

technical and natural science this also results in a higher number of academic positions in these male dominated faculties. Besides this (and controlled for this fact) men in general to a higher extent get PhD scholarships. Furthermore the main part of the positions as assistant professor, associate professor and professor has only one applicant, or applicant from one sex. The recruitment process in it self is also an important element in the reproduction of the gender bias academic staff.

Paper 1.3

Title To Boldly Go Where No Woman Has Gone Before¹: Career Perspectives of Women in Technology and Science – A Case Study

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The Vienna University of Technology experiences both high horizontal and vertical gender segregation as well as high drop-out rates of female students and scientists along the career path. Within the traditional engineering schools the rate of female students is low from the very beginning (only 8.4% of all students of Electrical Engineering are female) and becomes invisible along the academic career path (no female professor or associate professor serves in Electrical Engineering School).

Contrarily, in the school for Architecture we observe more than 50% of female beginners, but then the steady attrition of females along the scientific career paths leads to a proportion of only 17% of females among full professors³.³ The most recent report by the European Commission (Women in Science and Technology 2009) identifies several triggers and mechanisms impeding female careers. The structural barriers encountered by women in the technical sciences, whether on the student or academic level, include various hidden and subtle, so called “modern” forms of *discrimination* (see also She Figures 2009 ; Lind 2006). They range from *informal and non-transparent recruiting* practicing enabling discriminatory decisions (Granleese 2004; Wood 2006) over *gender-stereotypical role expectations* to missing work-life balance structures like flexible working arrangements. Furthermore, specific, often “hyper-masculine” *organizational cultures* (Rosen et al. 2003) constitute a major obstacle for female careers in male-dominated fields.

In a comprehensive case study we analyze mechanisms of gender discrimination at the Vienna University of Technology in order to explain horizontal & vertical gender segregation as well as high female dropouts along the career path in this institution. By using a triangulation research approach, we want to “tie the knots” between the different factors which influence female careers in order to provide a comprehensive picture of the situation of women in this institution. The following approaches will contribute to this study:

- “Gender counts?!” analyzes the effect of several factors on drop-out probability using logistic regression. We use student data of the Vienna University of Technology from 1998 to 2010. The aim is to quantify and describe the “gender effect” on drop-out vs. successful graduation. Furthermore, we want to show structural changes of student populations over the past 10 years and analyze whether gender mainstreaming policy (for example the FIT initiative⁴) has created positive effects.

- “Austria’s next top scientist” investigates implicit and explicit recruitment criteria within the university. Close to 600 published job advertisements for scientific staff are thoroughly analyzed using content analysis (Srka and Koeszegi 2007) in order to identify *explicitly* mentioned job requirements and personality traits of the “ideal” candidate. Additionally, we conduct a personnel selection experiment regarding *implicit* selection criteria: Frequently, decision-makers claim to apply “objective” selection criteria, yet self-interest or homophily are hypothesized to create a bias in their selection decision. In adaptation of Petersen and Krings’ (2009) research design we have professors, assistants and students of different schools solving the personnel selection task in order to isolate potential generational and institutional effects. Additionally, a questionnaire on subjects’ attitudes and values

¹ Star Trek: “Space ... the Final Frontier. These are the voyages of the starship Enterprise. Its five-year mission: to explore strange new worlds; to seek out new life and new civilizations; to boldly go where no man has gone before.” (Wikipedia entry: “Where no man has gone before”, access 31.05.2010)

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³ Data based on Vienna University of Technology Alumni Report 2008: http://www.tuwien.ac.at/ud/stud/absolventen/Uebersicht_2008.html (access date: 27.05.2010) and and Personnel Report 2009: <http://www.tuwien.ac.at/ud/pers/statistiken/statist.2009.html> (access date:27.05.2010)

⁴ FIT – Frauen in die Technik is an Austrian trans-academic initiative to promote technical fields for women.

will complement data from content analysis and experiment in order to analyze individuals' values and their selection decisions.

- In "*Strange new worlds*" organizational culture and climate are examined in faculties differing in their proportion of female students and staff. With (partly adapted) standardised survey-instruments to assess organizational culture (Harrison and Stokes 1992), climate (Daumenlang and Müskens 2004) and workplace aggression (Leymann 1996), we can identify characteristics of subcultures, their degree of masculinity and a hypothesized relationship with workplace aggression against females and the high drop-out rate (see e.g. Koeszegi et al. 2010).

- In "*The journey and its own reward*" we give a voice to (1) those women who study or work at Vienna University of Technology and (2) those who decided to drop-out (either as students or as academics). In this part of research we will use biographic interviews (Schütze 1983; Hermanns 1992) in order to gain an insight into female careers in science and technology. We aim at understanding their decisions, needs and interests and find out how they happened to become technical scientists (or why they decided to drop out).

The presentation of the case study will include results of all research approaches and conclusions with regard to gender equality policy.

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