

# A Case Study: The D-MAVT Mentoring Programme. From a women-only project to peer-to-peer mentoring for all new students.

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## Abstract

The peer-to-peer mentoring programme of the Department of Mechanical and Process Engineering (D-MAVT) at ETH Zurich started out as a way to support young women and thus promote and retain talent. Despite various efforts, the percentage of women in this department is increasing only very slowly. The mentoring programme, first introduced in 2017, was intended to facilitate the start of their studies. Regular surveys among participating mentors and mentees confirmed the success of the programme. However, it also became gradually apparent that mentoring for all could be even more promising. On the one hand, both men and women struggle with the same initial challenges. On the other, the extension of the programme would forestall any criticism or feeling of neglect/discrimination on the part of male students. Above all, it would also prevent women from being seen as needy – a perception which was the exact opposite of the programme's goals. Today, D-MAVT mentoring includes first-year students of both genders. To further professionalise the programme, in 2021 D-MAVT organised its first ever kick-off workshop for all mentors. More ideas to improve the D-MAVT mentoring programme are being developed continuously based on regular surveys and dialogue with the students.

## Introduction

The biggest hurdle for most students in the Department of Mechanical and Process Engineering (D-MAVT) at ETH Zurich is making it past the first year. Everything is new, and much more personal responsibility is required than at secondary school. The first few weeks in particular are crucial, since students need to get their bearings, sign up for their courses and make sure not to miss any deadlines. They have to establish new routines and make new friends, while some also find themselves living in a new location. On top of that, students face highly demanding examinations at the end of the first year and cannot continue their studies unless they pass.

Some students fail in the first year not because of a lack of skills and aptitude, but because they are unsure of what to prioritise or put too much pressure on themselves. Female students are at even higher risk than their male peers in this regard. Since women are a distinct minority, accounting for only 10 to 12%<sup>3</sup> of all first-year students at D-MAVT, they often – consciously or subconsciously – feel the need to prove that they have earned their place. This increases

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the pressure and, as a result, they tend to do poorly on the examinations even though they have the necessary skills and work ethic to succeed.

The management of the MAVT department has been aware of this situation for some time and has therefore tried various measures to support female students and increase their numbers. It should be stressed that D-MAVT strives to keep all potentially good students who are simply struggling with the adjustment to their new environment. Diversity, however, is one of the elements, which increases the overall quality of research, teaching and studying.

D-MAVT has been taking various steps to encourage diversity. For example, the department has adapted its strategy to focus more on promising female scientists worldwide in order to hire more female professors. It also specifically targets girls in schools, running various workshops to encourage them to consider studying a STEM (Science, Technology, Engineering, and Mathematics) subject. D-MAVT also ensures that women and men are represented equally in its communication and provides financial support to the student organisation “Ladies In Mechanical and Electrical Studies” (LIMES) and reports on its activities.

## Development of the mentoring programme

To further support female students starting at D-MAVT, the department established a peer-to-peer mentoring programme for first-year female students in 2017 in close cooperation with LIMES. The programme is implemented by D-MAVT’s PR & Communications team in close cooperation with the D-MAVT Student Administration. While the PR team promotes the programme and is responsible for its organisation, the Student Administration supports the programme by providing organisational details, for example about timing, and contact details for the students and informs first-years students about the programme at various events.

The implementation of the programme was preceded by in-depth discussions with female students from LIMES, members of ETH Zurich’s Equal team, staff from D-MAVT’s communications team and its student administration. The students from LIMES were convinced that most students would be eager to assist the newcomers and did not see this as an additional burden. Another question discussed was whether male students should support female first-year students. In the end, the general consensus was that women often speak more openly if there are no men present. However, it was agreed that this aspect would be re-evaluated in the future. After all, supporting a female student could also increase male students’ understanding of women’s situation at D-MAVT and vice-versa. In addition, many questions about studying in the department could be answered just as well by men as by women.

To start-off with, the following approach was chosen:

- Participation for the new female students should be voluntary.
- To inform them, the programme would be promoted at ETH Zurich’s pre-study events.
- Registration would be set up on the D-MAVT website, including additional information.
- All mentors should be senior female students from D-MAVT who had passed the first year examinations. Their involvement should also be purely voluntary and should not be compensated financially.
- To contact potential mentors, D-MAVT Student Administration would approach all female Bachelor students by e-mail and ask them to register via the D-MAVT website.
- Each mentor could support up to three mentees, since everyone agreed that supporting the new students should not be very time-consuming.

- Everyone – mentors and mentees – would be asked to comply with the Code of Conduct of ETH Zurich.

To kick off the mentoring programme, a small informal get-together with the mentors and mentees at the start of the new semester was planned for October 2017. LIMES was in charge of catering, while D-MAVT organised a number of short lectures. There was a general presentation on the mentoring programme, and in addition a graduate student was invited to speak about her career and her experiences at ETH Zurich. This get-together was intended to provide a relaxed setting for mentors and mentees to get to know each other and thus further contribute to a successful start for the female students.

To assess the success of the programme an online questionnaire was prepared and sent to all mentees and mentors at the beginning of the first-year students' second semester.

### Evaluation of the first mentoring programme

The evaluation of the first mentoring survey early in 2018 revealed that mentees and mentors alike appreciated the initiation of this programme. Just as intended by D-MAVT, the first-year students used mentoring primarily to obtain practical tips on studying and on preparing for the examinations. The mentees also exchanged information with their mentors about their personal experiences at the university. The majority of mentees were in contact with their mentors 1 to 4 times. Both mentors and mentees found the programme to be effective and not time-consuming.

Results from the initial mentoring survey in 2018:

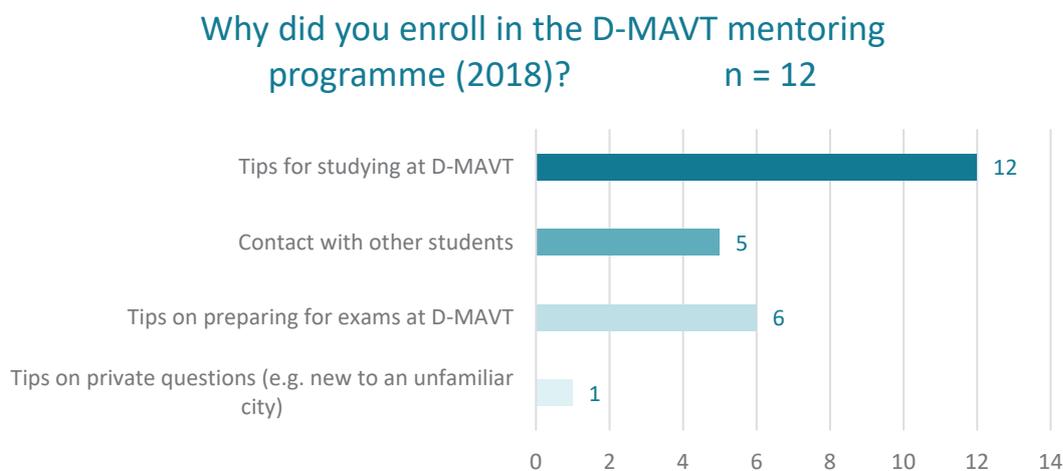


Figure 1: Enrollment to the mentoring programme of D-MAVT.

## In what ways were you able to benefit from D-MAVT mentoring programme (2018)

n = 12

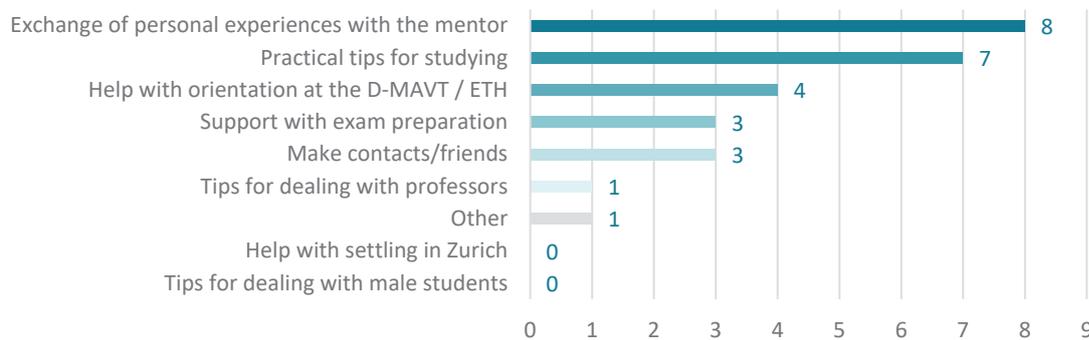


Figure 2: Benefits from participating in the mentoring programme at D-MAVT.

Despite the success of the first mentoring programme, D-MAVT decided to make minor adjustments for the next round in the autumn of 2018. Since the survey had also revealed that the newcomers needed the most support in the first couple of days before the start of the semester and in the first few weeks after, the get-together was moved from October to September for the coming mentoring programme.

### Re-evaluating the programme

After the successful second round of mentoring in 2018, D-MAVT wanted to further professionalise the operation and visibility of the programme. To this end, the communications team worked with a young, female graphic designer to develop a logo. The designer opted for a stylised figure in eye-catching pink and orange. In addition to promoting mentoring, this colour scheme was intended to make women more visible in the department. The stereotypical pink - softened by the orange - was chosen deliberately to signal that there are many talented women in mechanical engineering.

Before the logo was used, the communications team consulted LIMES, which was still its project partner. However, the logo met with strong disapproval. To find out the reasons for this rejection, D-MAVT sought dialogue with LIMES. In addition to conversations with LIMES members, D-MAVT also held qualitative interviews in the department with other female students from different semesters to gain a broader perspective. In addition, the surveys were reviewed again, in particular with regard to the personal comments from mentees and mentors.

The goal was to

- a) find out why more visibility of women met with rejection, and
- b) how to go forward with the mentoring programme.

During those interviews, members of LIMES and other female students voiced – for the very first time – their biggest fear that any visible support for women would single them out and make them appear weak to their male peers. In addition, they were afraid that their male peers would envy them for having a support system to which they did not have access. Although all women were clearly in favour of mentoring and found it very helpful, they feared that it could trigger a negative reaction from male students.

The conversations with the female students also explained why a different room for the get-together had been requested in the survey every now and then. D-MAVT had previously assumed that the entrance area of the ML building had not been so well received because the space was not all that modern. However, the issue had been the fact that a gathering in this

place was very visible. The women did not want to be seen enjoying an aperitif, which their male fellow students could not attend: they feared that the men would resent it. The interviews also revealed that it is mainly thoughtless remarks and the sheer number of male fellow students, which intimidate young women and can negatively impact their performance. One of them described it quite vividly by evoking a situation in which she – as the only woman – had to enter a room filled with 300 male students.

For some students this discomfort and insecurity apparently go so far that one of them referred to it as an "imposter syndrome"; the feeling that female students are actually out of place in mechanical engineering. According to the interviews, this feeling often develops even before the women enter university; for example, because relatives and friends express astonishment when they state their intention to study mechanical engineering or another technical subject. Critical remarks from male peers and a male dominated environment then reinforce this feeling. As a result, female students feel they have to be twice as good as men.

Although the interviews provided a good insight into the challenges faced by female students, that did not make it any easier to move the programme forward. Many of the problems the young women voiced were very subtle and could not be addressed with regulations such as a code of conduct or with the mentoring programme alone. The fact that visible support for women seemed to run the risk of being counter-productive made it even more challenging.

### **Tentative steps forward**

D-MAVT decided to continue the 2019 mentoring programme with women only and implement it in the familiar format. Only the logo was modified by replacing the pink with the department's official turquoise shade, keeping orange as a contrast. At the same time, concepts were developed step-by-step to address the women's concerns and further adapt the mentoring programme.

The biggest challenge was the large number of first-year students, if both men and women from the department took part in the programme. Around 500 new students start at D-MAVT each September. Even if only half of the freshers signed up for mentoring, this would mean organising a get-together for up to 500 people (mentees and mentors combined). This large number would make personal conversations virtually impossible, not to mention the difficulty of finding a hall of that size and the cost of catering.

### **The start of mentoring for all**

With the onset of the COVID-19 pandemic in the spring of 2020, the entire situation changed. Quite suddenly, a face-to-face get-together for mentors and mentees was out of the question. Organising mentoring for both genders became much easier. D-MAVT therefore decided to implement mentoring for everyone in the autumn of 2020. Remote teaching already made studying very challenging for everyone, so it seemed more than reasonable to offer the mentoring programme to all new students. In addition, the pairing of mentors and mentees would no longer be based on gender, to further eliminate any sense of discrimination on either side.

As before, mentors and mentees could sign up via the D-MAVT website, and they received each other's contact details by e-mail shortly before the beginning of the semester early in September 2020. The pairs were to contact each other within 5 days; the basis remained the Code of Conduct of ETH Zurich.

## Evaluating mentoring for all and next steps

260 first-year students and 125 mentors participated in the first mentoring programme for all. The survey, which is conducted every year, revealed in 2020 that the newcomers valued the support through their mentors and that advice on studying was once again the main topic. 90% of the mentees confirmed that their expectations were met.

First survey of mentoring for all first-semester students:

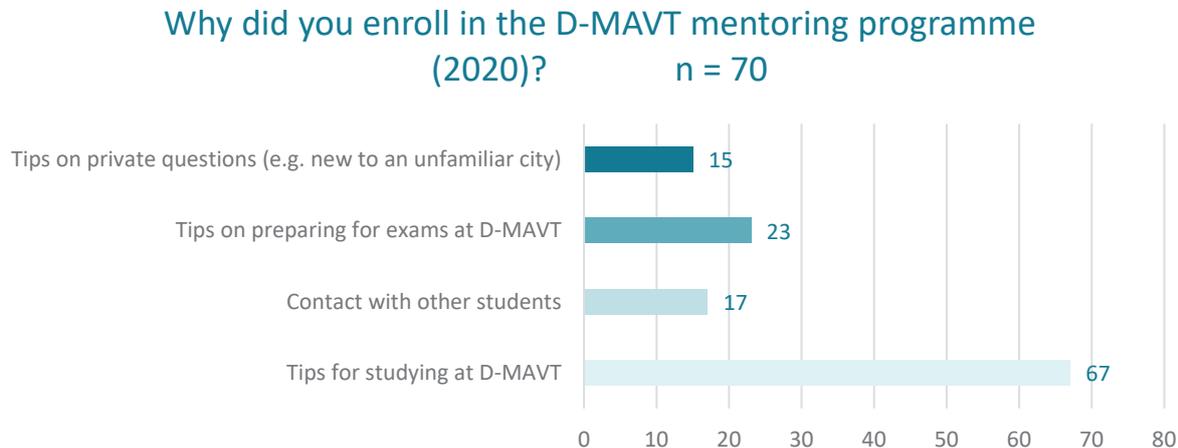


Figure 3: Reasons for enrolment at the mentoring programme.

As in previous years, the survey also showed that mentors were very eager to help the first-year students. Some were even disappointed when their mentee asked very few questions or did not need any help at all. Several mentors expressed a clear desire to be able to support the mentees even more professionally in the future.

Based on these results, D-MAVT further adjusted the programme in 2021 and decided to offer a 1-hour online training course for mentors. The very first online training took place in August 2021. It was voluntary for all mentors and free of charge. D-MAVT partnered with ETH Zurich's Student Services for the training. Student Services provided tips on how to conduct a conversation to identify the mentees' needs more effectively, and two mentors from the previous year reported on their experiences.

The concept of the online training was developed based on experiences with virtual meetings during the pandemic. Before the pandemic, such solutions were not common and it would have been difficult to train a group of prospective mentors from different semesters, who might not even be in Zurich during the summer. In this respect, the pandemic has opened up new opportunities for the development of the mentoring programme. For the future, it is even conceivable that a virtual get-together for mentees and mentors could be offered, which would solve the space and cost problems. Further discussions with all partners involved are needed before this can be implemented.

## Objectives and future of mentoring at D-MAVT

Despite the ongoing changes to the programme, the core objectives have always been the same: support for women and the retention of excellent engineering students. The surveys confirmed that support from a peer during the first few weeks as a student is very helpful and that the support is gladly accepted by many newcomers and just as gladly given by older students. Some of the biggest challenges in developing and implementing the mentoring programme remain the subtlety of the challenges for female students and the huge number of first-year students at D-MAVT.