

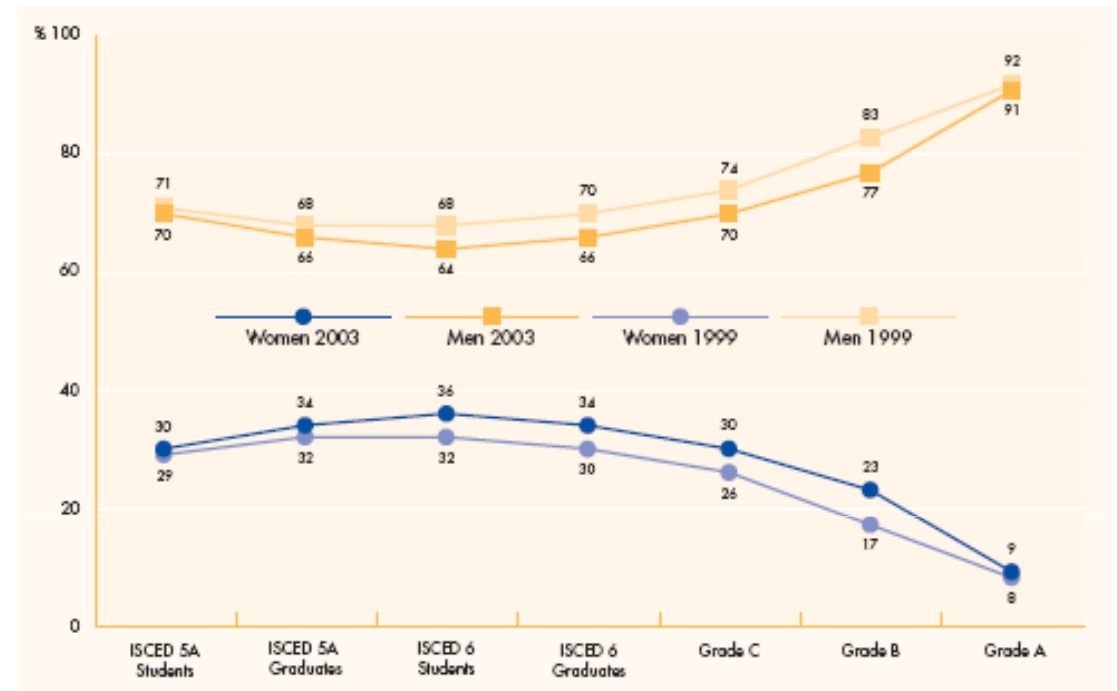
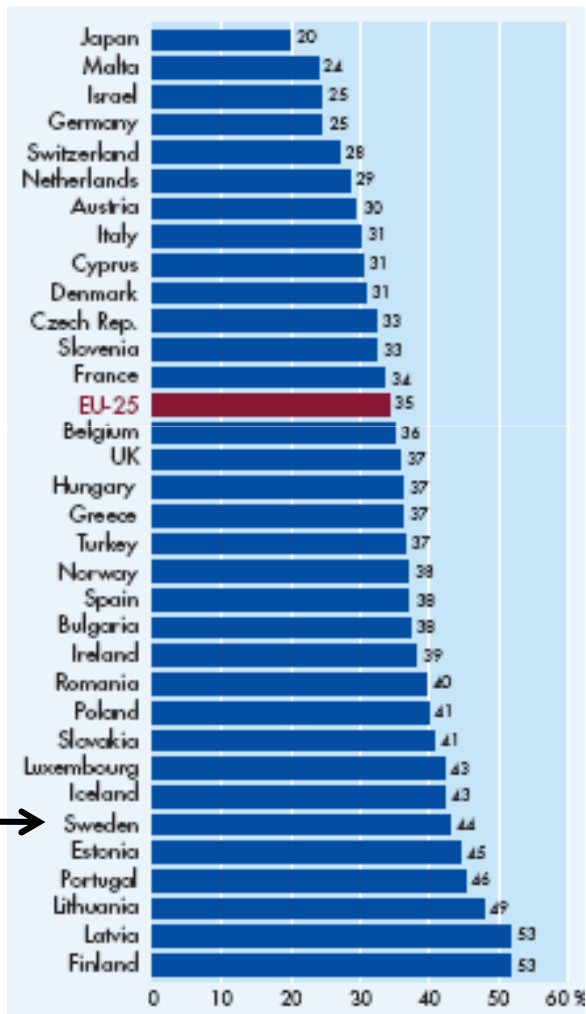


# The Stereotype Threat - Why Actions In Favour of Women Can Be a Hindrance To Gender Equality

Johanna Andersson and Uta Klement  
Chalmers University of Technology, Göteborg, Sweden



# Figures and Statistics



- (a) Proportion of female researchers/engineers, EU-25, 2003 [She Figures 2006],
- (b) Proportions of men and women in a typical academic career in science and engineering, students and academic staff, EU-25, 1999-2003 [She Figures 2006].

# Figures for Chalmers



At Chalmers, only 7% of the professors holding a chair are women!

## Additional Problems

1. There are a number of rules/policies at Chalmers requiring participation of women (empowerment, gender equality). This leads to substantial administrative responsibilities in the form of participation in various decision groups and boards, judging committees, official missions, etc.

**Trade off:** Influence ↔ Time

2. Women in higher positions are also attractive for other jobs/missions; they leave for good or take leave of absence.



Prof Lena Treschow Torell

President of the Royal Swedish  
Academy of Engineering Sciences  
(IVA)



Prof Lena Gustafsson

Deputy Director General of VINNOVA  
(The Swedish Governmental Agency  
for Innovation Systems)

# Special initiatives: "Tham professorships"

## Background :

In the mid-90s, 93% of all professors in Sweden were men!

Therefore, the Minister of Education, Carl Tham, decided to take vigorous actions against the imbalance and in the years that followed up some 30 professorships were created for the underrepresented sex, especially in fields where there only few women.



Carl Tham, Minister of Education (1994–98)

## Critics: "Tham professorships"

### Intention of Tham-professorships:

- Female professors would act as role models and support female students and graduate students in their work
- Female professors open up new areas of research and challenge the interpretation of male preference in their respective disciplines.

### Critics:

- Appeal of male scientist to European Court ↔ approved!
- Even though the initiative was successful, there was and still is today (probably even more!) strong opposition to such affirmative actions (usual arguments: qualification, competence, stigmatization, etc).

**Note:** In politics quotation was introduced and is accepted; that is not the case in academia!

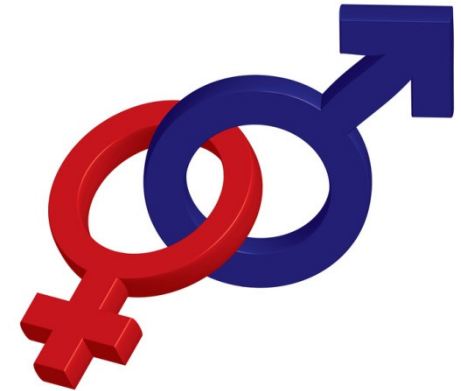
# Chalmers Gender Equality Policy

Chalmers has an uneven gender distribution today, both among employees and students.

Annual report 2008:

8847 students of which 26% are women

among employees: 17% female teachers, 7% female professors



Risks with gender equality activities:

- ☹ the under-represented sex can become “invisible” if one doesn’t keep on actualizing the question
- ☹ the under-represented sex is made visible and noticed in a distinct and problematical manner.

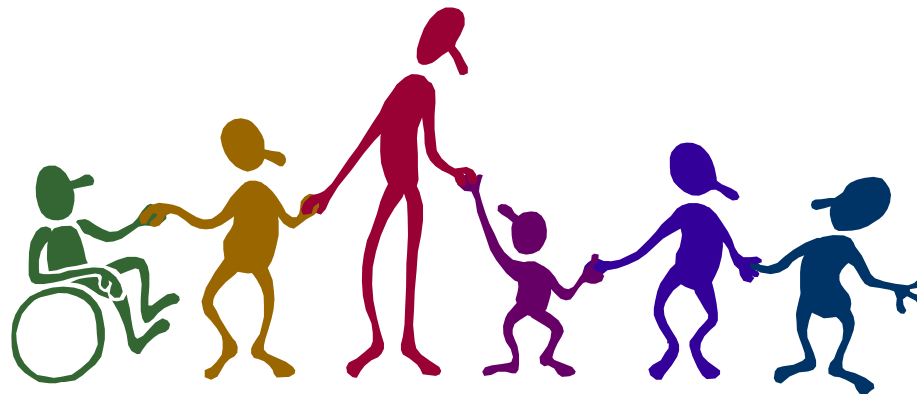
# Chalmers Gender Equality Policy

All work towards gender equality at Chalmers rests on three basic assumptions:

1. There is **no difference** between women and men when it comes to **talent** within science and engineering.
2. Minorities are often exposed to **negative stereotyping** which negatively affects their performance.
3. that **directed initiatives** for stereotyped minorities can contribute to **strengthening the degree of stereotyping**.

# Chalmers Gender Equality Policy

Based on these assumptions, it follows that the gender equality work at Chalmers should **not** consist of actions **directed towards specific minority groups**, but rather of **broad initiatives from which all can benefit**, thereby also minorities, but without specifically pointing out these minorities as a problem.



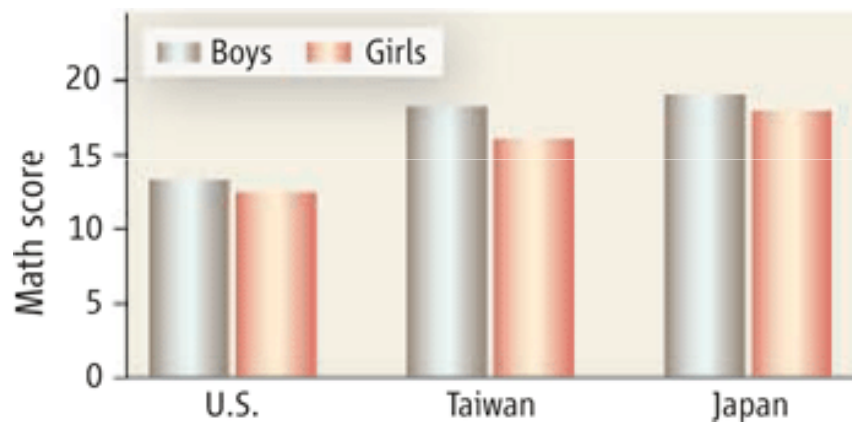
# Chalmers Gender Equality Policy

## References:

- [1] Janet Shibley Hyde and Marcia C. Linn, "Gender Similarities in Mathematics and Science," *Science* 314 (2006) 599.
- [2] Claude M. Steele, "A Threat in the Air, How Stereotypes Shape Intellectual Identity and Performance". *American Psychologist* 52 (1997) 613.

# Gender Similarities in Mathematics and Science

Janet Shibley Hyde<sup>1\*</sup> and Marcia C. Linn<sup>2</sup>



**Cross-national and gender differences in math.**

Differences in fifth-graders' performance on word problems are larger between countries than between genders!

The cultural differences reflect many factors, including differences in curriculum, time spent in homework, and parents' beliefs in the importance of effort in school performance.

# Gender Similarities in Mathematics and Science

Janet Shibley Hyde<sup>1\*</sup> and Marcia G. Linn<sup>2</sup>

The authors analysed results from 100 studies on gender differences in mathematics performance (based on the testing of more than 3 million people):

- Girls outperformed boys on computation in elementary school and middle school.
- There was no gender difference in high school.
- There was no gender difference in deeper understanding of math. concepts at any age.
- For complex problem solving (a skill that is highly relevant for science, technology, engineering, and mathematics careers) there was no gender difference in elementary or middle school

⇒ **Conclusion:** There is no difference between women and men when it comes to talent within science and engineering!

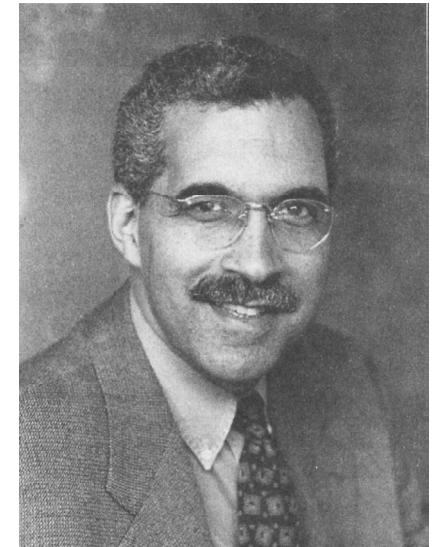


## A Threat in the Air

### *How Stereotypes Shape Intellectual Identity and Performance*

Claude M. Steele, *Stanford University*

1997



#### Central question of the article:

From an observer's standpoint, the situations of a boy and a girl in a math classroom or of a Black student and a White student in any classroom are essentially the same. The teacher is the same, the textbooks are the same, and in better classrooms, these students are treated the same.

Is it possible, then, that they could still **experience** the classroom differently, so differently in fact as to **significantly affect their performance and achievement** there?

## A Threat in the Air

### *How Stereotypes Shape Intellectual Identity and Performance*

Claude M. Steele, *Stanford University*

1997

Aim is to show how **societal stereotypes** about groups can **influence** the **intellectual functioning** and identity development of individual group members.

The study is performed on two groups:

- **African Americans**, who must cope with negative stereotypes about their abilities in many scholastic domains
- **Women**, who must do so primarily in math and the physical sciences.

## A Threat in the Air

### *How Stereotypes Shape Intellectual Identity and Performance*

Claude M. Steele, *Stanford University*

1997

Social-psychological threat that arises when one is in a situation or doing something for which a negative stereotype about one's group applies.

Where **bad stereotypes** about these groups apply, members of these groups can fear being reduced to that stereotype. And for those who identify with the domain to which the stereotype is relevant, this predicament can be self-threatening.

...self-fulfilling prophecy ☹️

## A Threat in the Air

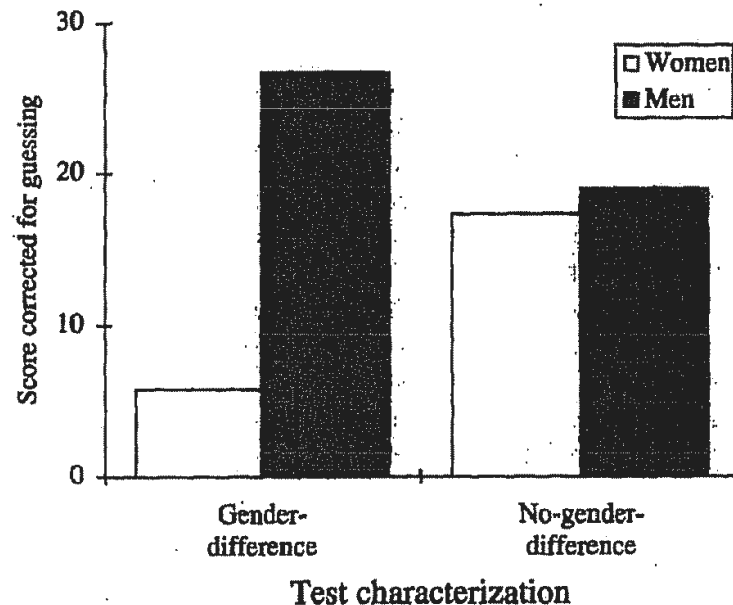
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Claude M. Steele, *Stanford University*

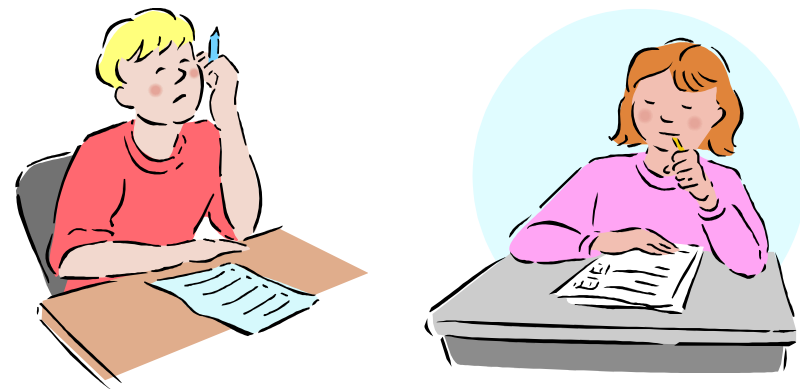
1997

**Figure 1**

*Mean Performance on a Difficult Math Test as a Function of Gender and Test Characterization*



Women performed worse than men when they were told that the test produced gender differences, but they performed equal to men when the test was represented as insensitive to gender differences, even though the same difficult "ability" test was used in both conditions.



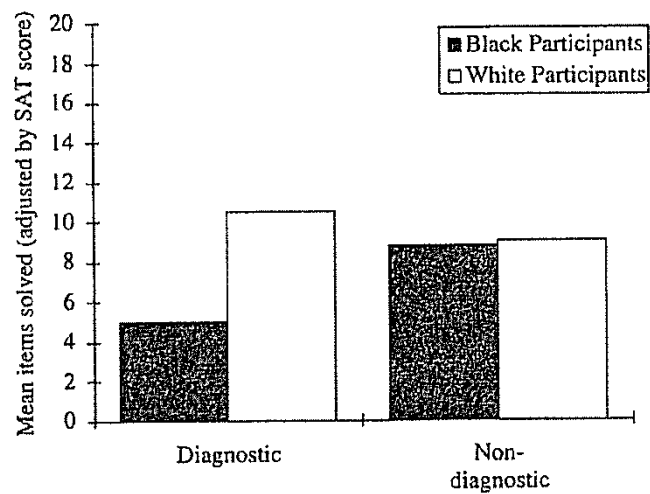
# A Threat in the Air

## *How Stereotypes Shape Intellectual Identity and Performance*

Claude M. Steele, *Stanford University*  
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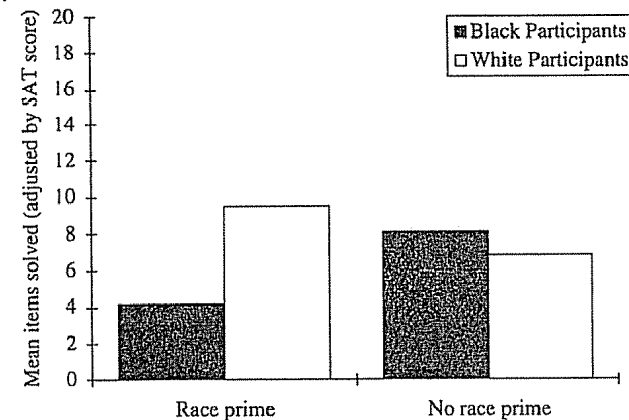
**Figure 2**  
Mean Performance on a Difficult Verbal Test as a Function of Race and Test Characterization



Note. SAT = Scholastic Assessment Test.

↑  
No stereotype on their ability

**Figure 3**  
Mean Performance on a Difficult Verbal Test as a Function of Whether Race Was Primed

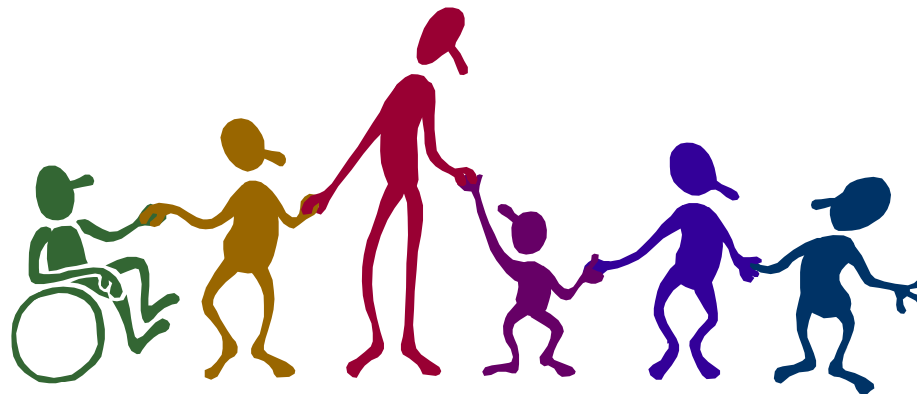


Note. SAT = Scholastic Assessment Test.

(...whether or not participants recorded their race on a demographic questionnaire just before taking the test)

# Chalmers Gender Equality Policy

Based on these assumptions, it follows that the gender equality work at Chalmers should **not** consist of actions **directed towards specific minority groups**, but rather of **broad initiatives from which all can benefit**, thereby also minorities, but without specifically pointing out these minorities as a problem.



# Chalmers Gender Equality Policy

*... what do we do?*

- **Equal wages** for equivalent work, independent of gender.
- **Parental policy:** 90% of salary until the child is 18 months old (financed centrally, not taken from research group)



# Chalmers Gender Equality Policy

*... what do we do?*

## Christine Wennerås and Agnes Wold

- Study highlighting conditions surrounding the appointment of research associates at the Swedish Medical Research Council
- Results showed that not all applicants were treated equally
- Study published in a much-discussed article in Nature 1997



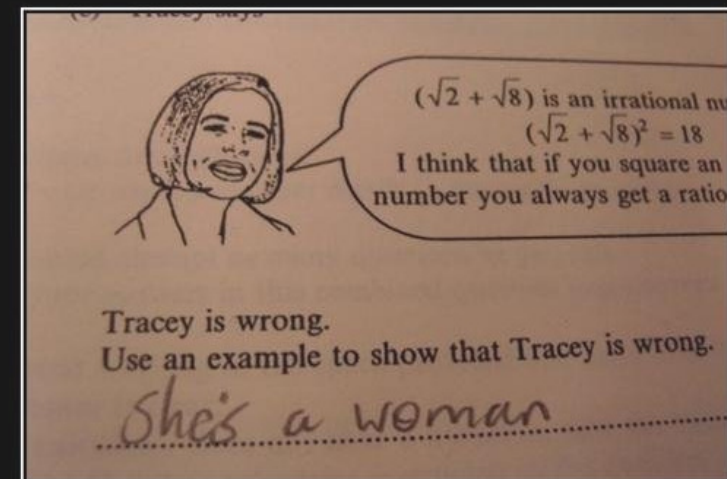
Christine Wennerås



Agnes Wold

# Chalmers Gender Equality Policy

... what we don't do!



## WOMEN

They can't do Math

# Evaluation of Chalmers Gender Equality Policy

## Risks with gender equality activities:

- ☹ the under-represented sex can become “invisible” if one doesn’t keep on actualizing the question
- ☹ the under-represented sex is made visible and noticed in a distinct and problematical manner.



...has anything changed?

⇒ Evaluation in 2011 !!