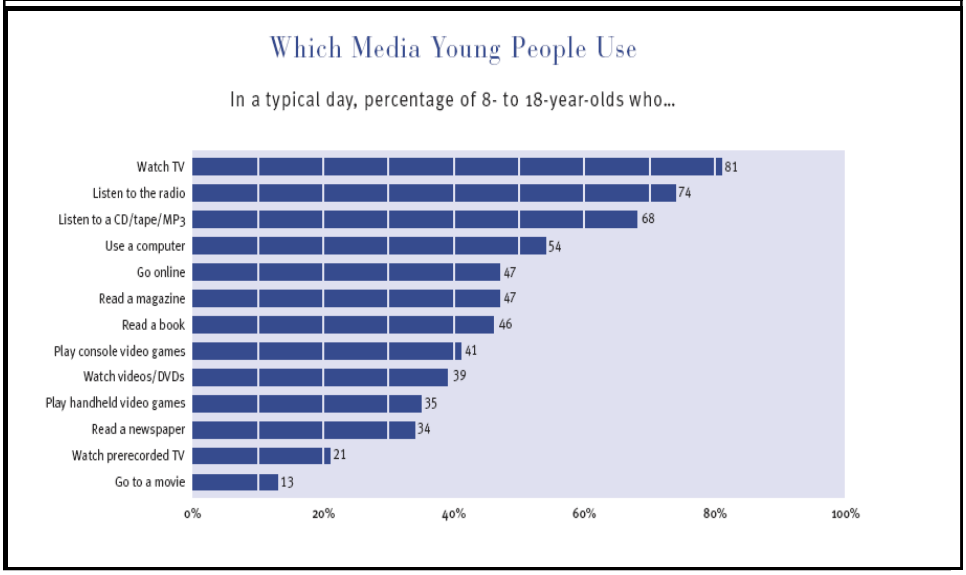
Internationalization: Beyond the traditional approach

Why?

A new type of students

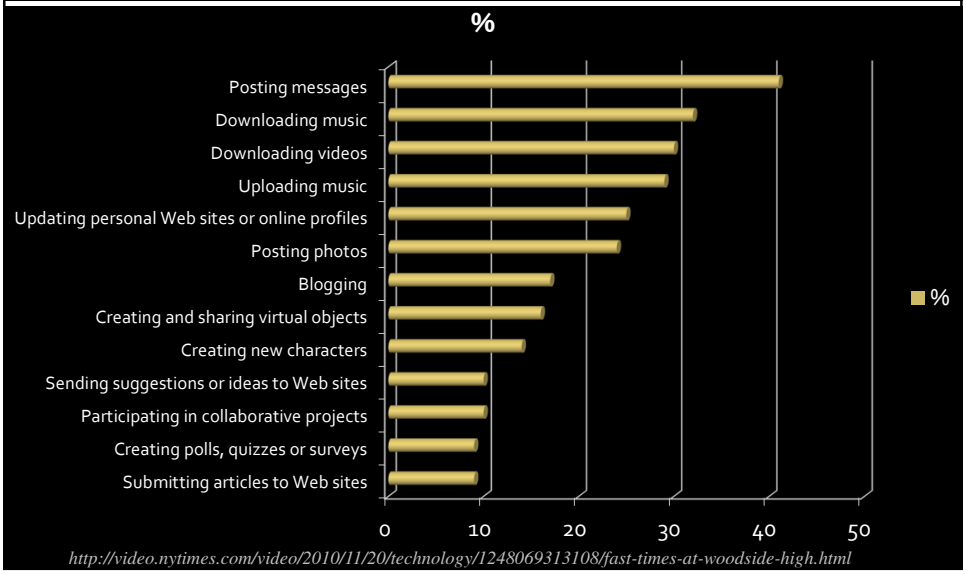
New students: Generation M

¿Sequential? Multi-task?



Popular Social Networking Activities:

Percentage of teenagers who say they do these activities at least weekly



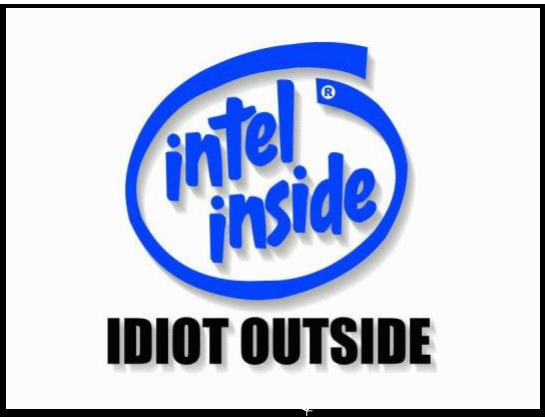
http://video.nytimes.com/video/2010/11/20/technology/1248069313108/fast-times-at-woodside-high.html

Do your kids know more technology than you?

Response from parents with kids 6-17 years old

Pew Internet & American Life: US educators not Net-savvy Aug 14 2002: A new study from Pew Internet & American Life indicates that 78 percent of middle and high school students in the US use the Internet.

However, most American teenagers claim that educators often don't know how, don't want, or aren't able to use online tools to help them learn or enrich their studies.

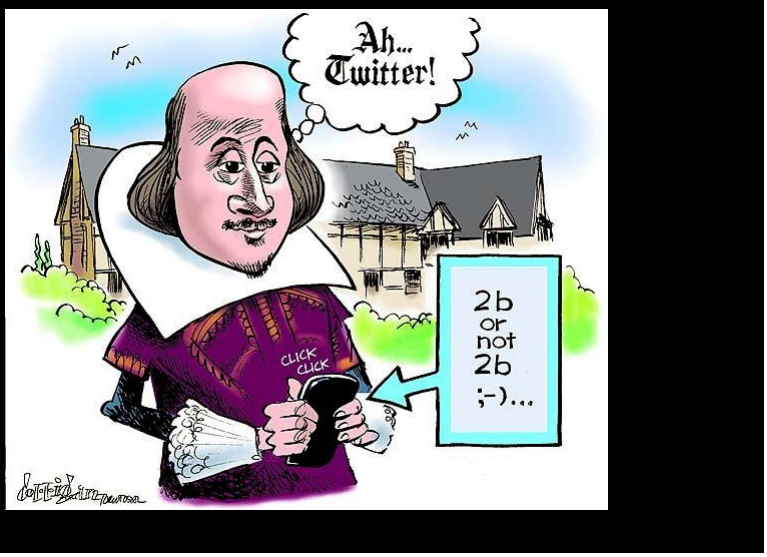


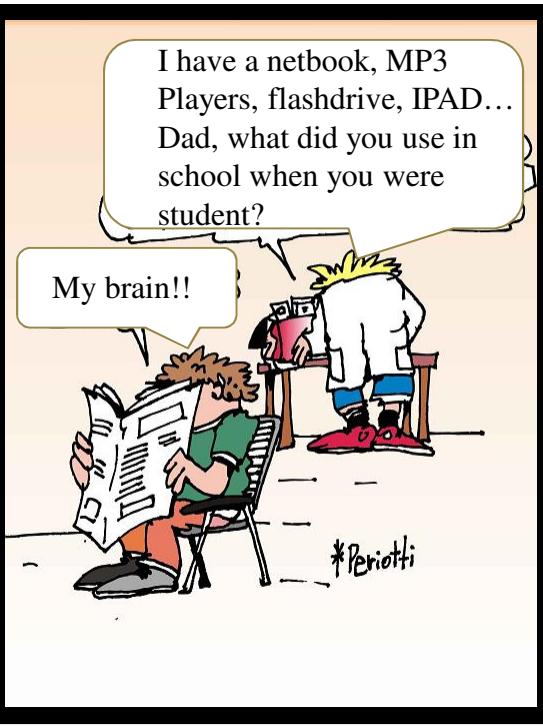
Source: Market Facts/TeleNation for GTE Directories. USA Today. Sep. 24-98

YES
NO

http://conahec.org

"Continous Partial Attention Syndrome"


Ah... Twitter!
2b or not 2b ;-)...
CLICK CLICK


I have a netbook, MP3 Players, flashdrive, IPAD… Dad, what did you use in school when you were student?
My brain!!
*Periotti

Students of the knowledge society

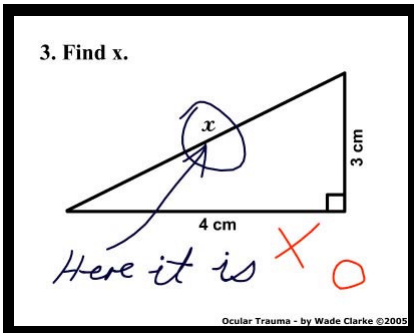
Answers to questions asked in tests

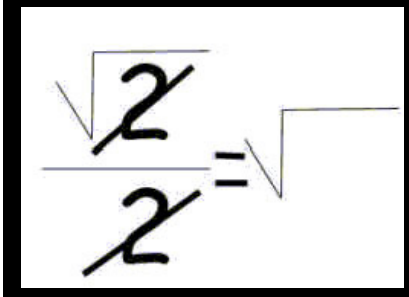
GEOMETRY

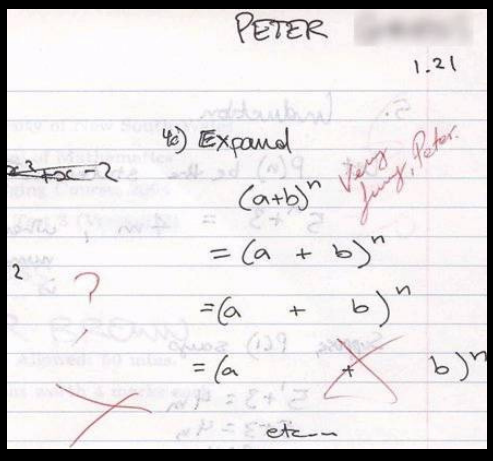
- *Define what a circle is:*
  It is a line connected by two ends making a round figure.
- *What is Trigonometry?:*
  Device used to measure trigonometers.

THE HUMAN BODY

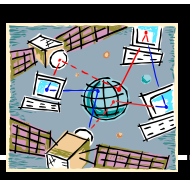
- *What are the movements of the heart?:*
  - The heart is always in movement. It doesn't move in the case of corpses only.
-
- *Brain:*
  Ideas, after being spoken, go straight to the brain.







The Information Explosion



The total amount of available information doubles every four to five years.

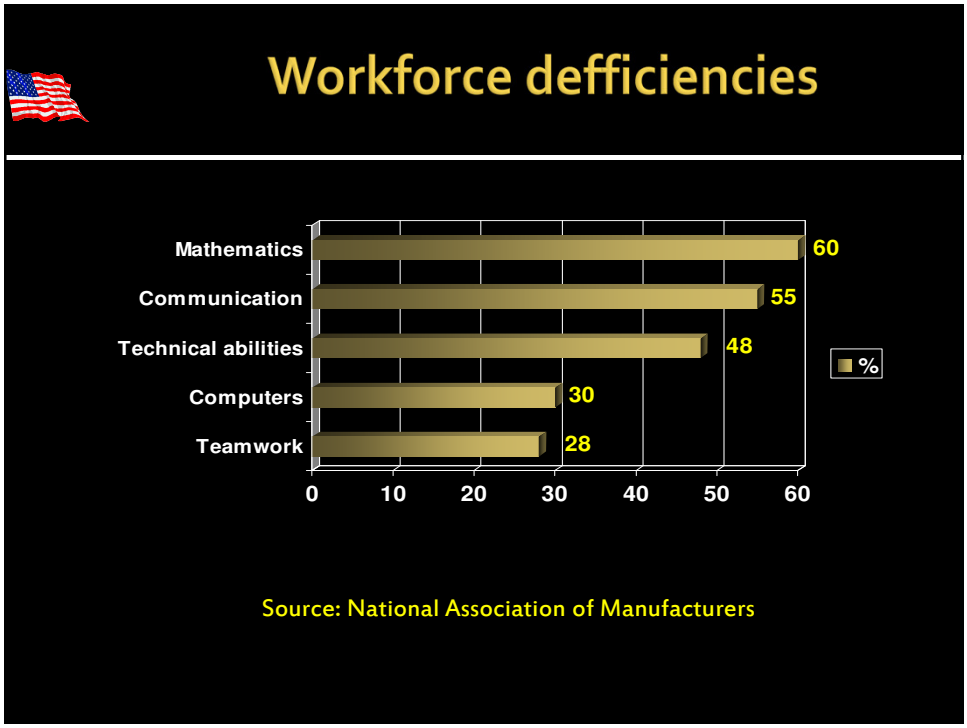
The total of all human knowledge that was available for undergraduate students in 1997, will be less than 1 % of that will be available for students in the year 2050.

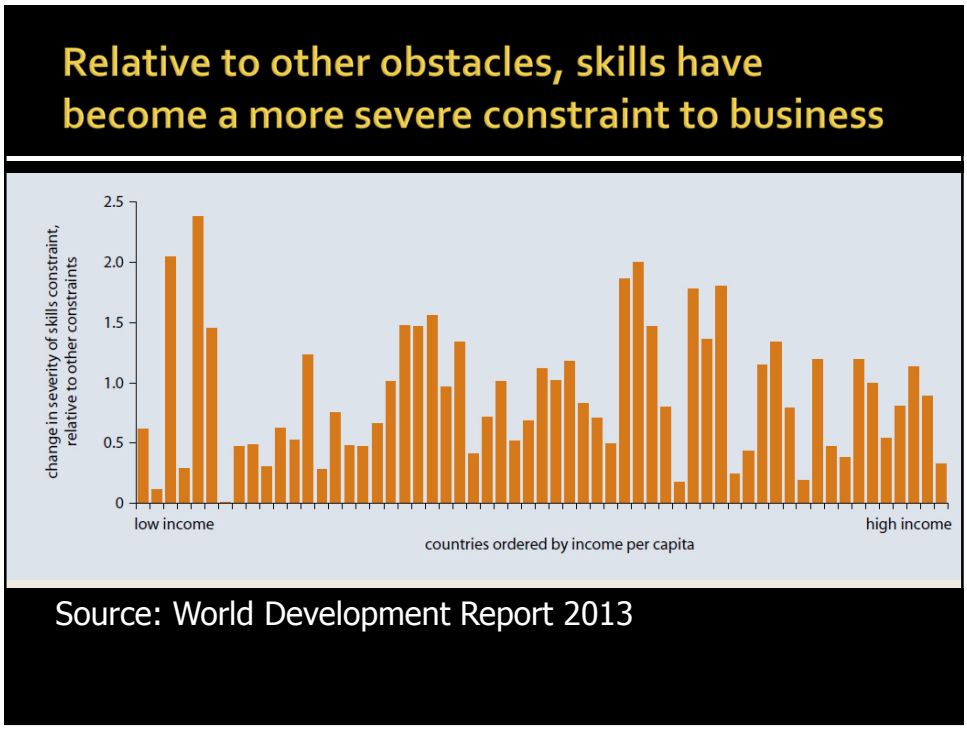
Gajaraj Dhanarajan

142

143

Disconnects in Higher Education


Workforce defficiencies
Mathematics
Communication
Technical abilities
Computers
Teamwork
60
55
48
30
28
%
0
10
20
30
40
50
60
Source: National Association of Manufacturers

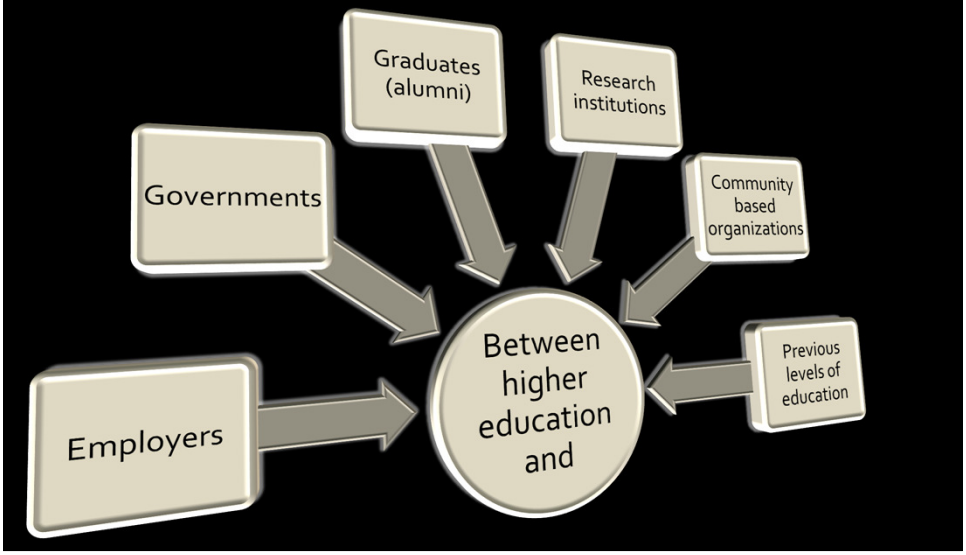

Relative to other obstacles, skills have become a more severe constraint to business
change in severity of skills constraint, relative to other constraints
2.5
2.0
1.5
1.0
0.5
0
low income
high income
countries ordered by income per capita
Source: World Development Report 2013

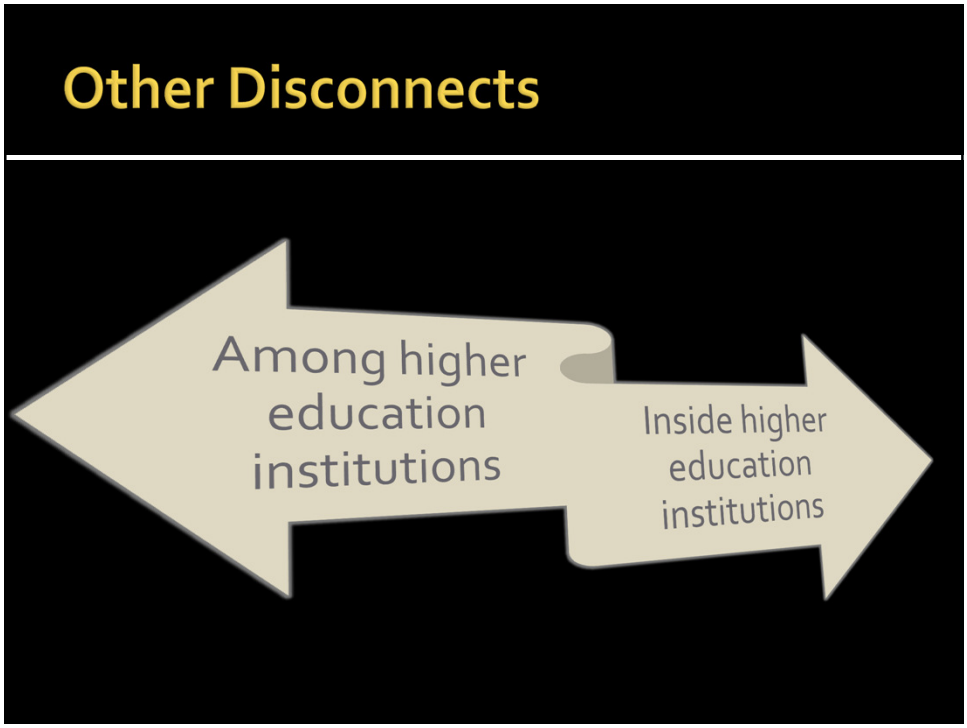
From Russia's World Bank's Skills Development Report

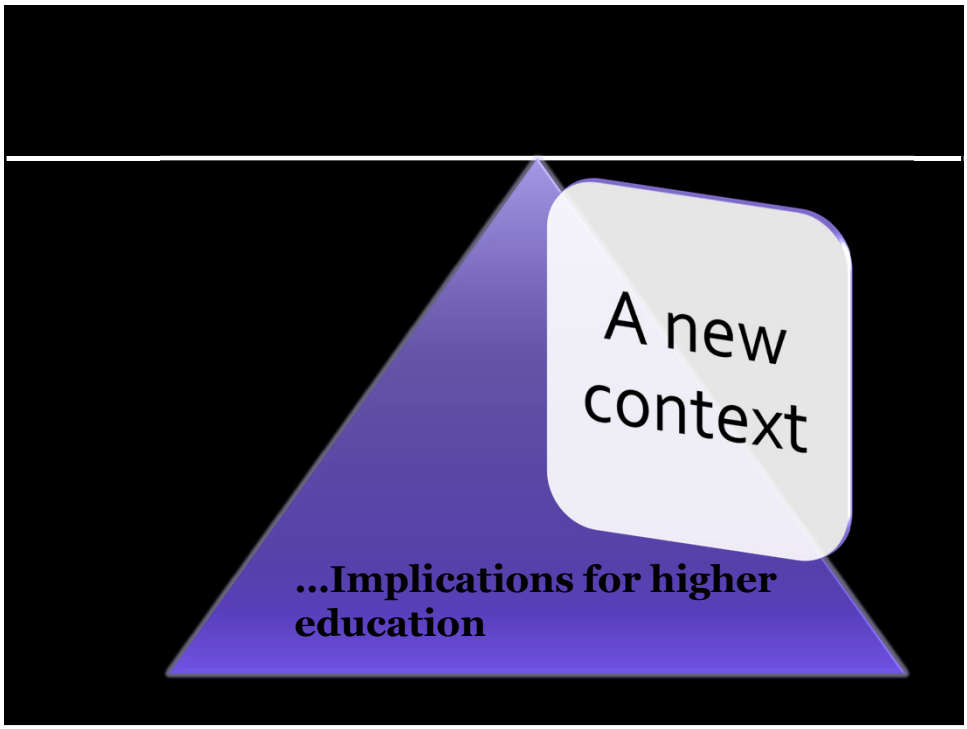
- Skills (lack of), as a major obstacle for development
- Need for soft skills and high cognitive skills, in addition to good technical skills.
- Limited incentives for change in developing skills
- Improvement needed:
  - *Incentives*
  - *Capacity building*
  - *Information*

http://www.worldbank.org

Disconnects in Higher Education




Other Disconnects
Among higher education institutions
Inside higher education institutions


A new context
...Implications for higher education

…National level changes are required but not sufficient…

…Higher Education Institutions need to embrace the change themselves.

A fundamental question

- HEIs located IN regions but what contribution does their teaching-research and international engagment make to the integral development OF the region?
- What is the role of HEIs as citizens of the respective communities?
- Most of the time, we really don't know

Is this a true prediction?

"Universities won't survive…higher education is in deep crisis…The college campus won't survive as a residential institution. Today's [college] buildings are hopelessly unsuited and totally unneeded"

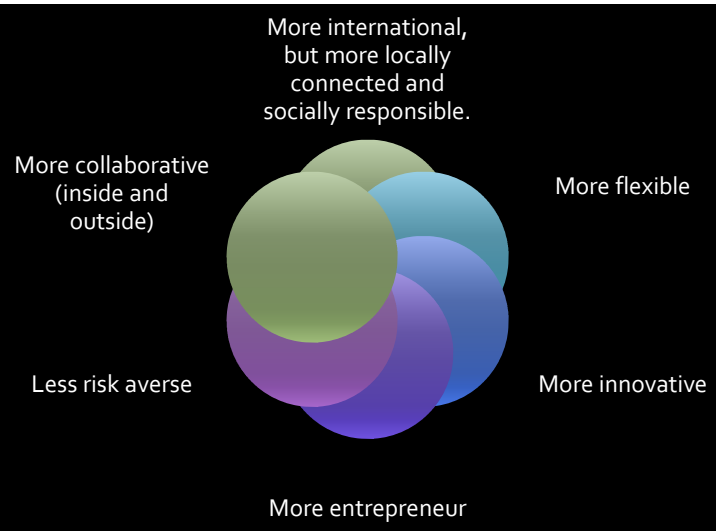
Peter Drucker, 1997

…or it is just an exageration?

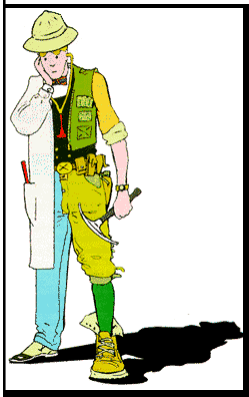
How?

Towards a new paradigm in higher education

Some Elements for HEIs



The professional of the future



- In the future, work will be based on the principle of "adjustment": intelligent individuals able to combine education, interests and skills in order to become a sort of unipersonal multifunctional team.
- Success will depend on the ability to "adjust": to creatively develop or modify skills and knowledge

Some titles and professions of the future…

- Bio-systems Engineer
- Performance technologist
- Visual Ergonomics
- Psycho-linguistic
- Cyber-librarian
- Bio-manufacturing
- Geo-environmentalist MKT
- Information Architect

Tissue Engineer

Data Miner

Pharmer

Genetic Engineer

Knowledge Engineer

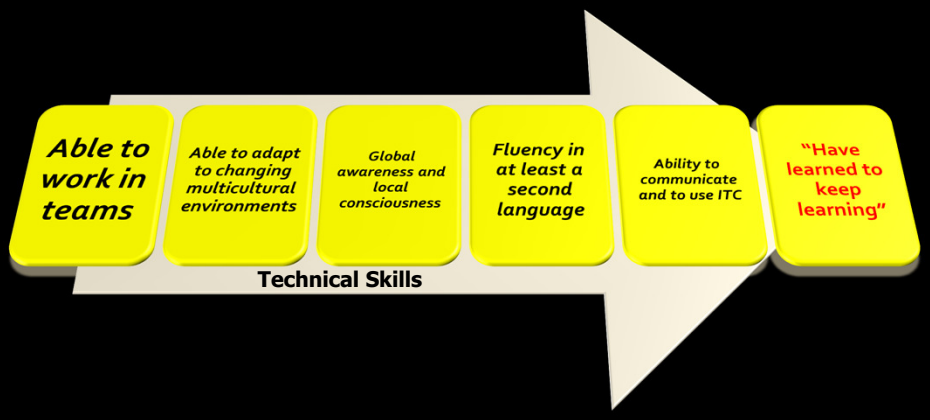
Ethno-Epidemiologist-Musician

…or from the present?

Some Critical issues

- Ability to adapt to environments, ways of thinking, and practices from other organizations, cultures and individuals
- To be prepared to change profession!!!!
- Command in at least a second language, as a way to think in another language
- Recognition of an increasingly complex world

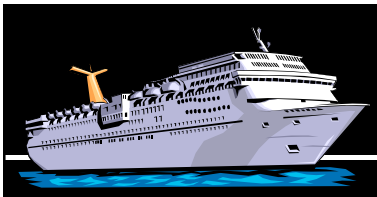
Graduates required in today's world



Source: Business Council of British Columbia

"Higher education is the only business that holds a formal ceremony to get rid of its clients"

Elliot Masie, President - The Masie Center



Higher Education in Crisis: New Challenges, Old Responses

"While the ship is sinking –says the captain – the first priority is to save the crew, next is to avoid problems while the ship continues to sink, the third priority is to repair the ship, and lastly, the fourth priority, if time permits, is to save the passengers"

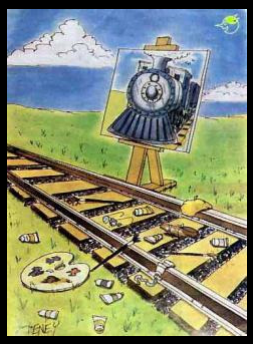
Arthur Levine, president of Columbia Teachers College

Beyond just information/knowledge

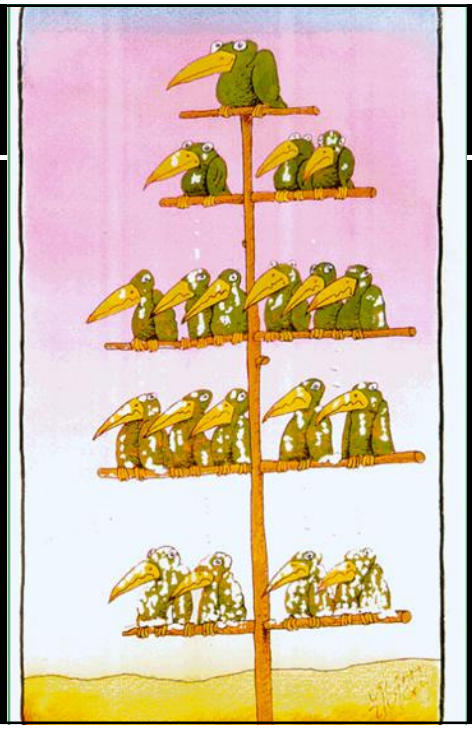
- Sound humanistic preparation
- General Education
- Attitudes vs. aptitudes

El arte de la ambigüedad

Continuar haciendo las cosas como siempre, aunque esperando diferentes resultados



Who is responsible?

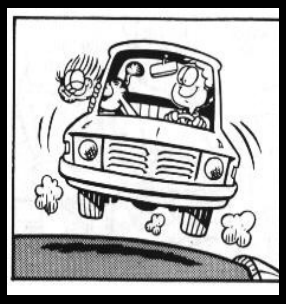


The Italian University in 1350

...and the universities of today

There is no magic formula…

- What it may work in one case



…it is not necessarily the best solution in other cases

Top 10 Do's in Tertiary Education

- Diversifying options, but leveling the playing field.
- Assuring good quality institutions.
- Making post-compulsory education and training equitable and affordable.
- Targeting public resources toward programs that yield high social returns.
- Using innovative approaches to retain students and ensure employable graduates.
- Improving secondary education.
- Increasing the autonomy and cost-efficiency of institutions and the system as a whole.
- Arming students with information so they make smart choices.
- Embracing competition – national and global.
- Fostering openness and an evidence-based culture in tertiary education.

A word of caution

For every complex problem there is an answer that is clear, simple,

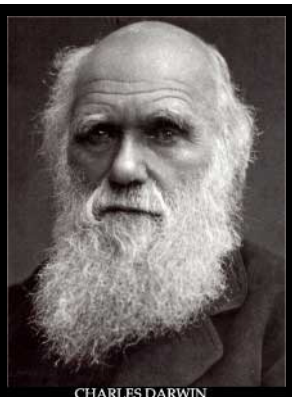
...and wrong.

H. L. Mencken

The future . . . Today!

http://conahec.org

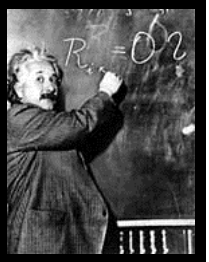
"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."



CHARLES DARWIN

«Todos los imperios del futuro van a ser imperios del conocimiento, y solamente serán exitosos los pueblos que entiendan cómo generar conocimientos y cómo protegerlos; cómo buscar a los jóvenes que tengan la capacidad para hacerlo y asegurarse que se queden en el país. Los otros países se quedarán con litorales hermosos, con iglesias, minas, con una historia fantástica; pero probablemente no se queden ni con las mismas banderas, ni con las mismas fronteras, ni mucho menos con un éxito económico»

ALBERT EINSTEIN. (1946)



" The trouble with our times is that the future is not what it used to be "

Paul Valéry

Beyond Boundaries
Francisco Marmolejo
Tertiary Education Coordinator
The World Bank
Tel. +1 (202) 458-5927
Email: fmarmolejo@worldbank.org
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