Workshop on open-access educational materials

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Workshop on open-access educational materials

ISTAS21 Special Session on Sunday October 31st, 2021, 11am-12:30pm (EDT)

Session Presenters/Facilitators

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***Program Description*—This workshop is targeted at anyone interested in teaching ethics to engineering students. It aims to introduce the participants to the 4TU. Centre for Ethics and Technology method of building up Case-Based Exercises by having them apply it to create a Case-Based Exercise of their own. Participants will work in small groups (break-out rooms), where each group will be asked to start building a Case-Based Exercise intended to be taught in an ethics/philosophy of technology course for engineering students using the toolkit.**

Keywords—Education, engineering, pedagogy, ethics*, *open-access, case-based learning

This session took place on the final day of the conference and consisted of a brief presentation followed by a workshop to practice using an open-access tool built for educators to assemble case-based learning activities. The workshop was centred on the underlying principle of SURF, an association of Dutch educational research institutions that work together to encourage innovation and knowledge sharing. The introduction to the workshop was led by presenters Lavinia Marin, Tijn Borghuis, and Roel Veraart who illustrate the importance of using case-based exercises to facilitate a discussion amongst students regarding ethical issues in engineering. SURF is home to a project wherein a database for open-access educational materials is being developed to host a range of case studies that can be accessed by educators wishing to teach students with template-based or original case studies. The presenters highlighted that teachers working in the Netherlands frequently use case-based learning, and so the cases available in the database serve as templates for other educators to tailor as needed for students to achieve targeted learning goals. Thus far, the database has accumulated approximately 40 case studies from contributors to be used freely by others.

Before the workshop, an overview of a case-based activity's structure was provided to attendees as an example of what they might be constructing themselves. To create a case-based activity, one must create steps, and, for each step 1) enter a series of inputs, including a story or description that provides context such as a case study, 2) designate activities, such as reading a story, and 3) define outputs, i.e., the goal of the activity, to measure learning. For the remainder of the session, the small group of attendees engaged in the workshop portion, creating a short case-based activity to be implemented in a classroom while using the aforementioned structure and approach. The participants, who consisted of experienced professors, a new professor, and a post-secondary student, worked together to choose a topic for the context, the remaining inputs, and the outputs. Participants were able to swiftly decide on racial bias as a topic and for students to understand how racial bias is harmful in emerging technologies as the outcome. However, the participants had some difficulty understanding how to build the activities to facilitate critical thinking without doing the thinking for the students themselves. Participants discovered the importance of using real-world examples to highlight consequences and were reminded to set realistic goals for students, acknowledging that many may not know what "racial bias" means to begin with.

At the end of the session, Tijn summarized workshop takeaways including insights into teaching difficult topics and the lessons that students are meant to gain from them. Specifically, in the case of racial bias, it was important not to idealize outcomes, and to aim for a discussion of an acceptable threshold for false positives in facial recognition technology instead of trying to eliminate unconscious bias. Participants also took home the idea of encouraging more active learning from their students and letting them arrive at the formulation of the moral problem before stepping in with theoretical concepts.