Boys in space and pretty girls: Science, technology, gender and risky stereotypes

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Women in academia: what's happening?

- In 1990s: Netherlands had second lowest percentage of female full professors in the world, after Botswana: 5%
- Slow progress despite decades of attention and various campaigns (quotas, awareness campaigns etc)
- Women drop out on career ladder

What are the causes?

- In the not too distant past:
- Outright discrimination of women; eg in the 1970s in NL women lost their job when they got married
- Women in science were ignored/marginalized
- 'Woman can't do math/physics' etc

- These days such explicit discriminatory mechanisms are at least deemed unacceptable and probably occur less often than in the past

- Does this mean that emancipation of women has fully succeeded?

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State of the art in literature on gender: implicit bias

- Implicit bias:
- Of evaluators:
- Eg judging identical CVs with male/female names: male > female
- Judging grant applications: women with same achievements judged lower than men
- A dominant man is perceived as assertive, a dominant woman as aggressive
- Men *and* women are prone to these biases

Institutional factors

- The 'baby-penalty': women with young kids drop out of university careers while men with kids move on

- Marieke van den Brink:
- Informal old boys' networks determine who gets the job

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Research indicates the following aspects of women's self-image:

- Women are more self-critical than men: if they fulfil 4 out of 5 job criteria they don't apply, men who fulfil 3 out of 5 do apply.
- 'Women don't ask'
- Women are less self-confident, and are punished if they are as assertive as men
- 'impostor syndrome' ('when will they find out that I don't deserve this job?') more dominant with women

But *why* is that still the case?

- What is the cause of such biases, stereotypes, self-perceptions and patterns?
- Are they just residues from a not so distant past?
- Or are there current mechanisms that are maybe less visible and that keep such patterns etc intact?
- Nature or nurture?
- Are men and women different? Do they have different capacities? Preferences?

- **Are we yet in a situation where we can disentangle nature and nurture concerning gender differences?**

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Spoiled princesses, victims of circumstance or free choice?

- Glass ceiling?
- At least in NL, women in top positions seem proportional to full time working women

Mums (sic) continuously remind each other of the following norms of motherhood:
- 'Dutch mums work 3 days'
- 'Mums are better caretakers'
- 'Mums are the prime caretakers'

- Difference feminism:
- 'Women are different and want different things than men'

Peer pressure and expectations

- Liberal feminism:
- No reason to assume that women want different things than men

- But our culture creates and perpetuates strong expectations and role models

- It takes a lot of courage and perseverance to resist such expectations and combat them explicitly

- But it starts even earlier:
- How do we raise our kids?

Women as the exception, men as norm

Whatever happened to feminism? Wizard of Oz 1939: Dorothy, a girl and heroine

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Wizard of Oz anno 2013:
Male hero protecting Dorothy

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This is not *implicit* bias – it's *explicit* bias!

Help, they're brainwashing my kids!

- 'No we're not
- We are giving kids what they want
- Girls don't like rockets/math
- Boys don't like makeup/caring tasks
- This is a reality'

- From there we get to:

- 'Women don't want a career/work fulltime
- Men don't want to (can't) care for kids/household'

- But is that a surprise?

Stereotypes: nurture, not nature

- Are we not creating this reality? By telling our kids over and over again what are proper toys, roles, preferences etc?

- And what about the girls/women boys/men, transgenders etc who don't fit these stereotypes? Do they have a problem or do they prove these stereotypes wrong?

- What about cultural and historical differences in gender stereotypes?

- Social construction of gender

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This has direct practical effects:

- E.g. combining care/career; dealing with budget cuts in childcare:

- expected to be a **problem** for women

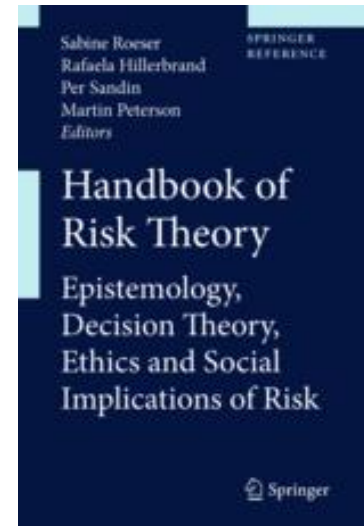- when men could be the **solution**

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Sexism anno 2013

- From
- Girls / women **can't**

- To

- Girls /women **don't want**

- Sounds less bad
- But is just as bad
- As it is a self-fulfilling prophecy

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'Girls don't want'

- Is not innocent
- It's based on dubious generalizations
- Of samples that are not neutral
- And such claims influence reality rather than describing them neutrally
- Takes status quo for granted
- Rather than trying to push the barriers and examine how much further we can go in realizing gender equality
- Guiding principle should be: as long as we can still identify gender bias
- We cannot assume that we know the nature of gender differences
- Presumably many of them are still due to nurture

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Gender stereotypes: Risk, ethics and emotions

- Descriptive vs normative: neutral statistical description vs normative judgments about future expectations
- accepting reality or trying to change it

- Status quo bias: how to deal with progress
- Nature as innocent: human beings are malleable, for better and worse
- Aggregation problems: how to deal with deviating minorities
- Fairness, justice and equity dismissed: we give people what the majority wants
- Emotions and images used to manipulate: instead of providing new ways of thinking

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Rafaela Hillerbrand
Per Sandin
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Editors

SPRINGER
REFERENCE

Handbook of Risk Theory

Epistemology, Decision Theory, Ethics and Social Implications of Risk

Springer

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Marginalize femininity: emotions, care, beauty - and women

- Based on dubious dichotomies and stereotypes, such as:

- Reason vs emotion
- control vs care
- Brains vs beauty
- Technology/engineering/science vs 'soft disciplines'

- Men vs women

Instead: overcome dichotomies

- Reason needs emotion, emotion is source of practical rationality
- Control and care should be balanced
- Brains and beauty don't exclude each other and don't need to relate to gender

- Girls/women are and should be encouraged to be genuinely interested in science, technology and engineering

- Don't ridicule men who like 'feminine' things
- This happens all the time though! And it starts with little boys. Then don't be surprised if we create the next generation of men who have problems showing emotions, contributing to care tasks etc.

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Technology, gender, reason and emotion

- Technology as value-neutral

- Engineering as a mathematical, quantitative discipline

- Engineers as archetype of people who make decisions in detached, rational, quantitative way.

- Robot as ideal of human intelligence (AI).
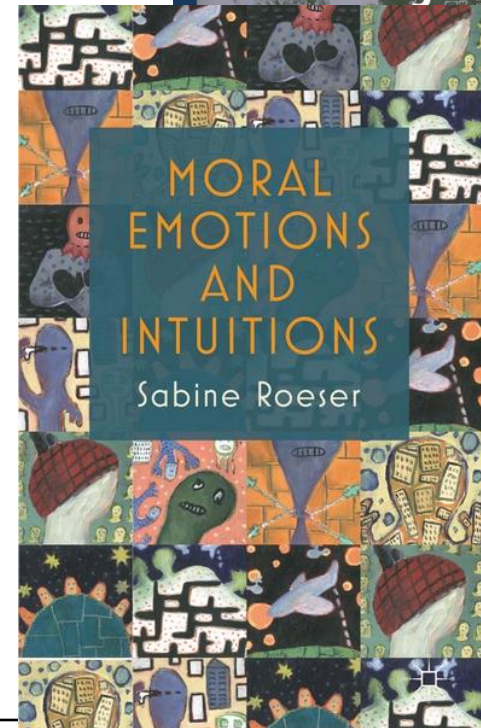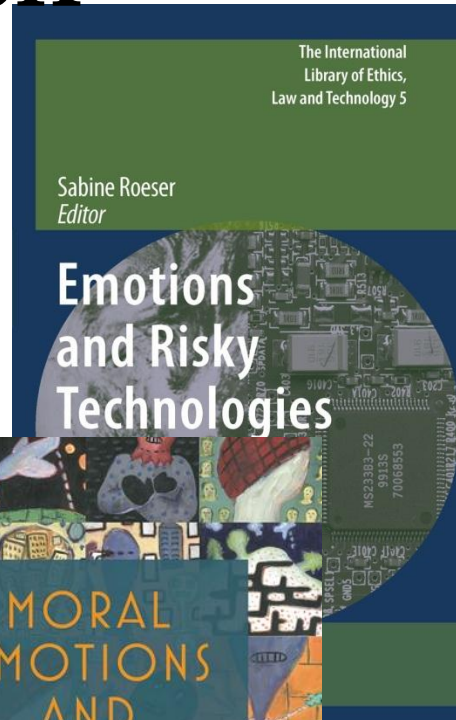
Challenge from techno-ethics

- Technological design is not value neutral (Verbeek 2005).
- Value Sensitive Design (Friedman, Van den Hoven)
- 'Nudge' (Thaler and Sunstein)
- Risk ethics (Shrader-Frechette, Hansson, Roeser etc)
- Emotions as perceptions of moral saliences (Roeser)

The Ethics of
Technological Risk

Edited by
Lotte Asveld and Sabine Roeser

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Moral Emotions and Risk

- Emotions indispensable source of ethical insight
- Also concerning ethical aspects of technological risk
- Sympathy, fear, indignation, enthousiasm
- Point to morally salient aspects of technologies
- Such as risks, benefits, autonomy, fairness

The International
Library of Ethics,
Law and Technology 5

Sabine Roeser
Editor

Emotions and Risky Technologies

MORAL EMOTIONS AND INTUITIONS

Sabine Roeser

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Emotional engineers

- engineers should also include emotional reflection into their work.
- they should not be unemotional calculators;
- quite the opposite:
- they should work to cultivate their moral emotions and sensitivity
- in order to be engaged in morally responsible engineering.

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Engineering and gender

- The 'rationalistic' bias in current engineering culture:
- also reflected by the fact that engineering is considered to be a 'male' profession
- with a low percentage of female engineers and engineering students
- as the concepts 'rational', 'male' and 'emotional', 'female' are traditionally linked.
- Turning engineering into a 'softer' discipline might also have an effect on gender roles
- possibly making engineering a more attractive discipline for women.
- However:

If we want to combat gender bias

- Don't assume too readily that existing gender differences are due to nature
- But rather be suspicious and try to spot nurture influences and dismantle them
- Assuming gender differences creates self-fulfilling prophecies
- Creates/continues peer pressures
- We have to start at the roots
- And provide the new generation with new, unbiased frames
- That provide everyone with the opportunity to become what they want
- Create new images
- **Otherwise policies to combat gender bias at universities means fighting a running battle**

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