

HOW TO INCLUDE FEMALE STUDENTS IN TECHNICAL COMPUTER SCIENCE STUDY PROGRAMS

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Introduction: The unbalanced number of female and male students in computer science, and in general, in technology and engineering has been extensively studied. There are numerous sociocultural, neurological and psychological studies that analyse the situation of female students at technical computer science programs, focusing on the differences that would make women less or more likely to excel in these areas (e.g. Mayer-Smith et al., 2000; Rubio et al., 2014). In a previous study carried out by the authors (Riveiro, Bergström, & Carlén, 2012) investigating if a male-dominant environment affects the learning experience of the female students from a particular program within computer science (Network and System Administration, NSA) resulted in various questions that needed further investigation. This study tackles one of them, why several female students interested in the program that submitted an application did not finally register? This question frames our work that intends to strategically consider a norm-critical pedagogy that fosters a more heterogeneous group of students.

Methods: Quantitative and qualitative research methods were chosen to answer the research question; in particular: (1) statistical analysis of the data collected from the admission system of all computer science programs at the University of Skövde from 2008 to 2014, (2) semi-structured interviews by phone with female-students that show interest in the NSA program (selection round 1 and 2) but did not finally register, and (3) semi-structured interviews with all NSA registered female-students from 2008 to 2014. The collected results were analysed by using a phenomenographical approach.

Results and conclusions: The results of the statistical analysis shows that 5-9% of the students who show interest in the program were female, while only 1-5% of the females finally register after the second selection round, a drop that is significant.

The phone interviews carried out show that the main reasons for not registering to the program were mainly personal, and that they were aware that the program itself was male-dominated, which did not seem to have any influence on their choices, as their main reasons to have chosen the program were their interest in doing higher education in the area.

The interviews carried out with the students registered in the program did not point out that there was any problem with the admission process, and that the information given was adequate and sufficient. Most of the female-students interviewed would see positively that more female-students were a part of the program. An interesting outcome of the interviews was that more female role models are needed.

The aim of this paper is to summarize the results obtained from our investigations and place the results obtained in relation to norm-critical pedagogy and didactics. We believe that our research triggers an

interesting discussion from which we can learn to design technical computer science programs taken a learning perspective that foster a more heterogeneous group, creating a more inclusive academic culture. Furthermore, the analysis shows some pedagogical implications regarding student participation that can be introduced to promote student's interest in technology rather than the distribution of men and women.