

**Abstract****Silvia Foertsch, M. Sc.**University of Bamberg, The Faculty of Information Systems and Applied
Computer Sciencessilvia.foertsch@uni-bamberg.de**Title: The Influence of the academic self-concept on the program choice of computer scientists**

Women are still under-represented in computer science. This may be due the fact that academic self-concept is one reason what keeps women from studying computer science. The gender gap in computer science cannot be solely attributed to difference in performance. Factors like motivational aspects influence course selection as well. This paper researches how academic achievement in high school and intrinsic, extrinsic and social motives influence enrolment in a degree program in computer science. The analysis shows that there is no statistical significant difference in the average final grade in mathematics between male and female students. In fact this study shows that female students achieve a significant better average final grade in high school. It can be assumed that this is due to the fact that female students know that better than average to above average academic performance is necessary in order to be successful in the male-dominated area of computer science. When choosing a degree program, male students value the intrinsic motive “talent” higher than their female peers. This, as well as previous research, leads to the conclusion that male students, rather than female students, are driven by intrinsic motivation to achieve their academic goals and expectations. In addition to gender differences there are also differences in the specific computer sciences degree programs that are chosen. Due to their high performance in mathematics women more than men choose a computer science degree program with heavy focus on the technical side of computer science. The extrinsic motive, reconciling career and family life, is more important for students enrolled in a strong technically oriented program of study as well as a less technically oriented program than it is for students studying information systems. This is also true for the social motive to help others through their chosen profession. The results show that students’ life goals vary depending on the type of computer science program chosen. All in all, generally academic performance of women is better. However, women underestimate their abilities. It seems that is important to support and motivate Girls who are interested in the field of computer science. So it is necessary that parents and teachers give positive feedback for good achievements in playschool and school. In this way children already learn to rate their academic performance positively. Additionally it could be helpful to design a study program of computer science only for women. In doing so the expectations and goals of the girls are respected and it is possible to counteract gender stereotypes.

The survey data presented here was gathered from the first and second wave of this research project “Alumnae Tracking”. The questionnaires for undergraduates were designed to collect longitudinal data on motivation, course satisfaction, reasons for course choice, changes from student life to professional life, and career opportunities. The hypotheses were tested using the Wilcoxon rank-sum test and multinomial logistic regression.

Keywords: gender differences - academic achievement – academic self-concept – motivational aspects – study program