

SET-Routes
Women in Science – The way forward
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Myths and Facts

Causes of female under- representation in science

Isabel Beuter, M.A.

Center of Excellence Women and Science CEWS



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Content

- The Center of Excellence Women and Science CEWS
- Background
- Explanations or “Myths”
- Structural and Internal Barriers
- Conclusion



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CEW S

- founded in 2000 at the University of Bonn
- since 2006: unit of GESIS – Social Science Information Center and of the Leibniz Association
- 9 permanent members of staff, from different disciplines and backgrounds, including office staff + presently 4 scientists for fixed-term projects



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CEW S

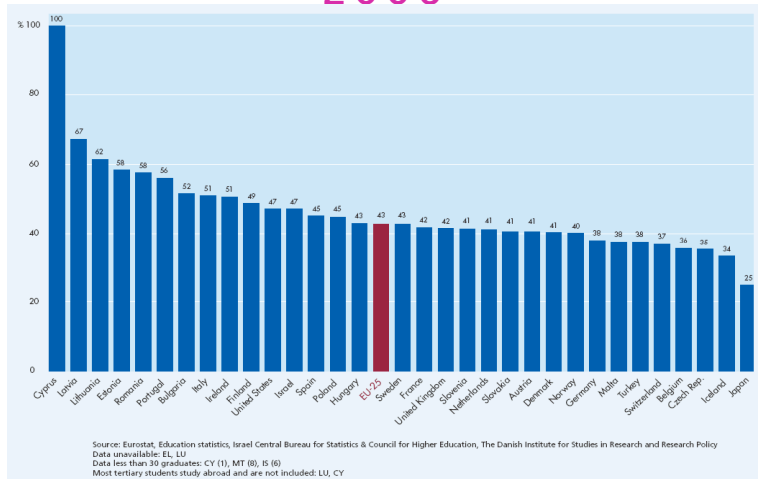
- National node for the realization of equal opportunities for women and men in the area of science and research in Germany
- Think Tank
 - transfer of knowledge
 - advice
 - networking
 - strategy development
 - evaluation



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Proportion of female PhD graduates 2003



Source: She Figures 2006

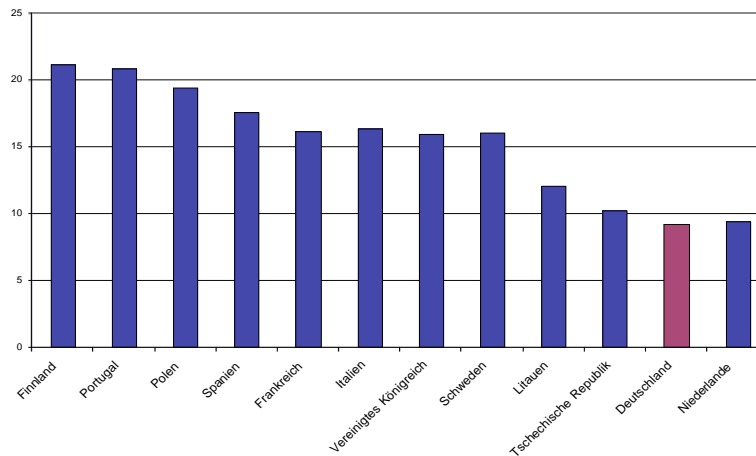


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Proportion of Female Professors (Grade A)



Data Source: She Figures 2006



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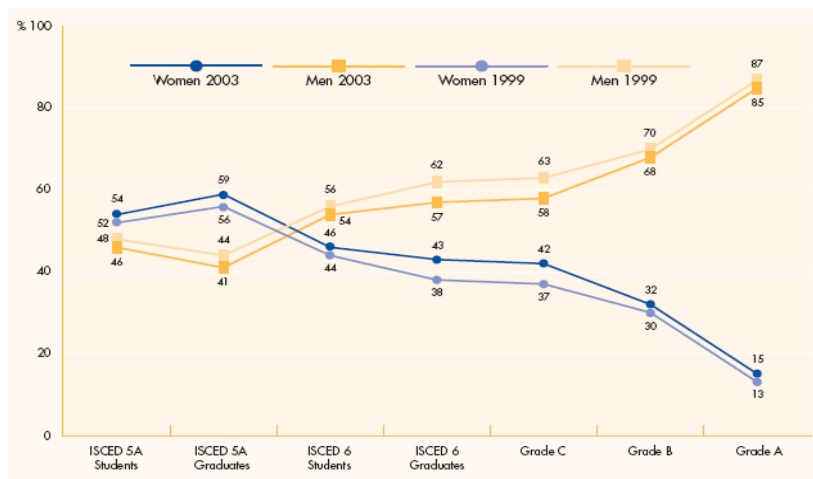


Explanations for the Under- representation

Well-known / common explanations

- Pool of women scientists is too small
- Disciplines with an over-representation of women offer good chances
- Reconciliation of work and family life

Small Pool of Women Scientists



Source: She Figures 2006

Retrospective Analysis of Statistical Data on Academic Careers

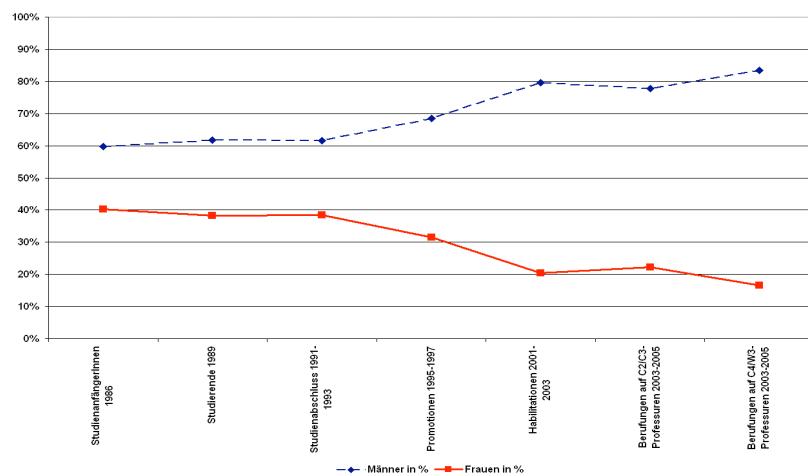
- Looking at appointments in the years 2003 – 2005
- Based on the idea that it takes app. 18 years to be appointed the first time



We need to take a closer look at the **pool available around 1986**



Analysis across all Disciplines



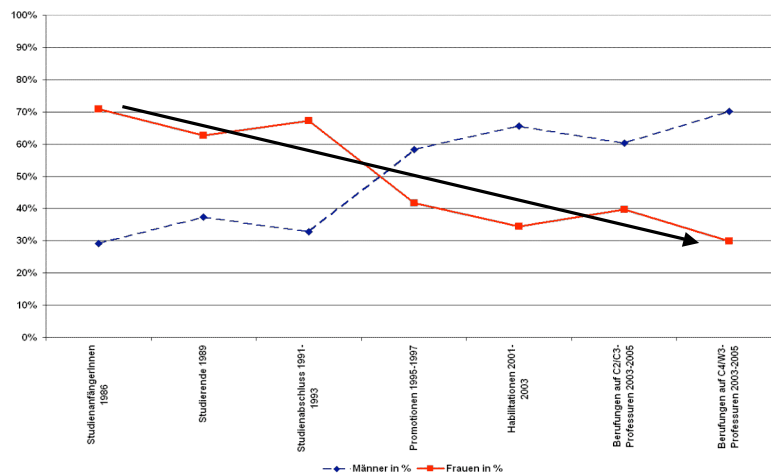
Female dominated Subjects

Representation is better in subjects with a high proportion of women on lower levels

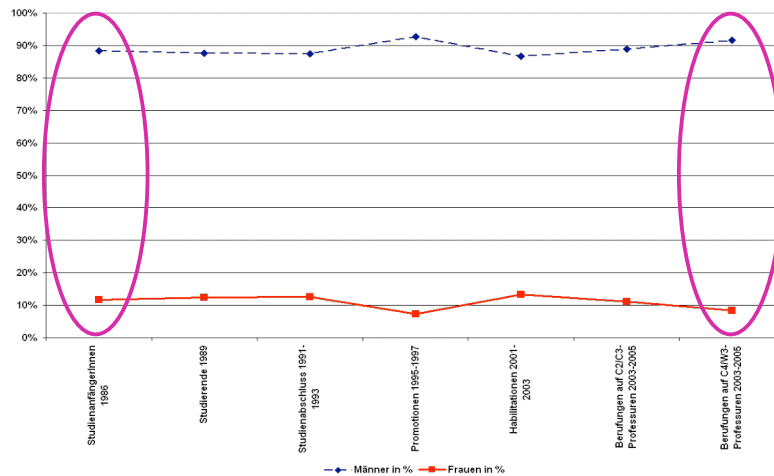


Chances for women in female dominated subjects are better

Analysis „Humanities and Arts“



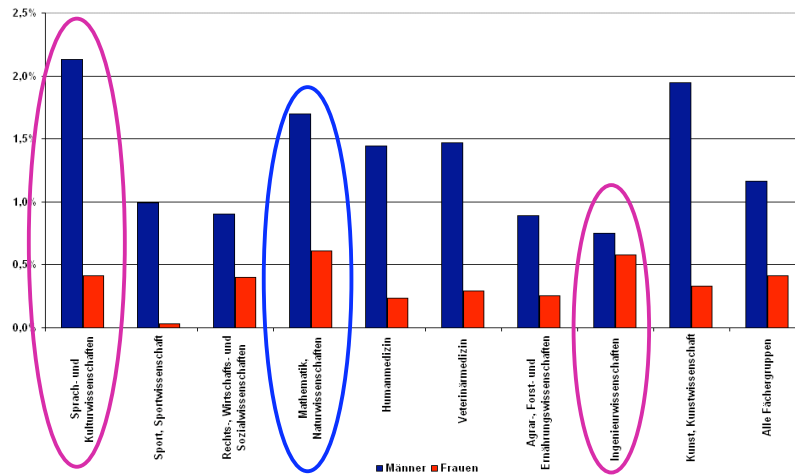
Analysis „Engineering“



Interpretation of the Data

- Chances for women in female dominated subjects are worse than in subjects where they are under-represented
- At present no disaggregated data available for biology / life sciences

Chances for Appointment



Reconciliation of Work and Family

The reconciliation of work and family is the central obstacle for women's careers in science, if not in careers generally.

Reconciliation

- Women scientists with or without children
 - Show no difference in the duration of their qualification steps
 - Are equally productive concerning publications
- But: highly selective „survival sample“

Reconciliation

- Women with or without children face obstacles in their career progress
- Having children does not make a career easier but
 - ➔ We cannot reduce the discussion on reconciliation issues

Possible Causes

- Structural barriers
 - Recruitment
 - Ascribed Achievement
 - Formal Status
 - Culture of Acknowledgement & Integration in the Scientific Community
- Internal barriers
 - Self-promotion / Self-presentation & Career Planning
 - Career Motivation
 - Partner Selection & Spousal Roles

Recruitment

- Starting a PhD course
- Low standardisation
- Depending on relationship to a personal mentor / promoter
- Homosocial cooptation

Ascribed Achievement

- Motherhood and science are not reconcilable
 - => Young female scientists are also seen as potential mothers
- Reduced promotion due to unfavourable long-term achievement prospect
 - => higher drop-out rate
 - => self-fulfilling prophecy

Sources: Allmendinger, 2005; Allmendinger et al., 2004; Beaufays, 2003; Beaufays, 2007; Engler, 2000; Geenen, 2001; Kraus, 2000; Matthies et al. 2001; Schreck, 2002.



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Formal Status

- the lower the formal status the higher the drop-out rate
- Women scientists have a lower formal status (on average)

Sources: Allmendinger et al., 1999; 2001; Enders & Teichler, 1995; Holzbecher et al., 2002; Hoffmann-Lange, 2000; Matthies et al., 2001; Wimbauer 1999; Wissenschaftsrat, 1998.



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Acknowledgement & Integration

- Low professional acknowledgement
- Low integration in reputation building networks
- CEWS study (on women scientists qualified for an appointment):
 - ➔ 69% show no or low integration in the scientific community

Conclusion Structural Barriers

We have seen several points of structural issues that lead to a higher exit probability for women in science and thus may be the causes for female under-representation.

Self-promotion & Career Planning

- Self-promotion tends to be less straight forward
- Less stringent career planning
- Less time spent on self-presentation, talks & presentations, publications

Sources: Baus, 1994; Macha, 2000; Onnen-Isemann & OBwald, 1991; Poppenhusen, 1986; Schultz, 1990; Wetterer, 1989.

Career Motivation

- Professional motivation is more or less the same
- However, they show different look-out:
 - Women emphasise content of their work
 - Men emphasise status position and career prospects

Sources: Abele, 2002; Holzbecher et al., 2002; Koch, 1995; Lind, 2004; Lind & L  ther, 2006.

Partner Selection & Spousal Roles

- Partner is highly qualified and has a full-time job
- Spousal roles are traditional
- Latest findings show changes, e.g. concerning fatherhood of male scientists

Sources: Allmendinger et al., 2001; Auferkorte et al. 2006; Baus, 1994; Buchholz, 2004; Buchinger et al., 2004; Dasko, 2002; Krimmer & Zimmer, 2003; Macha, 2000; Onnen-Isemann & OBwald, 1991; Strehmel, 1999.

Conclusion Internal Barriers

- There are differences between women and men
- None of them justifies why women should be “bad” scientists or have lower career prospects

Final remarks

- There is no clear *one* cause for the under-representation of women
- The things we think we know are not always that clear when under scrutiny
- More research is needed, but also changes where we have already made out barriers



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Thank you!

Center of Excellence Women and Science CEWS

GESIS - Social Science Information Centre

Poppelsdorfer Allee 15

53115 Bonn

Tel.: +49 (0) 228 96118320

Fax: +49 (0) 228 96118340

<http://www.cews.org>

<http://www.gesis.org>

isabel.beuter@cews.org



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