A l'épreuve du monde: l'éducation pour unir les peuples

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OUTLINE

EDUCATION – WHY?, WHAT FOR?, HOW?

Life Today – A Changing World
Quelques vérités de La Palisse, quand même important

Education – answering the needs of Society
Keywords for development - Quality, Transparence, TRUST

EHEA - European Higher Education Area
Cooperation and mobility – always under construction...

‘Education/Learning without boundaries and without walls’

Porto and its University
LIFE TODAY - GLOBALISATION
HOW DID WE GET HERE?

European political vision of the future
in the seventies and eighties of the XX Century

_major political changes foreseen for the World_

- The Fall of the Berlin Wall, on 9 November 1989

_major disruptive Advances in Science and Technology, by the end of the XX Century_

- The Computer and Communications era - dramatic changes of the concepts of time and space
- Advances in Life Sciences - The increase of Expectation of Life
LIFE TODAY - GLOBALISATION
(UNEXPECTED?) CONSEQUENCES - I

Changes in Education to meet social changes and expectations, to promote Peace and Development

❑ Expectation of Life vs. Social sustainability – live longer, work longer years

❑ The decrease of knowledge half-time – Study longer years

❑ Very significant changes in the concept of individual career management, mainly for Young People

❑ An evolution that we have to understand and support, mainly by adapting the STRUCTURE AND THE SUBSTANCE OF THE OFFER OF EDUCATION

SFA, Sorbonne Nouvelle, 14 March 2016

LIFE TODAY - GLOBALISATION
(UNEXPECTED?) CONSEQUENCES - II

❑ The global market economy - driving today’s Societies
  ➢ The domain of Economics over Politics
  ➢ Sharp increase in standards and competition Worldwide
  ➢ Job offer, wider but too volatile: excessive pressure for mobility
  ➢ Distorted social development
  ➢ Collapse (or lack of) Regulatory Bodies

❑ Violent disputes - (unexpected?) political and religious disputes, with sharp increase of regional wars and generalized international threats

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**LIFE TODAY - PRODUCTION MOVES EAST**

**GEOGRAPHIC BREAKDOWN OF WORLD CHEMICALS SALES - 2004**

<table>
<thead>
<tr>
<th>Region</th>
<th>Chemicals sales (€ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Union (25)</td>
<td>555</td>
</tr>
<tr>
<td>Asia</td>
<td>143</td>
</tr>
<tr>
<td>United States</td>
<td>209</td>
</tr>
<tr>
<td>Other**</td>
<td>63</td>
</tr>
<tr>
<td>Rest of Europe*</td>
<td>124</td>
</tr>
<tr>
<td>Latin America</td>
<td>55</td>
</tr>
</tbody>
</table>

- **2004** is estimated at €1736 billion
- The EU accounts for 33% of the total

Source: Cefic

**Definition:**
- Rest of Europe* = Switzerland, Norway, and other Central & Eastern Europe (excluding the new EU 10 countries)
- Other** including Canada, Mexico, Africa & Oceania

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**LIFE TODAY - PRODUCTION MOVES EAST**

**GEOGRAPHIC BREAKDOWN OF WORLD CHEMICALS SALES - 2007**

<table>
<thead>
<tr>
<th>Region</th>
<th>Chemicals sales (€ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>506</td>
</tr>
<tr>
<td>EU 27</td>
<td>405</td>
</tr>
<tr>
<td>NAFTA</td>
<td>90</td>
</tr>
<tr>
<td>Latin America</td>
<td>63</td>
</tr>
<tr>
<td>Rest of Europe**</td>
<td>15</td>
</tr>
<tr>
<td>Other*</td>
<td>279</td>
</tr>
</tbody>
</table>

- **2007** are valued at € 1820 billion
- The EU accounts for 29.5% of the total

Source: Cefic Chemdata International

**Definition:**
- Other* = Oceania and Africa
- Rest of Europe** = Switzerland, Norway and other Central & Eastern Europe (excluding the new EU 12 countries)
LIFE TODAY - PRODUCTION MOVES EAST
GEOGRAPHIC BREAKDOWN OF WORLD CHEMICALS SALES - 2011

World chemicals sales in 2011 are valued at €3744 billion. The European Union accounts for 19.6% of the total.

Source: Cefic Chemicals International
* Rest of Europe = Switzerland, Norway, Turkey, Russia and Ukraine
** North American Free Trade Agreement
*** Asia excluding China, India, Japan and South Korea

Geographic breakdown of world chemicals sales - 2011

LIFE TODAY - PRODUCTION MOVES EAST
GEOGRAPHIC BREAKDOWN OF WORLD CHEMICALS SALES - 2003-2013

World chemicals output swells due to emerging markets

Source: Cefic Chemicals International (2014)
* Rest of Europe includes Switzerland, Norway, Turkey, Russia and Ukraine
** North American Free Trade Agreement
*** Asia excluding China, India, Japan and South Korea
**LIFE TODAY**

**CHANGING PARADIGMS**

- A global World living in and with a new paradigm of coexistence
  - COOPETITION = COOPERATION + COMPETITION

- THE NEED to understand other cultures and backgrounds

- THE NEED to think global, namely in large global companies, 24/7 – when Asia goes to sleep we start our work, when we go to sleep America start their work

- THE NEED to promote mobility and cooperation, by promoting TRUST
  - Requiring qualifications frameworks and quality criteria recognised and accepted by all stakeholders

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**LIFE TODAY - PEOPLE**

**THE MILLENNIAL GENERATION, MAJORITY IN 2015**

![Bar chart showing the percentage of the civilian labor force by generation in the USA from 2000 to 2015.]

- **Civilian Labor Force by Generation, USA, 2000 – 2015**
  - **2015**: Boomers 31%, Gen X 31%, Millennials 35%
  - **2010**: Boomers 36%, Gen X 32%, Millennials 25%
  - **2005**: Boomers 44%, Gen X 15%, Millennials 33%
  - **2000**: Boomers 48%, Gen X 6%, Millennials 33%

**% of Total Civilian Labor Force**

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**Source** - Mary Meeker (KPCB), *Internet Trends 2015*

(Code conference: [http://goo.gl/gWrTG](http://goo.gl/gWrTG))
AND, HOW DID EUROPE REACT TO THIS CHALLENGE?
THE EUROPEAN AREA OF... KNOWLEDGE...
LAUNCHED ON 11-12 MARCH 2010, IN BUDAPEST-VIENNA –
STILL UNDER CONSTRUCTION... TILL 2020...

In 2010

European Area of Knowledge

European Area of R&D&I

In 2020...

European Area of Education

European Higher Education Area

European Area of Lifelong Learning

FROM BOLOGNA (1999) TO YEREVAN (2015)... AND BEYOND
CHARACTERIZING THE PROCESS TODAY

Policy issues

- Including great concern with the challenge of
  ‘Education without Boundaries’.. . Which is already
  massively with us!!!

The Structure - organization issues

The Substance – academic (and societal) issues
FROM BOLOGNA TO YEREVAN ... AND BEYOND
THE STRUCTURE - ACTION LINES AND INSTRUMENTS FOR ACTION

✓ Degree Structure –
  • Based on recognised QUALIFICATIONS FRAMEWORKS

✓ A System to measure work and OUTCOMES
  • The ECTS credit and accumulation system, reviewed in 2015

✓ A way of documenting qualifications
  • The DIPLOMA SUPPLEMENT

✓ A System to guarantee transparency, reviewed in 2015
  • Building accepted QUALITY ASSURANCE procedures

✓ A System for recognition of qualifications
  • OVERCOMING DIFFICULTIES posed by the diversity of ‘recognition cultures’

FROM BOLOGNA TO YEREVAN... AND BEYOND
THE SUBSTANCE - THE LATECOMER IN THE BOLOGNA PROCESS...

➢ Changes in slow progress...
  • New Contents... closer and leading to better understanding of Societal concerns and needs
  • New programme structures, linked to a concept of lifelong Learning
  • New Methods – change from
    ✓ Teacher-Centred to Student-Centred methodologies
    ✓ Teaching based on Teacher Inputs to Learning Centred in well defined objectives – Learning Outcomes
  • New tools for distance and cooperative learning
    ✓ Digital repository support systems to Digital Collaborative and Cooperative Systems

➢ The third wave – Pedagogical qualification of ‘Faculty’
NEW DIRECTIONS FOR HIGHER EDUCATION
GENERAL GUIDELINES ON HOW TO PROCEED (I)

❖ Today, as in the past, the issue is to train and widen the scope of thinking of young people and to raise their awareness of the global social and cultural issues of our global society

❖ Revisit and modernize programmes
   ➢ Bring in new topics – raise the awareness of new topics
   ➢ Incorporate new Knowledge, Skills and Competences

❖ Bring in new methods for learning – adapted to the available tools and to the cultural evolution of society

❖ Develop within the institution an International Dimension (not only European) and Culture of Quality through mobility and academic cooperation and interchange
   ➢ Prepare programmes for cooperation – Joint Degrees

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NEW DIRECTIONS FOR HIGHER EDUCATION
GENERAL GUIDELINES ON HOW TO PROCEED (II)

❖ Make recognition of qualifications easy
   ➢ Re-design curricula with reference to agreed recommendations or descriptors of learning outcomes at high level, sectoral level and branch level
   ➢ Perform internal quality assurance exercises, following agreed guidelines
   ➢ Submit the programmes to recognized external quality assurance agencies

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NEW DIRECTIONS FOR HIGHER EDUCATION
INCORPORATE NEW KNOWLEDGE, COMPETENCES AND SKILLS

Programmes are of course directed to raise artistic, cultural, scientific and technical knowledge – fundamentals should represent the core

BUT

Must bring in the development of attitude, skills and competences valued by Society in general

- Skills and competencies for innovation and entrepreneurship
- Job related skills - Teamwork, Communication, Leadership
- Competencies (How tasks are done)
  - Holistic thinking, self-management, achievement of objectives...

TOOLS IN THE INFORMATION AGE, IN THE ERA OF COMMUNICATIONS

Education without Boundaries and without Walls

- MOOCs – Massive Open Online Courses – Coursera, EdX...
  - Tools and means for learning through cooperative learning
  - They challenge the educational model... the concept /paradigm of ‘constant time - variable learning’
  - Indeed platforms for education without boundaries – a political issue

- Google Apps (or equivalent tools...) for education?
  - Google Apps are indeed tools for collaborative study and learning
  - A growing number of universities are going ‘Google Apps’...or similar tools
TECHNOLOGIES & TRANSFORMATIVE LEARNING: VIA CONTENTS (E.G. MOOCs)

3.091x: Introduction to Solid State Chemistry

REGISTER FOR 3.091X

ABOUT THIS COURSE

3.091x is a first-year course where chemical principles are explained by examination of the properties of materials. The electronic structure and chemical bonding of materials is related to applications and engineering systems throughout the course. The course uses the lecture notes from the course as a guide, and all of the course materials are available online. The course is designed to be accessible to anyone with a background in chemistry and physics. The course will cover the relationship between electronic structure, chemical bonding, and atomic order, and will be taught by experienced faculty members. There will be a strong focus on the use of technology in the classroom, with all coursework being done online. The course will cover topics such as semiconductors, superconductors, and polymers (including protein), and will use real-world examples to illustrate key concepts.


Millennials’ Most Valued Work Benefits = 1) Training & Development 2) Flexible Hours 3) Cash Bonuses

Which Three Benefits Would You Most Value From an Employer? % Ranking Each 1st Place, Global

<table>
<thead>
<tr>
<th>Benefit</th>
<th>% Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training and Development</td>
<td>22%</td>
</tr>
<tr>
<td>Flexible Working Hours</td>
<td>19%</td>
</tr>
<tr>
<td>Cash Bonuses</td>
<td>14%</td>
</tr>
<tr>
<td>Free Private Healthcare</td>
<td>8%</td>
</tr>
<tr>
<td>Pension Scheme or Other Retirement Funding</td>
<td>6%</td>
</tr>
<tr>
<td>Greater Vacation Allowance</td>
<td>6%</td>
</tr>
<tr>
<td>Financial Assistance with Housing</td>
<td>5%</td>
</tr>
<tr>
<td>Company Car</td>
<td>4%</td>
</tr>
<tr>
<td>Assistance in Clearing Debts Incurred While Studying</td>
<td>3%</td>
</tr>
<tr>
<td>Maternity / Paternity Benefits</td>
<td>3%</td>
</tr>
<tr>
<td>Subsidized Travel Costs</td>
<td>2%</td>
</tr>
<tr>
<td>Free Child Care</td>
<td>2%</td>
</tr>
<tr>
<td>Access to Low Interest Loans / Borrowing Options</td>
<td>2%</td>
</tr>
<tr>
<td>Time Off to Do Community / Charity Work</td>
<td>1%</td>
</tr>
<tr>
<td>I’d Prefer No Benefits and Higher Wages</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: KPCB. Study of 2,004 graduates across 70 countries. All respondents were aged 17 to 31 in order to have graduated between 2006 and 2011. Millennials defined as those born between 1980 and 2000. In 2011, they are ages 17-33.

BACK TO MILLENNIALS!!!
Training & Development
People >> Companies >> Technologies

Mobile, on-demand
Scalable and collaborative
Flexible, easy to use
Cost effective
Rich, multimedia experience
Skill-based, practical and engaging

Corporate MOOCs

Source:
Dennis Yang & Dan Chou, Revolutionizing Corporate Workplace Training with MOOCs, 2014
(http://goo.gl/Imql9a)

CESAER Statement on modernisation of Higher Education Systems in Europe, 8th March 2016

☞ CESAER – Leading European Association of Research Universities of Science and Technology and of Engineering Schools of comprehensive Universities

☞ Commitment to high-level research based education

☞ Continuing education and training through flexible learning paths

☞ Commitment to develop all aspects of blended learning

☞ “We believe in a multi-level and multi-actor approach involving higher education institutions, regional, national and European governments and institutions, business and public sector in order to tackle societal and global changes together, and ensure focus on priorities identified”
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TAKE HOME...
WHERE DO WE HEAD TO IN HIGHER EDUCATION?

- 1st Paradigm(s) - First quarter of the XX Century - Education close to everyday life work
- 2nd Paradigm(s) - Third quarter of the XX Century – Education shift to Science - fundamental mechanisms, aiming at ‘a priori design’
- 3rd Paradigm ???
  - We are at present on the process of developing a model and of conceptualizing the evolution for a new paradigm... which is not yet quite identified...
  - The challenge is to understand and anticipate the evolution of the World and the motivations of the young generations

It seems that Massified Higher Education is moving in the direction of STAYING IN SCIENCE, BUT LINKING TO SOCIETY, RETURNING CLOSER TO PRACTICE.... proving that Life to a large extent evolves in cycles....
An ancient Country
An Ancient City
An Old University

Portugal : Euro-Atlantic Node

Cantino Planisphere (1502): The oldest known map showing Portuguese Discoveries
• Figures and Facts
  – 16 Municipalities
  – ~1.700.000 inhabitants
  – Porto, Capital of the North Region

• Porto brands - assets and attractions
  – Industry and trade
    - Port Wine
  – University of Porto
  – Architecture - 2 Pritzker award winners
  – History and Culture
    - World Heritage Site
    - The Bridges of Porto,
1762 - Nautical Class
1769 - Sketching and Drawing Class
1837 - The Polytechnic Academy - the teaching of engineering in Portugal started in this building, in 1837
1911 - The University - its Rectorate was installed here

An old Comprehensive University in a historical ancient City

14 Faculties
9 Major Interface Institutes, of which U.Porto is the main partner
1 Associated Business School - association between the University and 33 major companies
Faculty of Architecture
Faculty of Fine Arts
Faculty of Sciences
Faculty of Nutrition and Food Sciences
Faculty of Sport
Faculty of Law
Faculty of Economics
Faculty of Engineering
Faculty of Pharmacy
Faculty of Arts
Faculty of Medicine
Faculty of Dental Medicine
Faculty of Psychology and Education Sciences
Institute of Biomedical Sciences Abel Salazar

BOLOGNA STRUCTURE

3rd Cycle – PhD
180/240 ECTS

2nd Cycle
Master
120 ECTS

1st + 2nd Cycle
Integrated Master
300/360 ECTS

1st Cycle
Bachelor
180/240 ECTS
663 TRAINING PROGRAMMES (2014/15)

- 1st Cycle / Bachelor courses: 35
- 2nd Cycle / Master courses: 141
- 3rd Cycle / PhD courses: 93
- Integrated Master courses: 18
- LifeLong Learning Courses: 376

30.066 Students, 11% of which are international (2014/15)

- 1st Cycle / Bachelor Students: 8.713
- 2nd Cycle / Master Students: 5.573
- Integrated Master Students: 12.544
- 3rd Cycle / PhD Students: 3.236
3,458 INTERNATIONAL STUDENTS (2014/15)  
(11% OF THE TOTAL) - FROM 115 COUNTRIES

- 124 NATIONALITIES
- 1,867 Students in mobility programmes
- 650 3rd Cycle/PhD Students
- 588 2nd Cycle / Master Students
- 179 Integrated Master Students
- 174 1st Cycle / Bachelor Students

Overview
U.Porto Incoming Mobility Students (2014/15)

- Faculty of Psychology and Education Sciences
- Faculty of Fine Arts
- Faculty of Economics
- Faculty of Engineering
- Faculty of Arts

- 1st: Brazil
- 2nd: Spain
- 3rd: Italy
- 4th: Poland
- 5th: Germany

- Male: 708
- Female: 1159
U.Porto students in mobility programmes abroad (2014/15)

1144 students in 44 countries
- Europe: 985
- Americas: 144
- Africa: 1
- Asia/Pacific: 14

THE U.PORTO IN THE ERASMUS MUNDUS PROGRAMME (ACTION 2) - 2009-2014

1st Project Coordinated with Brazil, 2008

48 Consortia

2014 Rankings: U.Porto is a leading Institution in Europe:
- 3rd European University with more coordinated projects (9)
- 5th European University with higher participation in Partnerships (39)
**THE U.PORTO IN THE ERASMUS MUNDUS PROGRAMME (ACTION 2) - 2009-2014**

- 9 Coordinations
- 39 Partnerships
- 5 Continents
- 142 Countries
- 792 Institutions involved
- 7,612 Mobility flows
- 151 Million euros in total
- 36 Million euros managed by U.Porto

**THE U.PORTO IN THE ERASMUS+ PROGRAMME 2015-2020**

- 5 Coordinations
- 13 Partnerships
- 4 Continents
- 60 Countries
- 140 Institutions involved
- 1,148 Awarded Scholarships (225 for non EU Countries)
- 13 Million euros in total
- 5 Million euros managed by U.Porto
Voilà, a vislumbre de la contribution de l’Université de Porto l’Éducation pour unir les peuples