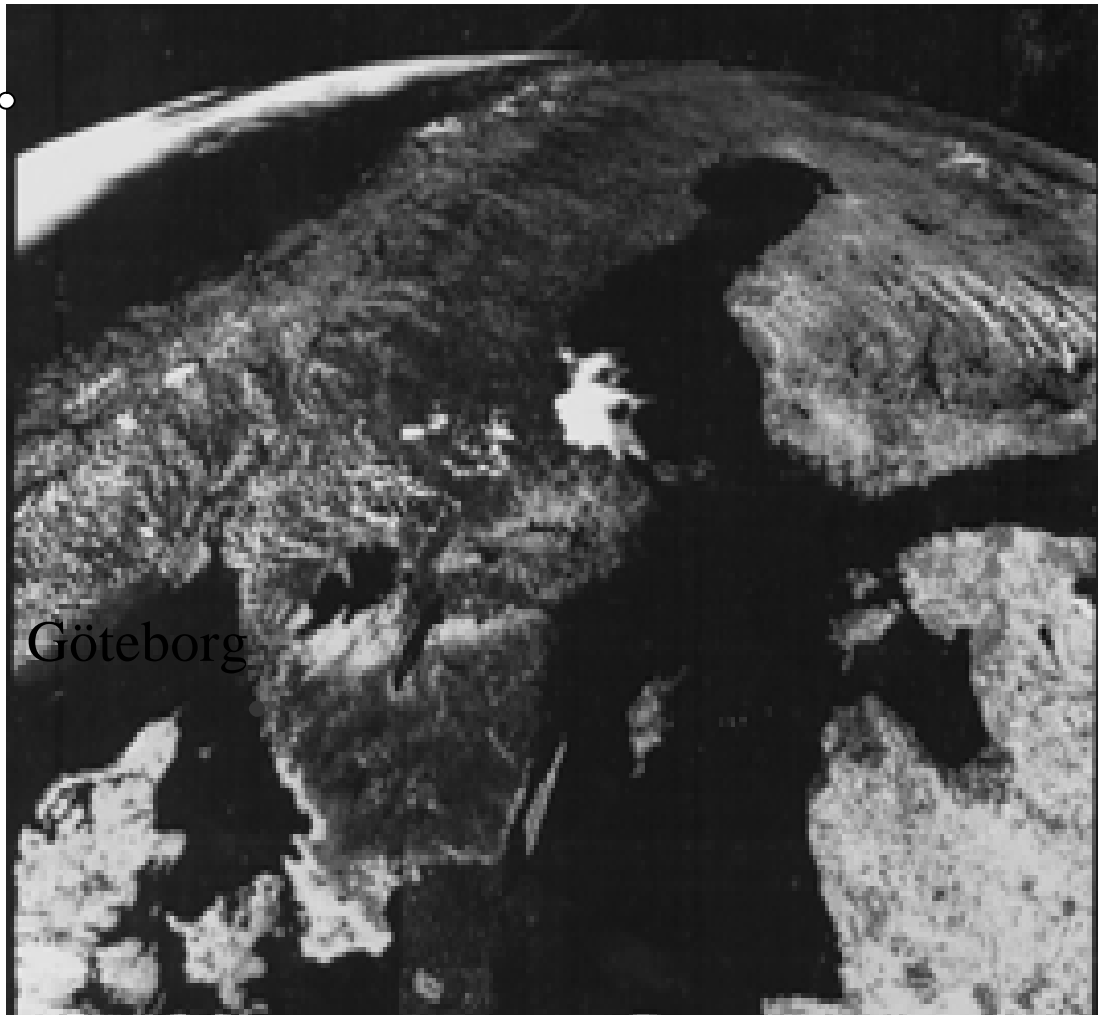


Reforming of Engineering Courses to Better Suit Women

Fachforum 6.-7. April 2006 in Berlin

Marie Arehag



Chalmers is situated on the west coast of Sweden,
with two campuses in the centre of Göteborg

STUDENTS

6 034 students in *MScEng*
and *MArch* programmes

- 1 021 degrees awarded 2005

1 435 students in the *BScEng* and *BSc*
programmes

- 316 degrees awarded 2005

DOCTORAL PROGRAMMES

1 015 doctoral students

341 degrees awarded 2005

- 161 *PhDs*
- 180 *licentiates*



Marie Arehag, B.Sc.

- Project leader for C-SELT, Chalmers Strategic Effort on Learning and Teaching since 2003
(financed by Chalmers Foundation).
- Since mid 1980:ies reform work within Chalmers education:
Inclusion of environmental issues, humanities and social sciences into the curriculum

Gender and Learning

- After highlighting these reform needs in the beginning of the strategic effort in 2001 *without* any proposals from the teachers
- Gender and diversity were set in focus for the reform work 2003-04

For a long time..

- ..the gender discussion have been a question of proportions of women.
- ..we have tried to identify what is wrong with the women -- since they are so few in engineering.

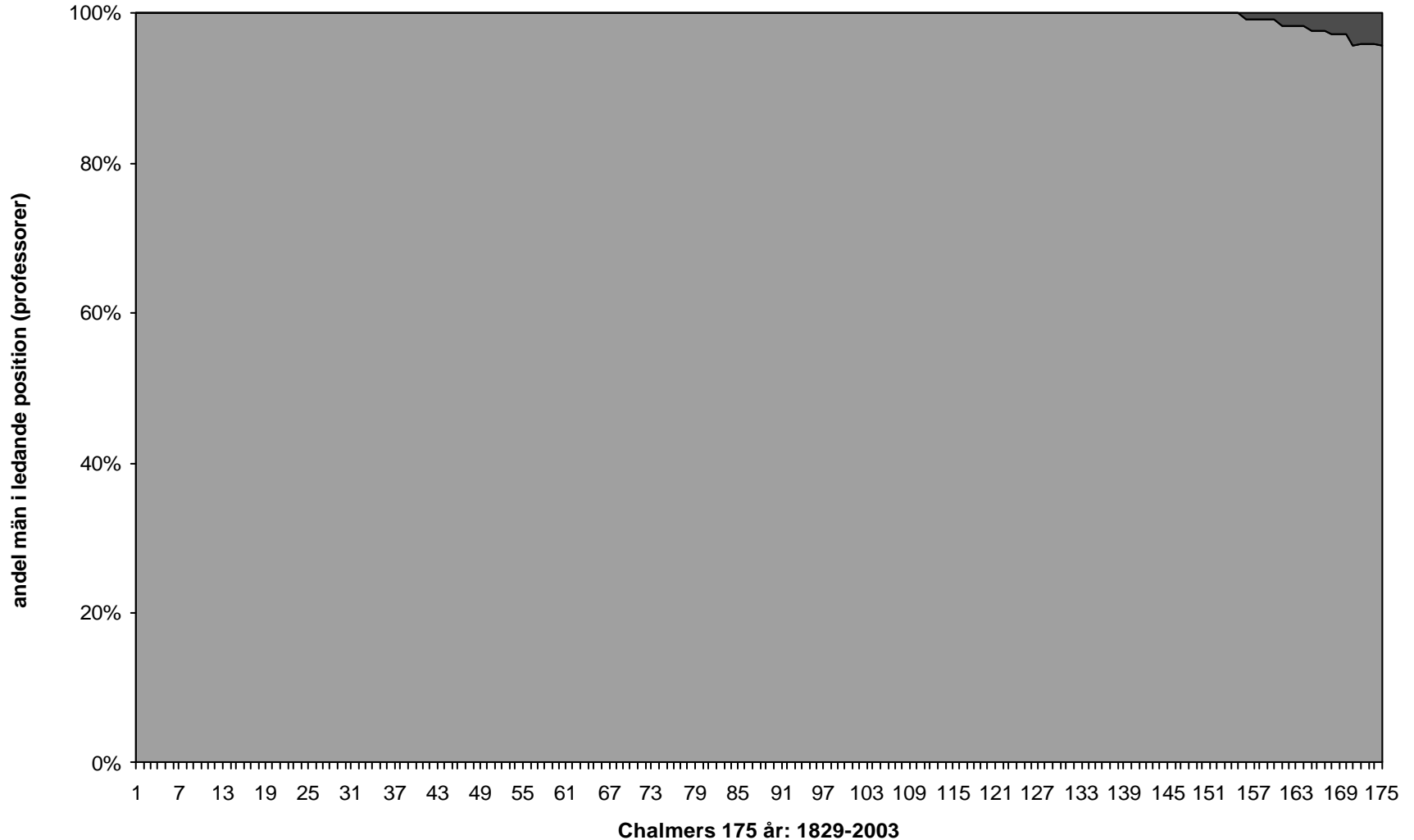
This strategy has not worked

- Special measurements for women points to them being supposedly deficient
- The special attention convinces the women of them being the problem

So we tried to switch the perspective

- And started to problemize our education
- And realize that we have a gendered history

Our gendered history



Our gendered teaching

- To put it bluntly:
Our teaching is elaborated to typically suit 23 year old, heterosexual, males, from a very Swedish ethnic background, and with fathers and brothers that already managed to pass through Chalmers

Questions in focus

- In this reform work we expected the WHY-question answered, that the we all agreed on the importance of more women in engineering
- We wanted to focus on the WHAT to do and HOW to do the reforming of our education

What we did

- We invited teachers in charge of courses to participate in course reform work.
They got remuneration for one week's work to their departments.
- The responsible teacher, and some other involved teacher/assistant in 11 courses engaged in the reform work (all applicants)
- In all 21 persons (8 men) participated

Participating courses

- Analog-VLSI Design
- Automatic Control
- ...
- Urban design and planning
- Gender and technology in today's world

A series of workshops

- Three workshops for sharing of own experiences mixed with three workshops with invited speakers.
- The course plans and study directions were the main tools, together with literature on gender issues in engineering education.

Check list made up: Aspects important in teaching female engineering students

- Identity and affiliation
- Wholeness
- Feedback
- Careful organisation of group work
- Study logistics and time pressure
- Clarity in assessment criteria

So far..

- The eleven courses have been reformed –in some or several aspects
- No follow up study so far
- We have added a lecture on gender issues in the compulsory pedagogical course for doctoral students (3 ECTS)

BUT..

- We have ourselves gone into the trap, that we already had identified!
- We are still pointing to the needs of the female students instead of the problems with our teaching.

We have to carry on reform work
qualitatively,
as well as in other courses

- We need to admit the difficulties
- And really pursue the change of perspective!