

# Teacher-student connection for student motivation

Elizabeth Rees,  
Technical University of Denmark, [elchin@dtu.dk](mailto:elchin@dtu.dk)

Hanne Løje,  
Technical University of Denmark, [halo@dtu.dk](mailto:halo@dtu.dk)

Lene Duedahl-Olesen,  
Technical University of Denmark, [lduo@food.dtu.dk](mailto:lduo@food.dtu.dk)

## ABSTRACT

*Keywords* – Student motivation; teacher-student connection

Submission: hands-on workshop

## Background

Engineering education has traditionally focused on the technical, however today's engineering graduates are expected to go out into the world and solve problems that are increasingly social as well as technical in nature. Consequently, engineering education is evolving to reflect this and as part of this evolution, there is a larger focus on the student-teacher connection (Bairaktarova, 2022; Davis, 2017; Tormey, 2021; Wilson & Mukhopadhyaya, 2022) as student motivation is linked to educational engagement (Goralnik et al., 2012). Educational engagement is made up of connections between the student with the university, the people, the activities and the values and goals that the education is composed of. Tinto (2017), depicts this in his model of student retention, whereby the students' connectedness to their own self-efficacy, sense of belonging and, perception of the curriculum all affect their motivation. Some of the underpinning factors behind these connections are emotions and emotional engagement, which in turn is fostered by the connection between teacher and student (Goralnik et al., 2012; Hartikainen et al., 2022; Tormey, 2021). This perspective is supported by Deci & Ryan's (1985) Self-Determination Theory, which posits that individuals, in this case students, have a natural orientation to growth and self-organisation. When the surrounding environment fails to meet the needs of 'autonomy, competence and relatedness', the student can become 'alienated, controlled and fragmented'. Consequently, the interaction with the surrounding environment, such as the university and in particular teachers, can either facilitate curiosity, engagement and connection or may result in 'demotivation, in-effectivity and detachment' (Legault, 2017). Research on the effects of teacher's actions on students shows that there is an association between a teachers' expressed enthusiasm and a positive interest on the students' own enthusiasm, so-much so, it can modify the 'motivational quality' of the learning environment and students' 'achievement values and motivation' (Hartikainen et al., 2022). Empathy, understanding, non-judgment and compassion encouraged engineering students to actively seek help, increase participation, consequently improving their learning, motivation, and persistence (Hartikainen et al., 2022).

## Explanation

By understanding and connecting with the student population, teachers are better equipped in motivating students through teaching and learning (Bairaktarova, 2022; Seemiller & Grace, 2017). The aim of this workshop is to understand and share experiences; to compare experiences and offer strategies in how to motivate students via the teacher-student connection. Although it may not be possible to know each student individually; gaining knowledge on common factors that are shared by students allows teachers to consider the needs of students in terms of how they like to work, learn and interact with others. This potentially allows for an increase in student motivation, efficacy, learning capacity and persistence in higher education (Seemiller & Grace, 2017).

The purpose of this workshop is:

1. To gain more detailed understanding of the current student cohort through sharing of experiences.
2. To discuss how the student-teacher connection plays a role in student motivation.

Participants in this workshop will explore the role of student and teacher in engineering education through:

1. Background knowledge and introduction (10 minutes)
2. Session 1: Brainstorm to explore and share knowledge on the students of today and what is known about them: (10 minutes in groups)
  - o Are there similarities/differences between students?
  - o Are there differences compared to previous students?
3. Session 2: What are the challenges in teaching today? (30 minutes in the same groups)
  - o What are barriers to connecting with students? What works well?
  - o How can teachers motivate and connect with their students?
  - o What changes do we need to make (if any)?
4. Wrap up: Discussion and conclusion of overall results. (In plenum). (20 minutes)

### **Expected outcomes/results.**

The expected outcome of this workshop is to highlight/emphasise that the role of the teacher as connected to students is important when educating engineers and how this can aid learning.

### **REFERENCES**

- Bairaktarova, D. (2022). Caring for the future: Empathy in engineering education to empower learning. In *Journal of Engineering Education* (Vol. 111, Issue 3, pp. 502–507). John Wiley and Sons Inc. <https://doi.org/10.1002/jee.20476>
- Davis, M. (2017). In Praise of Emotion in Engineering. In *Philosophy of Engineering and Technology* (Vol. 26, pp. 181–194). Springer Nature. [https://doi.org/10.1007/978-3-319-45193-0\\_14](https://doi.org/10.1007/978-3-319-45193-0_14)
- Deci, L. E., & Ryan, M. R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Goralnik, L., Millenbah, K. F., Nelson, M. P., & Thorp, L. (2012). An Environmental Pedagogy of Care: Emotion, Relationships, and Experience in Higher Education Ethics Learning. *Journal of Experiential Education*, 35(3), 412–428. <https://doi.org/10.5193/jee35.3.412>
- Hartikainen, S., Pylväs, L., & Nokelainen, P. (2022). Engineering students' perceptions of teaching: teacher-created atmosphere and teaching procedures as triggers of student emotions. *European Journal of Engineering Education*. <https://doi.org/10.1080/03043797.2022.2034750>
- Legault, L. (2017). Self-Determination Theory. In *Encyclopedia of Personality and Individual Differences* (pp. 1–9). Springer International Publishing. [https://doi.org/10.1007/978-3-319-28099-8\\_1162-1](https://doi.org/10.1007/978-3-319-28099-8_1162-1)
- Seemiller, C., & Grace, M. (2017). Generation Z: Educating and Engaging the Next Generation of Students. *About Campus: Enriching the Student Learning Experience*, 22(3), 21–26. <https://doi.org/10.1002/abc.21293>
- Tinto, V. (2017). Through the Eyes of Students. *Journal of College Student Retention: Research, Theory and Practice*, 19(3), 254–269. <https://doi.org/10.1177/1521025115621917>
- Tormey, R. (2021). Rethinking student-teacher relationships in higher education: a multidimensional approach. *Higher Education*, 82(5), 993–1011. <https://doi.org/10.1007/s10734-021-00711-w>
- Wilson, E., & Mukhopadhyaya, P. (2022). Role of Empathy in Engineering Education and Practice in North America. In *Education Sciences* (Vol. 12, Issue 6). MDPI. <https://doi.org/10.3390/educsci12060420>