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The Background and Motivation of first year Engineering Students at Ku Leuven in Relation to Gender

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The engineering curriculum at KU Leuven consists of a three year Bachelor's program that prepares the students for a subsequent Master's program of two years. Each year over 400 students enter the Bachelor's program, which is common for all engineering disciplines. Amongst them, there are only about 14% female students.

In the beginning of the academic years 2009 - 2010 and 2010 - 2011, all 800 first year engineering students filled out a written questionnaire. In the first part of the survey the students indicate their background: the level of their prior mathematical education and overall score (percentage) in high school. After all, high school GPA is found to be a significant predictor to engineering student success. The study motivation of the entering students, as it is another predictor for academic success, is measured by a series of Likert-type statements [1]. Furthermore, at the end of the first and second semester, after the exams, study time measurements were performed.

The female students do not differ from the male students in the level of their prior mathematical education. However, significant differences are noticed in the overall percentage in high school, their motivation profiles, their self-esteem and their total study time. The overall high school score of the starting female students is significantly higher compared to the male starting students. The motivation profile of the female students is in general of a much better quality [2]. Furthermore, at the start of the academic year, significantly more male students (60%) are certain, they will pass their exams with good results compared to the female students (only 40%). From study time measurements it was concluded that the average female student spends more time (about 8h) on studying each specific course of the first year compared to the average male student.

Due to all aforementioned observations, it is expected that the average female student would be the significant better performer in her first year at university. But it was observed, that the group of female students did not score better in their first year. For the more general courses like Calculus, General Physics and Philosophy the female students score indeed significantly better; on the other hand, for more typical engineering courses such as Applied Mechanics, Technical Chemistry and Informatics, the male students score better. Probably an effort could be made to come up with more society-related technological examples to motivate the female students for these courses [3, 4]. ■

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