Handling cultural diversity in engineering education ….
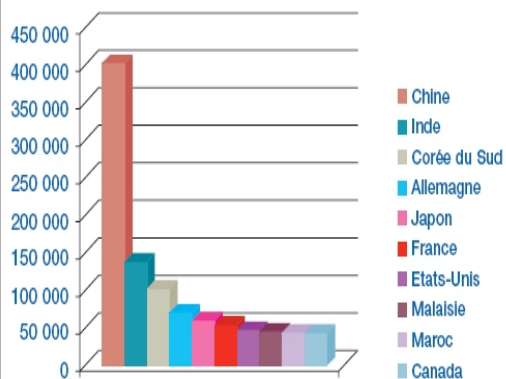
......improving learning for all

Why talk about this?

La mobilité mondiale par pays d'origine en 2006
Worldwide mobility by country of origin in 2006

- Chine
- Inde
- Corée du Sud
- Allemagne
- Japon
- France
- Etats-Unis
- Malaisie
- Maroc
- Canada

Global educational mobility

Not manageable by 'work-arounds'

Issues & dangers of <u>not</u> talking about it

Growing good practices

Many of us don't just talk about it, we live it…….

'Born way over there, studied over there, now I work here……'

'My students are born here, some studied over there. We have all travelled here and there. I work here but they might work there……'

'Born there, went to school there, doing my PhD here ….. '

'My kids are born there, live here, study here, will probably work over there with people coming from all over…..'

So, what are the consequences of cultural diversity and education mobility for you _as teachers_ …..

….. in Engineering programmes?

…. in Sweden?

…. in English (often)?

My guess: You will all be teaching ever more diverse students.
Language diversity + cultural diversity

More guesses:

1. You probably have to do things differently …..

2. Your students will need to adjust to their new educational setting – and you will need to help them

3. You will need to change how you teach and what you teach to accommodate cultural diversity

I will make some suggestions soon.

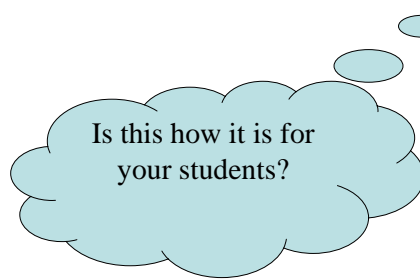# What are the consequences for the students on your programmes?

….. for **all** your students?

[not just for the ones who have travelled]

…. the <u>real</u> consequences?

Is this how it is for your students?

For students, for all students, university study [Engineering study] means……

- 'New game, new rules'

- …… new skills

- …. new language + English

- …. new goals

Why does adjusting and accommodating to culturally diverse students improve learning for all?

Different approaches to managing cultural diversity

1. Denial   *'I teach. It's up to them to learn.'*

   'I teach Chemistry. Oxygen is the same everywhere'

2. 'Repair'   *'You fix them and then I'll teach them'*
   'These students can't….. They don't ….. They are not motivated….'

3. Adjust   *'These students need to learn new ways, <u>our</u> ways. I'll help them do that…. a bit'*

4. Accommodate   *'OK, it's not reasonable to expect students to do XXX so let's change it to require YYY. But this [ZZZ], this we cannot change…..''*

Five suggestions for managing cultural diversity

1. Accept/ learn about **academic cultural difference**

2. Identify, teach & support **skill development**

3. Use teaching methods that **encourage participation**

4. Create a **globally-relevant curriculum**

5. Anticipate and **manage trouble** *(expectations, integration, group work, plagiarism, etc)*

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1. Academic cultural difference

There is culture, expressed as artefacts ….. like how you greet people, eating crayfish

There is underpinning cultural norms …. like how you resolve an argument or the Jante Law

And there are shared, deeply held beliefs about how things should be…..

Exactly the same is true for teaching and learning…… but we are less likely to expect the differences or to know about them.

The important point: you need to know your own academic culture ......

You do this by noticing surprises and differences when students act, expect and work together and learn. Students base their actions on previous academic cultural experiences.

You learn what your expectations and assumptions are by noting the differences.

Then you tell your students explicitly some of those expectations and assumptions. *'Tell them the rules'*

Different academic cultural expectations

- A good teacher notices I need help. Then offers.

- A good teacher tells me the questions and the answers

- To learn, I must listen to the teacher. Just listen.

- I read the textbook many many many times to know the examination answers

- I will help students but they must ask

- I will select the issues but the students must find their own answers

- I want students to talk about problems with each other. What's their opinion?

- I want them to read around the subject, to pick good bits and to weave them together

You try it….

Your task is to create an explicit statement of **your** academic expectations and assumptions

What is true for a Swedish Engineering programme?

What can the students expect to find **HERE?**

Four areas where you need to give explicit information

Teaching methods

Assessment!

Teacher-student interactions

Writing

Suggestion 2:

1. Accept/ learn about **academic cultural difference**

2. Identify, teach & support **skill development**

3. Methods that **encourage participation**

4. **Globally-relevant curriculum**

5. Anticipate and **manage trouble**

2. Skill development

Identify **what** new skills   *[reading, writing, locating sources, analysis, technical skills, time management.....]*

Identify **where they will be taught**

Design in practice and feedback

Start early (but not too early) and keep doing it.

3. Teach for participation

Lecturing for learning.   Lecturing in English for learning.

Seminars for all.

Supervision adjusted to students' needs for structure

Project groups which pull students together.

None of this is easy.   All requires moving to conscious use of methods.

4. Globally-relevant curriculum

Different for each programme

Not just about the content. [Though rethinking content may be important]

Huge range of opportunities
- Introduction activities
- Problems for students to solve
- Reading lists
- Guest speakers
- Research areas
- Resources provided in the Library
etc

5. Manage predicatable difficulties

- Difference is hard. Expect it!
- Group work is hard. Manage it.
- Plagiarism is predictable and understandable. Work with that.
- Students do not integrate spontaneously. Choreograph it. Encourage it. Even assess it?
- Conflict is inevitable. Develop strategies **and help the students develop strategies** to manage conflict.

It may be your most precious contribution to their future and the global future we all share.

Final word

All students find university new

Most find it new and hard/

Many find it new and hard and strange

Some find it new and hard and strange and all wrong, really **wrong**

Most succeed.