

# Engineering Education in a Technology Driven Environment

GEDC 2013

Chicago

October 22, 2013

# Plenary Sessions

“Information technologies everywhere, but not necessarily enough in education”



**Seeram Ramakrishna**  
Professor  
Mechanical Eng. Department  
National University of Singapore

Future of education



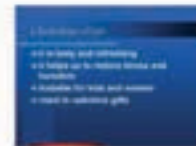
## Tools of Teaching and Learning

**X-Gen**



Minimal  
technology  
aids in  
learning  
inside or  
outside class  
room |

**Y-Gen**



**Z-Gen**



e-learning



# Online, Open and Digital Education

## Plenary Session



Professor Tae-Eog Lee,  
KAIST, Director of Center for  
Excellence in Learning and  
Teaching

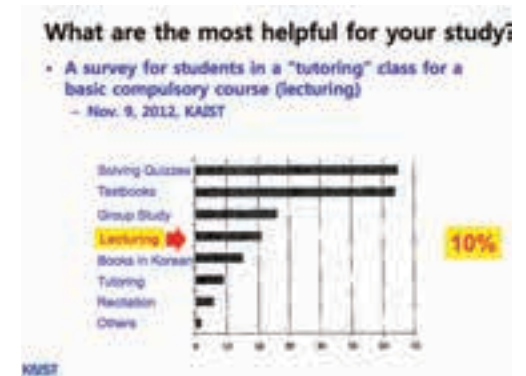
### *Education 3.0 class model*

Anything but lecturing

+ Flipped classrooms

+ MOOC, OCW and other tools for self learning

= interactive teaching and learning



# Impact of Globalization and Information Technology on Engineering Education



**Stephen C-Y Lu**  
**Director of Center for**  
**Excellence in Learning and Teaching**  
**Viterbi School of Engineering at USC**

- iPodia Global program expands distance learning
- Through iPodia, students from different cultures and time zones and can come together — in the classroom

# Digital Education

## Focused on Hybrid/Blended learning



*Gregory A. Moses*  
*Spangler Professor*  
*The University of Wisconsin-Madison*

- Presented his experience on improving the learning process through technology enhanced learning techniques.
- Focused on blended learning format
- Related to learning outcomes

# Digital Education

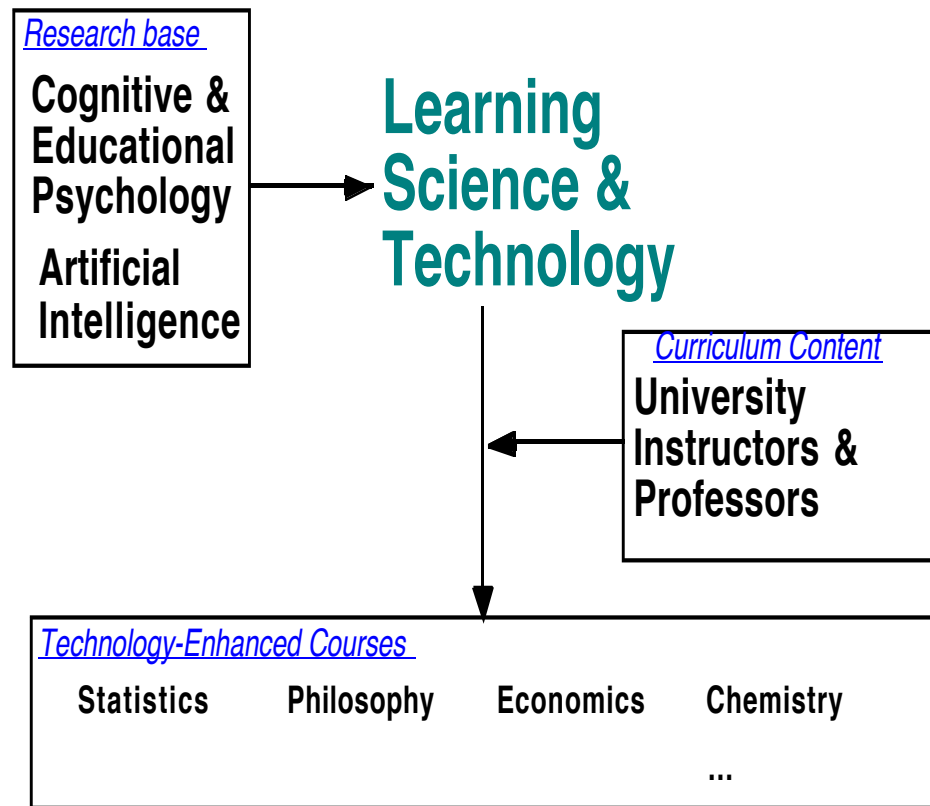
## Focused on Hybrid/Blended learning



Candace Thille  
Former Director  
Open Learning Initiative  
Carnegie Mellon University  
USA  
Now at Stanford University

“Cognitively Informed Online Education”

Generalizing Cognitive Tutor Approach



# Digital Education

## Focused on Hybrid/Blended learning



**Ing. Uriel R. Cukierman**  
**Dean**  
**School of Engineering**  
**Universidad de Palermo**



- There's no universal solution
- We need to look for the best solution for each particular need
- Don't use a tool just because it is available, use it if it is useful for solving your particular problem

<http://www.nmc.org/news/get-technology-outlook-stem-education-2013-2018>

# MOOCS AND DIGITAL EDUCATION



**Patricio del Sol Guzmán**  
**Professor**  
**Department of Industrial & Systems**  
**Pontifical Catholic University of Chile**

- Presents his experience using the platform call NovoEd
- Has attracted up to 120,000 students.
- Very successful on using MOOCS



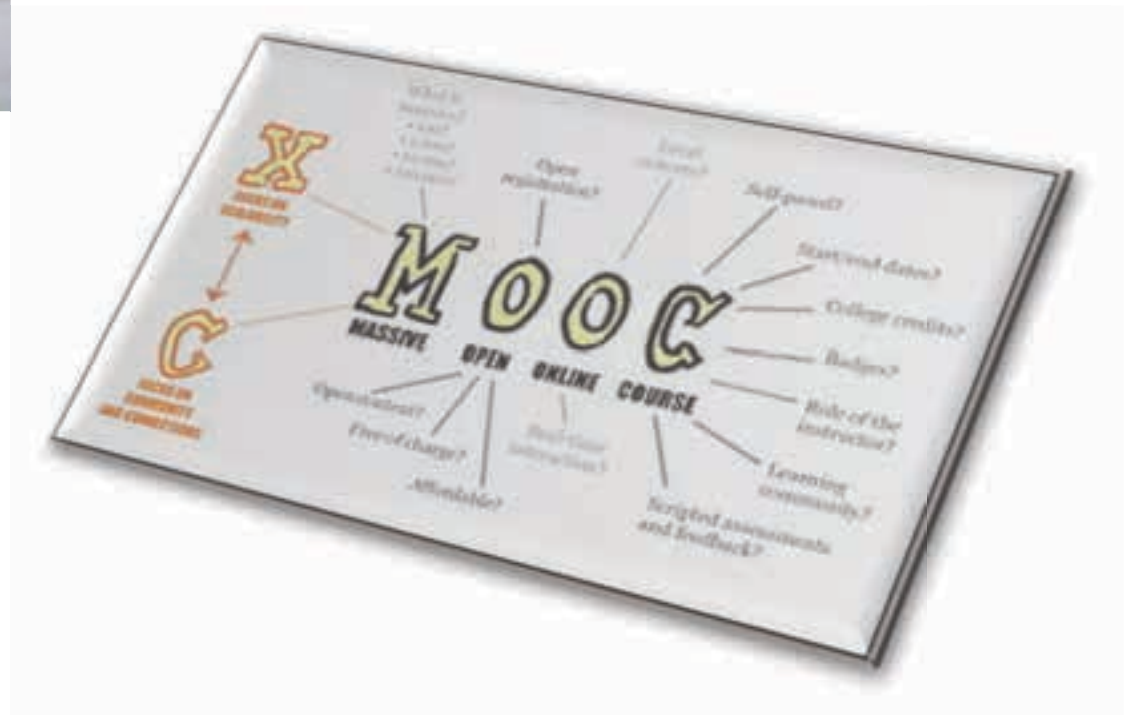
# MOOCS AND DIGITAL EDUCATION



**Catherine Ngugi,  
OER Africa Project Director  
Kenya**

*Why and How MOOCs in  
Africa?*

Open Educational Resources (OERs) are any type of educational materials that are in the public domain or introduced with an open license.



# MOOCS AND DIGITAL EDUCATION



Daphne Koller  
Rajeev Motwani Professor  
Computer Science Department  
Stanford University  
Coursera Co-Founder

- Free courses in several languages
- Emphasis on the number of students that can be reached
- Can be used toward certification through a University at a 500 USD/course

**Coursera** is an education company that partners with the top uni organizations in the world to offer courses online for anyone to take. This technology enables our partners to teach millions of students rat



# MOOCS AND DIGITAL EDUCATION



Interim Executive Director,  
HarvardX at Harvard University,  
USA



“the joint venture with MIT to which Harvard has committed significant resources to develop online learning technologies”

Free on line courses

Catalyzing Faculty & Innovation

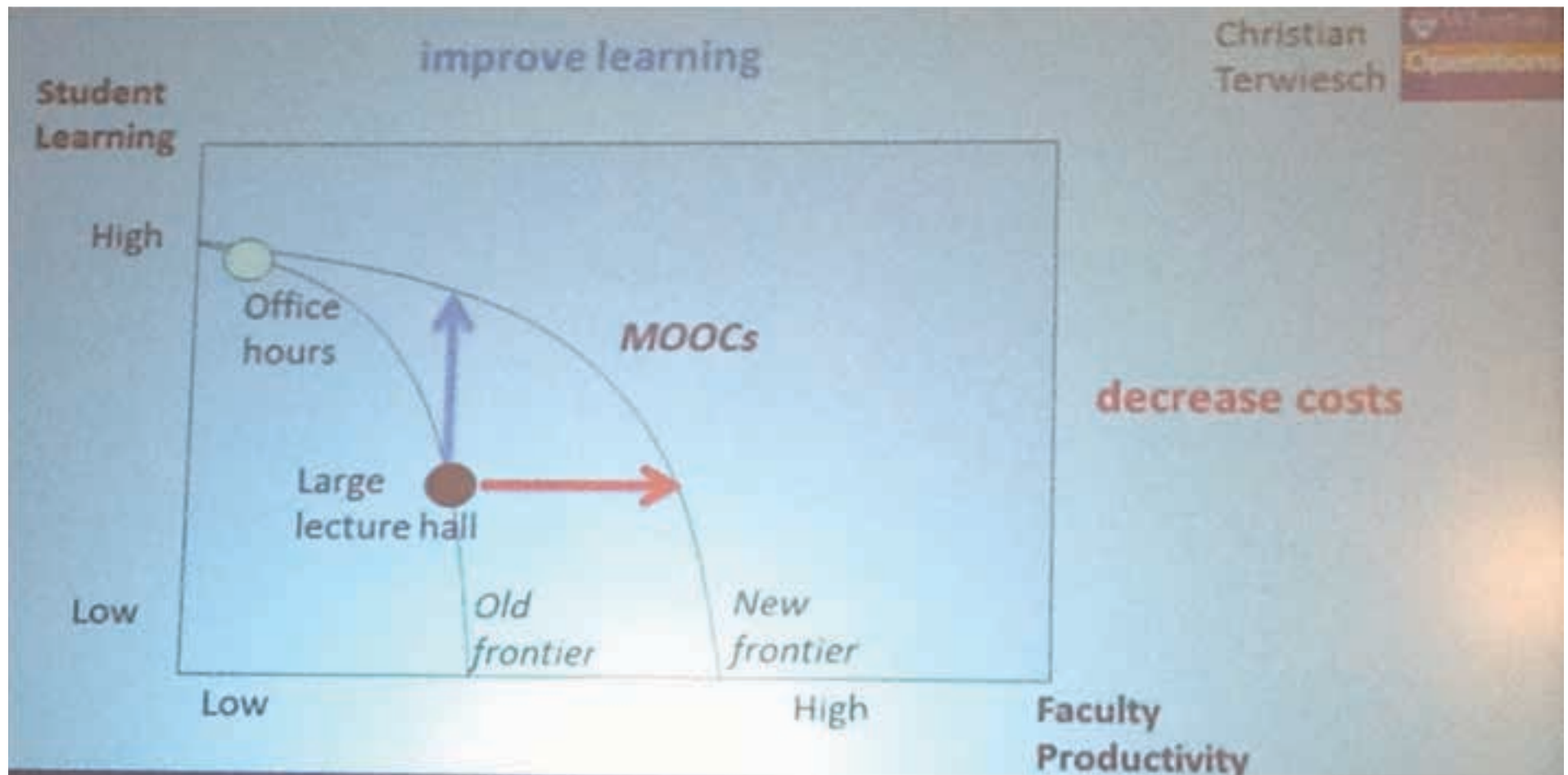
- Experimenting in Learning
- Empowering Faculty

GOALS

- Expand access
- Improve Teaching
- Advance research on an online learning

# MOOCS

## on Improving Learning and Productivity



# Provocative Reflection

The the Global Drivers presented by

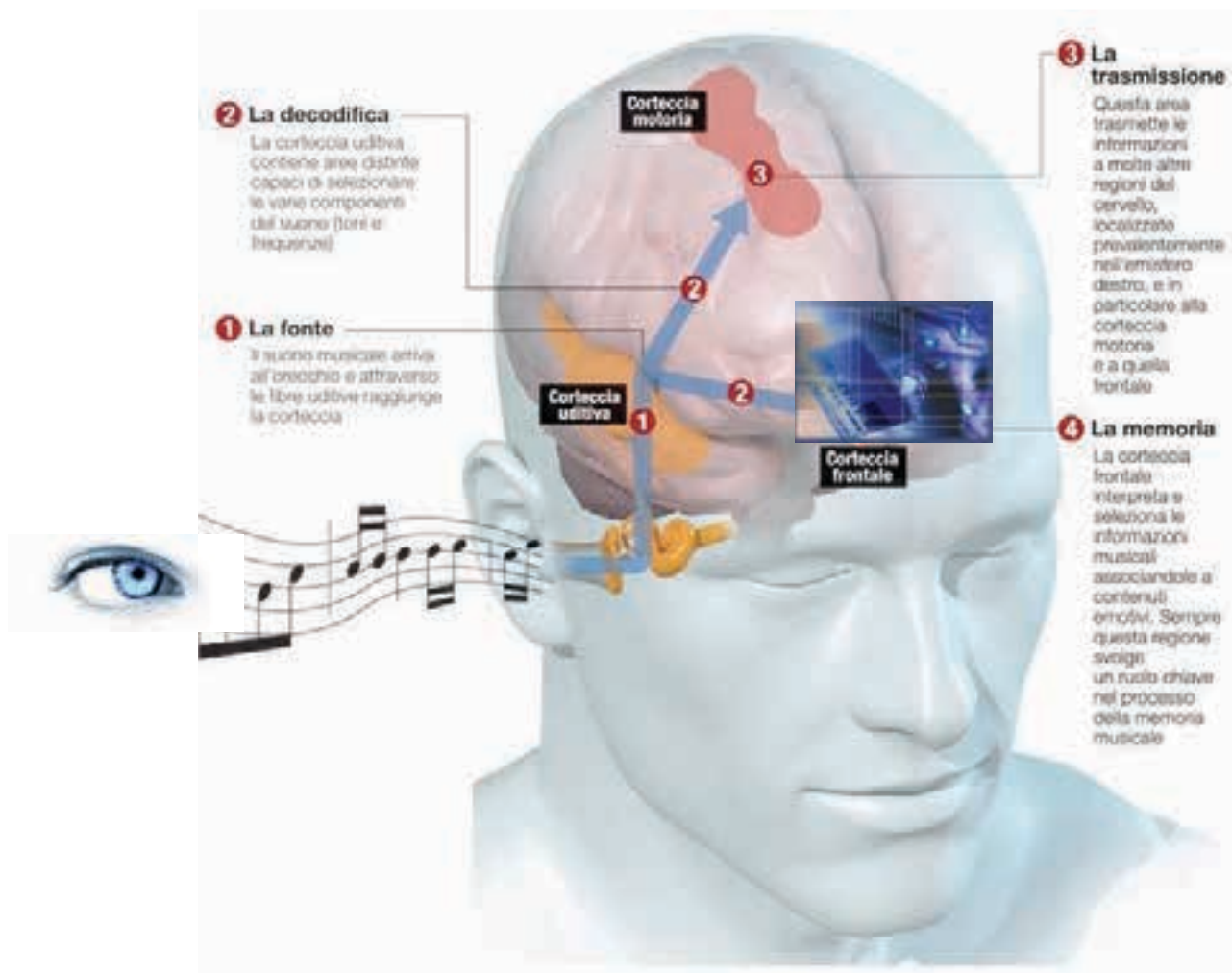
Dr. Mote

President of he National Academy of  
Engineering:

NONE OF THEM TALK ABOUT  
INFORMATION TECHNOLOGIES

But it takes it as an enabler

## Provocative Reflexion



<http://seinteriore.wordpress.com/2008/12/19/disegnare-la-nostra-realta/>