

Using Role-Play Scenarios to Teach Ethical Thinking

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Hi everyone! My name is Ashish Hingle. I am a PHD student in the Information Sciences and Technology department here at George Mason University. Today I'll be talking through how we use role-play scenarios to teach ethical thinking at the College of Engineering and Computing. Before I jump into the presentation, we would like to acknowledge and appreciate that this work is partly supported by an NSF Award and has also been approved by the Institutional Review Board at George Mason University.

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This project focuses on the Ethics of Algorithms and the way they function in our changing world.

The use of algorithms is increasing across all aspects of society; algorithmic thinking is becoming a core skill for all students.

Today, services across domains rely on computing and technology professionals – who work as data scientists, programmers, or artificial intelligence (AI) experts – to meet their intended goals.

So, the motivating question for many faculty instructing students within this domain is how do we train future professionals to have an ethical mindset in their understanding, design, and implementation of algorithms?

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We explored some of the prior work in the area to inform how we could go forward with our project.

The prior work that informs this project comes from two key areas: Learning Sciences and Ethics Education.

Within learning sciences, it is informed by situated learning and perspectival thinking.

And in Ethics Education, case studies are an established artifact that can be used to instruct students. The prior work on role-playing activities brings together each of these areas to create a classroom activity that is both practical and according to the students who have participated, pretty enjoyable to participate in.

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Developing the cases used in the Role-play scenarios was the first step. Overall, it was an iterative process, first designing and then iterating on the initial design.

The first step was researching publications, news reports, and other content to provide the narrative needed to justify the scenario within the subject matter.

Next, it is important to decide between a historical or fictitious case. Fictitious cases work better for issues that are currently ongoing, or if privacy is a concern. The Boeing Max case was based on a historical event.

Then, the student resources are collected, and the scenario and roles are established.

After implementing the role-play scenario in test environments, we took notes and iterated on the design of our case before finalizing it.

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This is an example of the type of resources provided to students. They were given videos, news reports and blogs, research articles and official statements as general resources to guide their preparation for the role-play activity.

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This is an example of the class schedule for students in implementing these role-play cases. Students were introduced to the modules and given videos and reading resources that covered the module material. They then answered a set of pre-questions to help prepare for participating in the scenario, along with creating an individual concept map. Next, the role-play activity was conducted, which was moderated and semi-scripted. After participating, students created a group concept map and answered additional questions regarding the experience. Each of these items were used during the assessment.

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One of the cases we designed to be used in this style involves the Boeing Max 737 disaster.

We designed this case because it brings together some of those complexities mentioned regarding the ethics of algorithms... along with some other concepts.

The case was designed using an iterative design process... creating the case and the stakeholders, running the case as a pilot and then coming back and making changes based on what worked, what didn't and student feedback.

This case was developed because it addressed a variety of topics within engineering ethics and was developed for a course that broadly covered topics related to technology and society.

We developed 6 roles that are tasked with ensuring future safety and transparency and rebuild trust among consumers after the catastrophic incidents in late 2018 and 2019 and claimed nearly 350 lives.

Students were assigned roles within the "Aviation Transportation Investigative Committee" (ATIC) which can be seen on the right.

The members of ATIC were given two open-ended questions to answer from the perspective of their role: 1) why the incident happened and 2) how it could have been prevented. These were given as a preparatory assignment to get the students ready for the role-play activity.

The role play itself lasts about 60 minutes, and the group size ranges from 4-6. The role-play sessions are moderated and semi-structured.

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In addition to the Boeing Max 737 case, we also have other cases that have been designed and implemented already. These include a case on facial recognition for COVID detection on a college campus, algorithmic lending decision making, and the Volkswagen Dieseldgate scandal. These will be made available for others to access in the near future.

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With that I would like to wrap up the presentation. Thank you all for listening! We would like to highlight the poster presentation also contains more information and The Boeing Max 737 case as a sample.