COLLABORATION AND CULTURAL DIVERSITY

Engineering Students Perspectives

Aida Guerra

April 5, 2016

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

AALBORG UNIVERSITY
Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
under the auspices of UNESCO

Overview

- The need for collaboration and cultural understanding

- Context

- Collaboration and cultural diversity

- Teaching international students at AAU

- Perspectives of engineering students

- Collaboration and cultural diversity: In conclusion

- Final reflections

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

AALBORG UNIVERSITY
Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
under the auspices of UNESCO

The need for collaboration and cultural understanding

- From academic environment perspective:

*"discipline-specific and **interdisciplinary collaboration** with a professional approach"* […] *"participate in national and **international collaboration** on research and development"*[1]

- From the profession and work place perspective:

*"Knowledge of Transition from a Task-based Factory Culture to an Integrated Product & Process Development **Culture**"*[2]

*"The **globalization of markets** requires engineers capable of working in and with **different cultures** and knowledgeable about global markets."*[3]

Context

- International and Team based environment:
  Students spend half of their academic time working and learning in groups

- In 2015, AAU count with 20.656 students
  Faculty of Engineering and Science = 8 205 students

- Numbers and Facts:
  Eastern Europe (n = 1 393); Western Europe (n = 920); Nordic Countries (n = 399);
  Asia (n = 331)

INTERNATIONAL STUDENT NUMBERS

The table below shows the total number of international students at Aalborg University. The figure includes students at ordinary programmes, part-time programmes, foundation courses and visiting students.
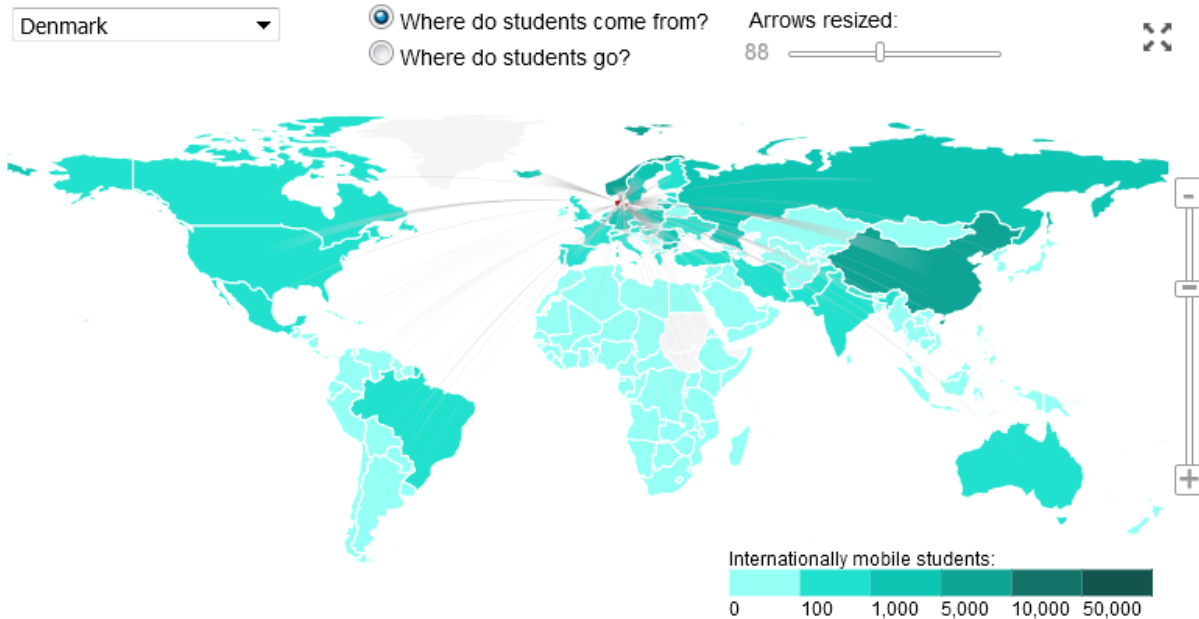
The figure is calculated each year on 1 October.

	2011	2012	2013	2014	2015
HUMANITIES	446	509	549	600	558
SOCIAL SCIENCES	507	612	705	737	821
MEDICINE	66	83	86	104	121
ENGINEERING & SCIENCE	1.204	1.080	1.339	1.689	1.940
TOTAL	2.223	2.284	2.679	3.130	3.440

GLOBAL FLOW OF TERTIARY-LEVEL STUDENTS

Where do students go to study? Where do they come from? UIS data on the mobility of students shed light on the shifting demand for higher education, particularly in the developing world.

To explore the data select a country from the menu, or click on the map.

Denmark ▼

○ Where do students come from?
○ Where do students go?

Arrows resized:
88

Internationally mobile students:

0   100   1,000   5,000   10,000   50,000

Denmark

Country of origin		Destination country		Key Indicators	
Norway	3,581	United Kingdom	1,394		
Germany	3,245	United States	1,301		
Sweden	2,506	Germany	451	Students abroad:	
Romania	2,016	Sweden	281	Total number of mobile students abroad	5,254
Lithuania	1,716	Norway	212	(% of total mobile students)	...
China	1,204	Australia	178	Outbound mobility ratio	1.8
Iceland	1,187	Netherlands	173	Gross outbound enrolment ratio	1.5
Bulgaria	1,115	France	160		
Poland	1,094	Malaysia	149	Students hosted:	
Latvia	823	New Zealand	139	Total number of mobile students hosted	29,480
Italy	807	Iceland	85	(% of total mobile students)	...
Spain	691	Canada	75	Inbound mobility ratio	10.1
United Kingdom	653	Switzerland	73		
United States	614	Spain	66		
Hungary	558	Thailand	60		

Collaboration and cultural diversity (1)

- *"Culture is the collective programming of the mind distinguishing the members of one group or category of people from others"*

- Different values, perceive situations differently, act differently in the same situation, and approach life in different ways.

- Rules of expectations, communication and behavior may not apply when in different environment

Collaboration and cultural diversity (2)

At different levels:

- Personal styles, communication, values and beliefs, worldviews

- Different educational background, discipline culture, organizational culture, etc.

- From different cities, regions, countries and continents

Teaching International Students at AAU

- B.Sc.
  PV course and co-supervisor

- M.Sc.
  PBL and Project Management

Ten rules of *Jante Law*

1. You're not to think you are anything special
2. You're not to think you are as good as
3. You're not to think you are smarter th
4. You're not to convince yourself that y
5. You're not to think you know more t
6. You're not to think you are more im
7. You're not to think you are good at
8. You're not to laugh at *us*
9. You're not to think anyone cares a
10. You're not to think you can teach

Danes relish self-effacing humor

Bettina Dahl Soendergaard

Soendergaard is assistant professor at the School of Education at Virginia Tech.

So what's the deal with these Danish Muhammad cartoons?

Until two weeks ago, whenever people heard that I am from Denmark, they usually asked whether Denmark was the capital of Sweden. Now I get a knowing smile — oh, so she's one of "them" people who likes to make fun of others. ...

We are not a mean people, actually. We don't think so ourselves.

But why did this Danish newspaper even think that it was all right to publish these 12 cartoons on Sept. 30, 2005?

To really understand, you have to understand Denmark. Danish people love satire. We use it everywhere — on everyone and everything — even the queen, the government, politicians, priests.

But don't we have any respect for these institutions? Yes, but we Danes also have a healthy (we think) scepticism toward authorities, and we are not afraid of standing up against the powers. Take for instance the referendum in 2000 when the Danes voted no to adopting the European currency (the euro) despite the fact that the government, the main political parties, the unions and the employers' organizations all campaigned for a yes vote.

We have the so-called Jante Law in our mentality where two of the "rules" are: Do not think that you are better than the rest of us or that you know more than the rest of us.

So everybody is addressed using their first names, including priests, teachers, professors, managers, government ministers. The only exception is the royal family, whom we love for being not too distant from the rest of us, and whom we secretly speak of using their first names since they are almost like family to us.

No ·niversity professor would

even consider putting up his diplomas on his office wall, not because they are ugly (well, actually they are), but he would be interpreted as being self-important or snobbish or seen as having a problem with his self-confidence.

Critical and independent thinking is encouraged in our school system from very early on — and this type of thinking is required to get an "A." Knowledge alone is not enough. My teachers and professors loved a good argument, and I was rewarded grade-wise even when we did not agree. We learn that knowledge is good and that often the best answer comes after a critical analysis with no stone left untouched.

This low hierarchy is supposedly also one of the reasons for our very strong economy. The man on the floor is often not too afraid of suggesting changes to his boss; therefore, things get done much more efficiently.

But this wealth is not just used on ourselves. Rich nations agreed at

the U.N. to give 0.7 percent of their GNP to foreign aid. Denmark gives 0.84 percent and is thereby the second-largest giver in the world, with Norway as No. 1. Oh, by the way, the cartoons were also published in Norway.

And the satire is also used on ourselves. It is customary at events, such as weddings, that friends and family write songs telling the other guests about all the foolish things that these people have done (a few good things might also find their way in).

Why do we do this? Are we evil? Actually, it is the exact opposite — the more friends you have, the more songs you will get. To make fun of people is an act of love — you are one of us — just as human. And to be able to laugh at yourself is considered a virtue.

This is how we Danes are. Therefore, please, in the name of multiculturalism and diversity, allow us to remain Danish. And no, Denmark is not the capital of Sweden.

The Roanoke Times 23/2 2006

Understand some of Danish culture

Viking Village Law, where all free-men met as equals at the moot to discuss common problems.

ranged from impoverished peasants to men of wealth and they had the rights to even elect or reject a king religion (Jones, 1984, pp. 150-152). were able to own land, inherit property, and divorce

Perspectives of Eng. Students (1)

- Small questionnaire with Produktion, Energy, Electronics, Energy Planning students

Collaboration:

- **Challenges**
  Different opinions, listen and respect others, coordination and conflicts, communication, individual expectations, getting good group culture, etc.

- **Advantages**
  More brains, multiple perspectives, share workload, reflection, members support, diversity in thinking and handling problems, get the best from everyone, be efficient and well organized, etc.

- **Characteristics**
  Respectful, well organized, social, active, strong committed with goal, etc.

- **Skills needed**
  Communication, planning skills, social, serious and well organize, respectful, dedication, open-minded, etc.

Perspectives of Eng. Students (2)

Cultural diversity:

- **Challenges**
  Different backgrounds, everyone have the same understanding of work, different cultures resulting in discussions and conflicts, understanding, language, adjusting to technical terms,

- **Advantages**
  New knowledge, new understanding, different perspectives and ideas, learn from different approaches, improve English skills and learn about other cultures, etc.

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

AALBORG UNIVERSITY
Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
under the auspices of UNESCO

Perspectives of Eng. Students (3)

Group discussion and impacts on learning:

1. Social aspects of group work: "*if you don't have some social activities or can't "relax" with the group, the environment will turn hostile*"

2. Main **challenges** in working in intercultural environment: "*different methodologies, communication problems, writing report in different ways, different approach*"

3. Main **advantages** for collaboration: "*different ideas of solving a problem, different views on subject, communicate in multicultural space, different academic background*"

4. Different skills, different backgrounds

Perspectives of Eng. Students (4)

- Interviews with M.Sc. Urban Planning and Management (UPM) students:

*"Depends if you see the international context, multicultural environment or if it is your own culture. **I experience the jump from being only Danish people**, where you focus, or you thought it was hard, or people were not as good as you, or **had difficulties in understanding what was going on**, or didn't do the amount of work it was supposed to do. In the master programme you have **cultural differences, it is just the language barriers sometimes, and expectations and cultures of how you work and how you think**. It is definitely a **challenge** but you **also learn something**, but that's hard."* (Student 1)

*"Tacit knowledge that we **become experts in doing it** [referring to PBL approach] maybe when we meet this **international environment I think it is pretty healthy for us because than we see**. I actually realize how brain wash I've been. It is not that I don't like it or anything, it is **other way** of looking into it."* (Student 3)

UNESCO
United Nations
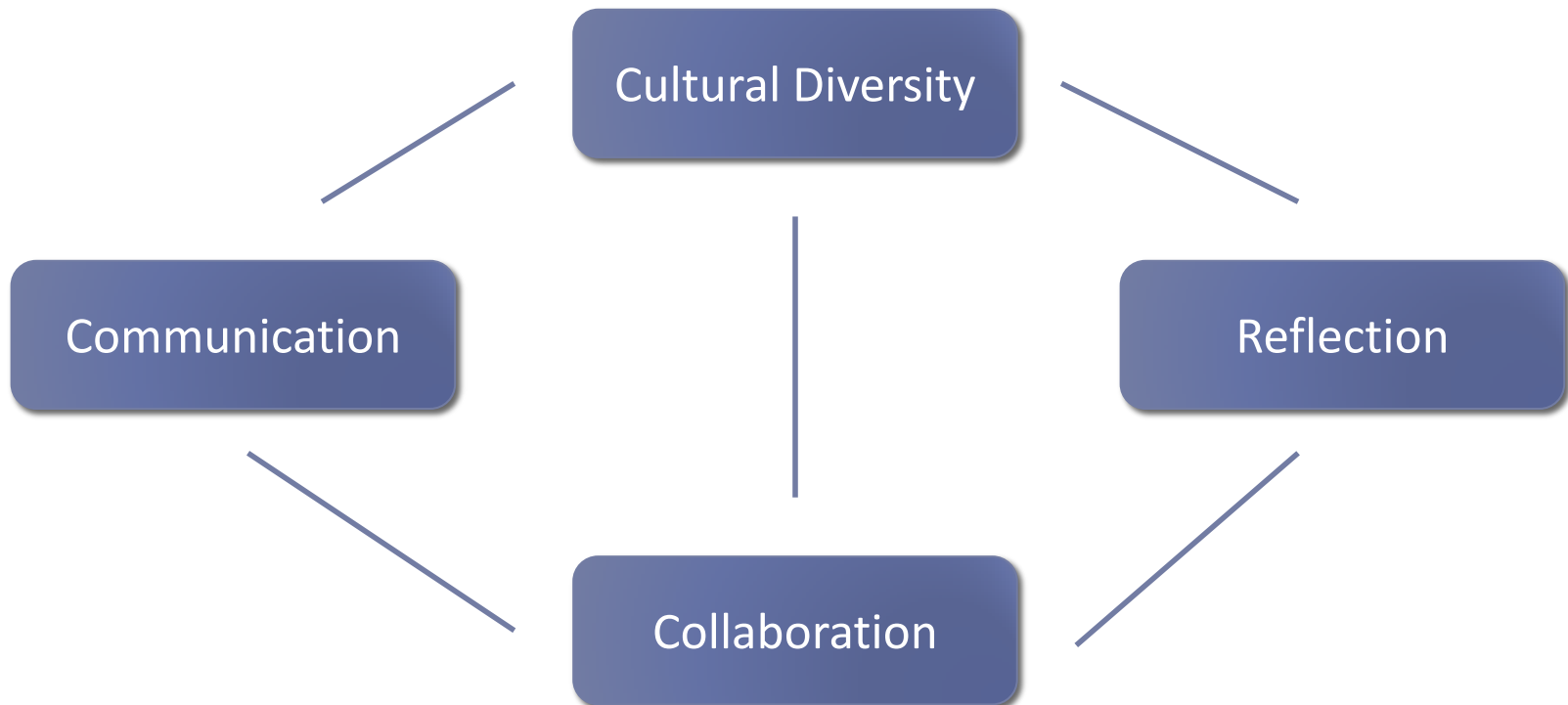Educational, Scientific and
Cultural Organization

AALBORG UNIVERSITY
Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
under the auspices of UNESCO

Collaboration and cultural diversity
In conclusion

- Break down prejudices, be open-minded
- Learn from different perspectives, from others
- Raise awareness of one self and others

Cultural Diversity

Communication

Reflection

Collaboration

Final Reflections

- What is the role of supervisor? Should also he/ she have intercultural understanding to provide better support to group?

- What kind of Impacts does cultural diversity have in collaboration, motivation and/ manage conflicts?

- In which ways can students awareness of him/ herself and of others be enhance?

- ...

Sources quoted:

[1]Lang, J; Cruse, S. & McMasters, F. (1999). Industry Expectations of New Engineers: A survey to Assist Curriculum Designers. *Journal of Engineering Education*. January.

[2] Duderstadt, J. (2008). *Engineering for a Changing World*. The Millennium Project, The University of Michigan.

[3] Ministry of Science and Higher Education (2013). Danish QF for Higher Education. Available at: http://ufm.dk/en/education-and-institutions/recognition-and-transparency/transparency-tools/qualifications-frameworks

Tools and models

Geert Hofsted and Cultural Insights, Available at: http://geert-hofstede.com/

Banks' Multicultural Education Framework, Available at: https://faculty.washington.edu/jbanks/

Baxter Magolda's Model of Intercultural Maturity, Available at: http://muse.jhu.edu/login?auth=0&type=summary&url=/journals/journal_of_college_student_development/v056/56.8.perez.html

University of Washington, Centre for Multicultural Education, Available at: https://faculty.washington.edu/jbanks/