

OZSW study group Engineering Ethics Education & Research Workshop Empathy and Mindfulness in Engineering Education

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Tuesday, 18 Oct 2022, 9.00-12.00

TU Eindhoven, Atlas 3.201 and streamed online via MS Teams

For registrations, please contact the organizer Diana Martin (d.a.martin@tue.nl) specifying if you wish to join on campus or online



Diana Bairaktarova is an associate professor in the Department of Engineering Education at Virginia Tech. She is also an affiliate faculty in the Department of Mechanical Engineering and a Faculty in the Human-Centered Design at Virginia Tech. Diana has over fifteen years of experience working as a Design and Manufacturing Engineer. With her research group, Abilities, Creativity, and Ethics in Design, Diana engages in research with undergraduate and graduate students, educators and practitioners by doing research that crosses disciplines, including engineering, psychology, and the learning sciences; this distinctive combination has enabled research-to-practice partnerships that would otherwise not exist. Her work encompasses three focus areas: Learning Environments, Factors Impacting Student Performance, and Creativity, Ethical and Empathic Design. Dr. Bairaktarova translates her findings into practical pedagogical approaches by designing and applying contemporary learning environments that closely map the engineering work ethos.

Rationale of the workshop

Empathy is the human quality to understand or feel what another person is experiencing from within the other person's perspective. To exercise empathy means to understand the motives, needs and point of view of others, thus, empathy is considered an important factor of moral behavior, and an essential component in forming moral communities (Ehrlich & Ornstein, 2010). According to European Educational Policy report (2020), both empathy and ethics are based on an understanding of the following four attributes: values (human dignity and human rights), attitudes (sense of responsibility and respect), skills (listening, observing, and cooperation), and knowledge and critical understanding of self. Having these four attributes, the report suggests, a person can perceive multiple perspectives and engage with people with diverse backgrounds. These attributes are perceived as essential active citizenship skills for teaching and learning in the digital age (Council of Europe, 2019). Further, research suggests that empathy education can produce citizens who care about community issues such as poverty, war, and climate change (Krznaric, 2014). In fact, empathy training could help the world come together to address significant issues such as "climate change, poverty, escalating violence, international conflicts, [or] illness" (Erlich & Ornstein, 2012, p. 15).

Caring for a fairer, more resilient future, it is our obligation to prepare students with the skills and human qualities that will foster good global citizenship. As educators, one of our jobs is to help students learn empathy as they also learn from current events and history about wider definitions of diversity, equity, and inclusion. In the engineering classroom, when we create and foster learning experiences, such as the practice of empathy, we support a broad set of important learning objectives that are not easily addressed in a traditional engineering curriculum (Bairaktarova, 2022).

"Human morality is unthinkable without empathy." ~ Frans de Waal

Motivation & expected outcomes

There is no question of the importance in the education of engineering students developing ethical decision-making abilities of future leaders and innovators. Literature suggests that when learners see how ethics and empathy together play role in guiding their actions, students tolerate ambiguity and are less influenced by their peers, for example, looking at problems from different perspectives (Krznic, 2014; Feshbach & Feshbach, 2011). Recently, empathy and mindfulness are gaining growing attention in engineering education, with mindfulness related to creativity, psychological safety in teamwork and the classroom. Empathy and mindfulness are often used interchangeably, however, they do not mean the same. Empathy, simply said and as mentioned above, is a human quality to “put oneself in another’s shoes,” feeling what they are feeling with the understanding that their emotions may not be one’s own. Mindfulness, on another hand, is a technique that helps focus one’s awareness of the present moment by acknowledging one’s feelings and thoughts without judgement. Walsh (2010) suggests that mindfulness can be a tool to help one separates their own emotions from another person's emotions.

While engineering educators have established instructional methods to teach engineering ethics, how to develop and enhance empathy competency is still challenging. Even it is arguable that practicing mindfulness one can become more empathetic, in this workshop, we will explore/discuss practices in education that utilize mindfulness as a tool to enhance empathy.

We will collectively think how to empower learners by including empathy in the engineering curriculum can help to produce altruistic, more compassionate citizens who can direct their energies toward problem-solving that improves society.

Interaction with workshop participants in alignment with expected outcomes

- ✚ This workshop introduces creative ways of teaching empathy through mindfulness and design thinking philosophy in an engineering content-specific learning environment.
- ✚ The relevance of empathy for engineering education will be discussed; criteria for empathy projects/assignments and empathy frameworks are presented.
- ✚ Participants will be engaged in creating learning activities that reward risk-taking and vulnerability; develop and enhance students’ empathic ability; and ensure student success in designing human-centered projects.
- ✚ Through interactive activities and dynamic discussion that draw on the latest theories on empathy, mindfulness, and design thinking (Kouprie & Visser, 2009), related to education, together we will propose techniques and strategies needed to successfully teach students to become adept with diverse peoples and ideas, to collaborate, and to contribute more and better ideas through listening, observation, and co-operation.
- ✚ Participants will leave the workshop with steps to design assignments that will activate student empathy in decision-making and design-thinking and demonstrate inclusive teaching practices.



Schedule

8.45-9.00: Arrivals and refreshments

9.00-9.20: Official launch of the OZSW study group Engineering Ethics Education & Research by Diana Martin (TU Eindhoven) and Andrea Gammon (TU Delft)

9.20-9.45: Community building via a round of introductions of the guest speaker Diana Bairaktarova and audience members

9.45-10.00: coffee break

10.00-11.30: Workshop facilitated by Diana Bairaktarova

11.30-12.00: Discussing next steps, joint projects & collaborations for the study group

12.00: Lunch at Hubble Community Café

References

Bairaktarova, D. (2022), Caring for the future: Empathy in engineering education to empower learning. *J Eng Educ*, 111: 502-507. <https://doi.org/10.1002/jee.20476>

Active citizenship skills and active digital citizenship skills in teaching and learning in the digital age (2020). European Educational Policy Network report, <https://repositorio-aberto.up.pt/bitstream/10216/133948/2/468661.pdf>

Council of Europe (2019). *Handbook of Digital Citizenship Education: Being online, Well-being online, Rights Online*. Council of Europe Publishing.

Ehrlich, P.R. & Ornstein, R.E. (2012). *Humanity on a tightrope: Thoughts on empathy, family, and big changes for a viable future*. Rowman & Littlefield.

Feshbach, N. D., & Feshbach, S. (2011). Empathy and education. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 201–225). The MIT Press.

Kouprie, M., & Visser, F. S. (2009). A framework for empathy in design: Stepping into and out of the user's life. *Journal of Engineering Design*, 20(5), 437–448.

Krznaric, R. (2014). *Empathy: Why it matters, and how to get it*. Penguin Random House.

Walsh, R. A. (2010). Mindfulness and Empathy. In T. Bien, S. F. Hick, & Z. Segal (Eds.), *Mindfulness and the Therapeutic Relationship* (Reprint ed., pp. 72–86). The Guilford Press.

