

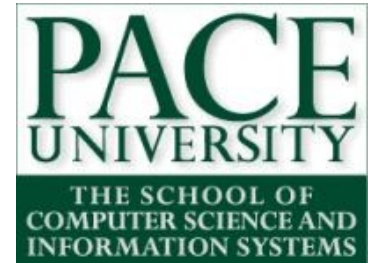
# ***IT Offshore Outsourcing, Academic Collaborations and Sustainable Development***



**Christelle Scharff**

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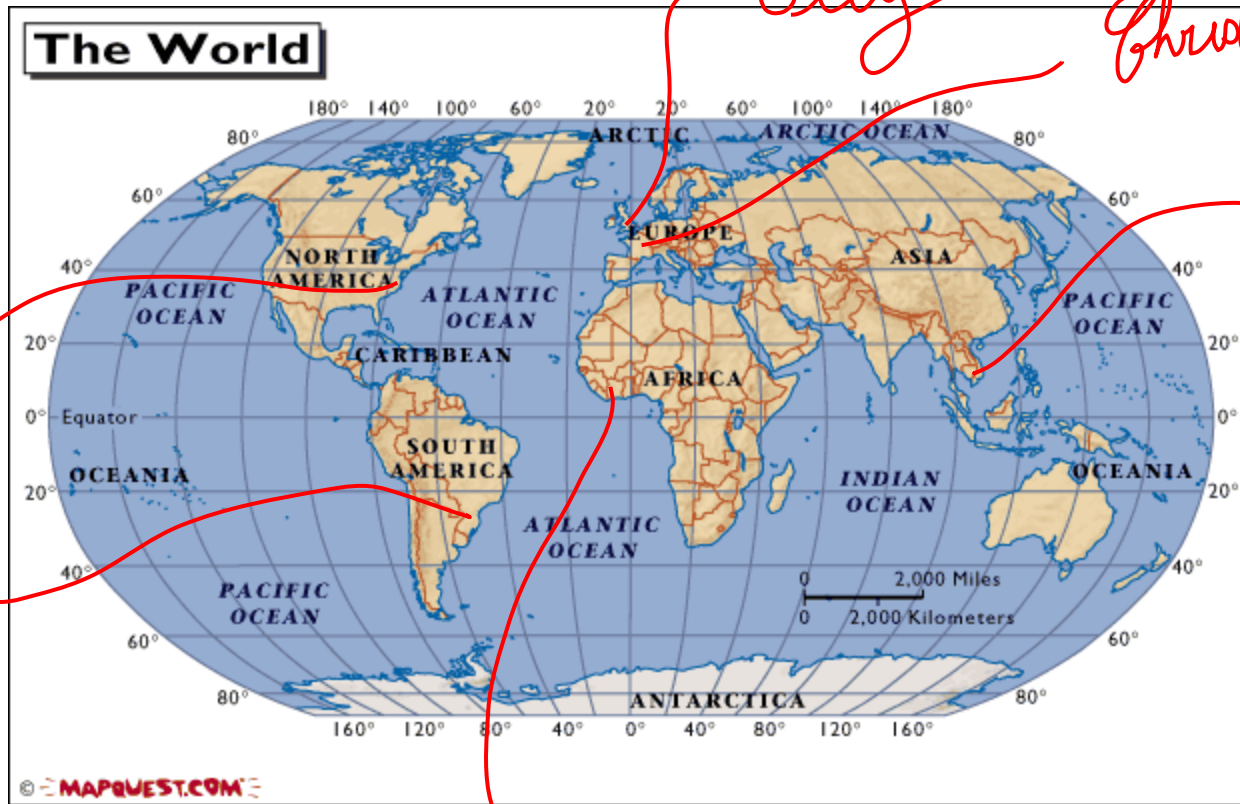
**Sopheap Seng**



**Brazil  
2005**

**(with the help of Kissima Sylla)**

# Globalization



**PACE**  
UNIVERSITY

 **UFRGS**  
Universidade Federal  
do Rio Grande do Sul

*Olly*

*Christelle*

*Sophear*

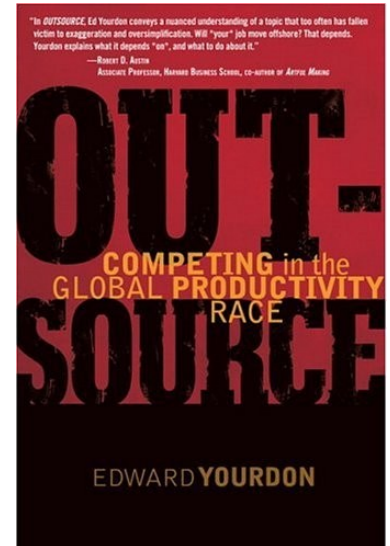
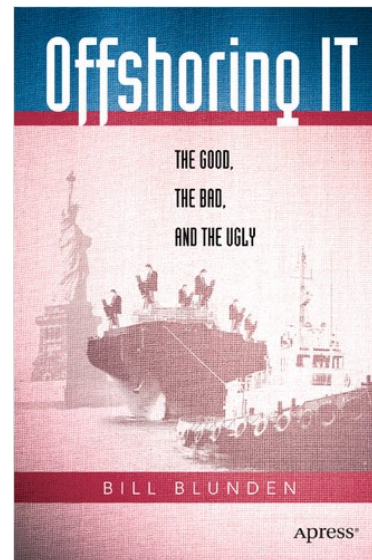
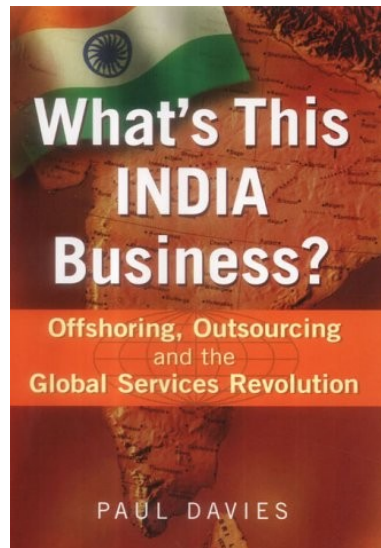
*Kissima*

# Globalization

- **Pro** Globalization is the growing integration of economies and societies around the world.
  - Rapid growth
  - Poverty reduction

[<http://www.worldbank.org>]
- **Con** The process of exploiting economically weak countries by connecting the economies of the world, forcing dependence on (and ultimately servitude to) the western capitalist machine.
  - Increased inequality
    - Number of people earning \$1 a day or less has remained static at 1.2 billion
    - Number earning less than \$2 a day has increased from 2.55 billion to 2.8 billion people  
[*UNDP 1999 Development Report*]
  - Environmental degradation

# Offshore Outsourcing





NO. YOU MAY  
NOT OUTSOURCE  
YOUR HOMEWORK  
TO INDIA.

# Offshore Outsourcing

- **Outsourcing**



*Company A*

*Company B*

- **Offshoring**



*Company A*



*Company A*

- **Offshore Outsourcing**



*Company A*



*Company B*

# IT Offshored Jobs

- Software development
- Software testing
- Software maintenance
- Software reengineering
- IT documentation
- IT telephone support
- Remote networking monitoring
- IT administration & operations

# IT Offshore Outsourcing

- The revision of the 2002 Forrester Research report predicts that:
  - 830,000 IT US jobs will move offshore by the end of 2005
  - 3.4 million IT US jobs and \$136 billion in wages are expected to shift overseas by 2015
  - 25% of US IT jobs will move offshore by 2015
  - 93% of US IT workers are concerned by offshoring





# Where to Offshore Outsource?

*leader*

*up-  
and-  
comer*

	<b>India</b>	<b>China</b>	<b>Brazil</b>
<b>Population</b>	1 billion	1.3 billion	180 millions
<b>GDP/head</b>	\$2,540 (2002)	\$1,090 (2004)	\$2,755 (2003)
<b>IT Skills</b>	High	High	High
<b>English</b>	High	Low	High
<b>Geopolitical Risks</b>	High	Moderate	Moderate
<b>Telecom Infrastructure</b>	Poor	Fair	Good
<b>Culture Differences</b>	High	High	Low
<b>Quality Standards</b>	High	High	Low
<b>Time Alignment</b>	Bad	Bad	Good
<b>IT Salary (Median)</b>	\$4,000-\$13,000	Similar to India	\$8,000 - \$18,000

# Issues for Computer Science Education & Students

- Good education + **Collaborations** keys of sustainable development
- CS enrollment in the US *versus* in service-providing countries
- We can NO more prepare students for the *dotcom* world
  - What **technical** and “**softer**” skills will students need to employ to work and communicate as productive members of a **multi-cultural** software development team?
  - What roles will students play in a global market place?



# Our Response

- Provide real-life Offshore Outsourcing software development experiences by collaborating with institutions outside of the United States
  - Provide a balanced & first-hand view of the advantages, disadvantages & potential of IT Offshore Outsourcing

# A First Step

- Collaboration between Pace University in the US, & Institute of Technology of Cambodia (ITC), Phnom Penh
- Simulating distributed software development in an engineering capstone courses



# Arrangements Prior to Running the Project

- Similar to real-life project initialization
- Initial face-to-face preparation and agreement period during a field trip
  - Country, culture, language, time zone, Internet access, school system
  - Students background
  - Decide on bonding activities
  - Create syllabi
  - Decide on projects and milestones
  - Decide Software engineering practices & tools to be used

# Setup: Teams & Communications

- Definition of the roles of the students & professors including roles in the IT Offshore Outsourcing equation
  - Who are the Customers/End-users ?
  - Who are the Developers ?
- Choice of communication tools (emails, chats, blogs, mailing lists, wikis...)
- Definition of a protocol of communication between professors, students, students/professors
  - How to initialize the communications?
  - How to monitor the communications?
  - How to assess of the communications?

Developers



Client





# Preliminary Findings

- Issues
  - Availability of the client
  - Coordination (semester/trimester and vacations, time difference)
  - Language barrier
  - Very demanding client (changes in requirements)
- Positive points
  - Learn software engineering concepts
  - Involvement of a client
  - Experience reflects a typical IT Offshore Outsourcing scenario (albeit reversal of traditional roles)
  - Learn to overcome/deal with issues related to IT Offshore Outsourcing
  - Multicultural experience
  - Helps students become more entrepreneurial in the IT Offshore Outsourcing context

# US Students Testimonials

- Most interesting thing learned from Cambodian students
  - Facts of life in Cambodia
  - Educational system in Cambodia
  - “Constraints on things we take for granted”
  - “Their dedication to their education”
  - “How they do things in Cambodia compared to what we do in the US”
  - “Passion towards computer science”

# Cambodian Students Testimonials

- Most interesting thing learned from US students
  - “Work and communication in a distributed environment”
  - “Documentation in software project”
  - “Educational and university system in the US”
  - “Some interesting words. The way US students talk and the confidence they have”
  - “US students work culture”

# Next Steps

- Analysis of pilot data, learn lessons & run the experiment again
  - Other partners?
  - Students should learn & experience all sides of the Offshore Outsourcing equation
  - Students should get a flavor on how to initiate and work out the ground rules for such projects
- How to influence & make more suggestions to change the CS curriculum to better prepare our students for the global market place?
- Research on group work in distributed software development

# Thanks

- Pace University
- Pace University Students
- ITC Students
- AUF (Agence Universitaire de la Francophonie)