Value-Based Research Ethics Education
Motivation, Framework and Classroom Practices

COLORADO SCHOOL OF MINES
EARTH ● ENERGY ● ENVIRONMENT

VALUE-BASED ETHICS

Engineering programs in the United States have been experimenting with diverse pedagogical approaches to educate future professional engineers. However, a crucial dimension of ethics education that focuses on the values, personal commitments, and meaning of engineers has been missing in many of these pedagogical approaches. We argue that a value-based approach to professional ethics education is critically needed in engineering education, as such an approach is indispensable for cultivating self-reflective and socially engaged engineers. Traditional approaches to ethics education in science and engineering are usually either based on the *codes of ethics* (Box 2) or on the *theories of ethics* (Box 3). While we acknowledge that both approaches help meet certain ethics education objectives, we also argue that neither of these is sufficient to personally engage students in authentic moral learning. We make the case that it is important to connect ethics education to the heart, which is extensively driven by values, and present a value-based approach to research ethics education.
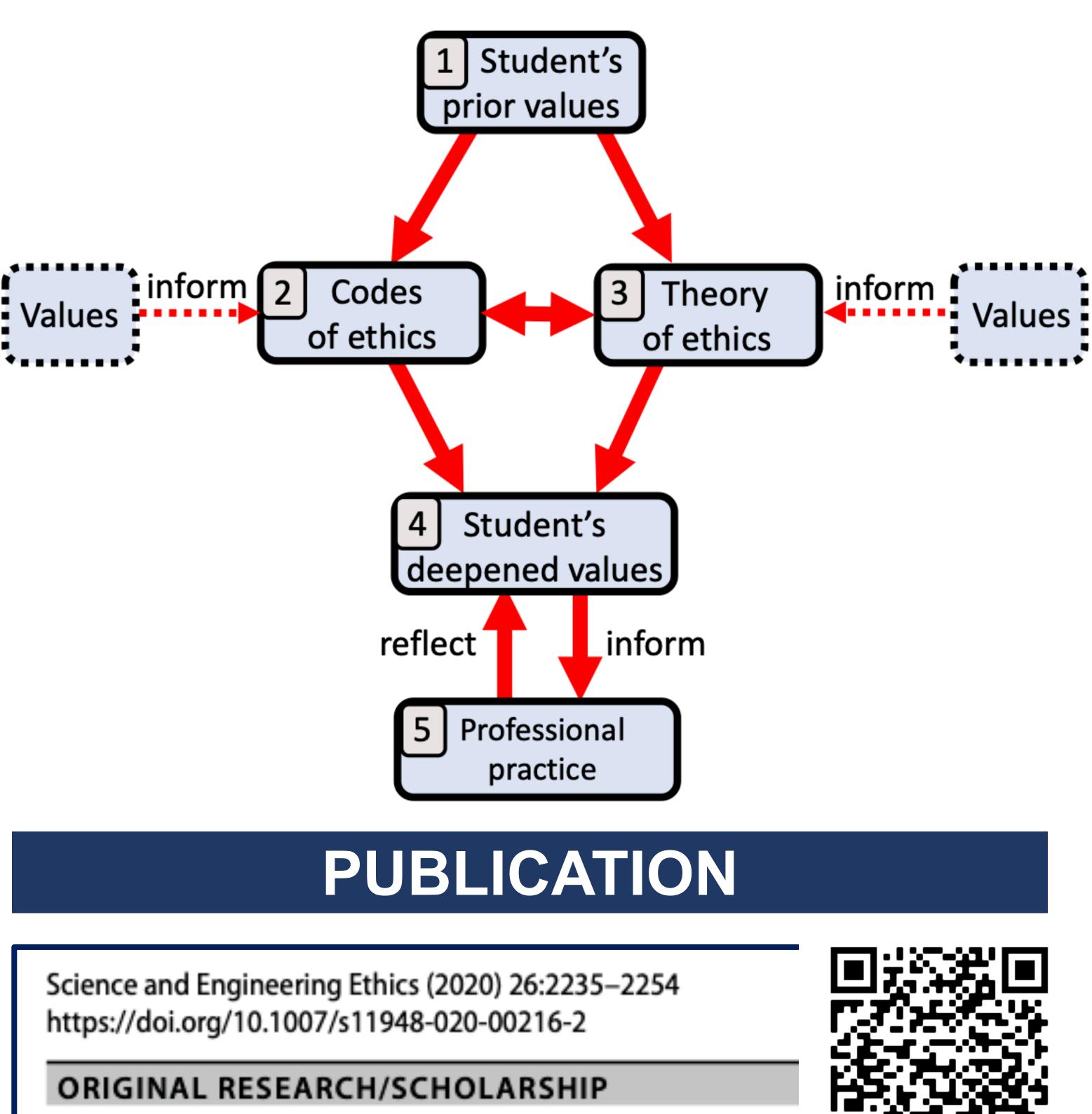
THE ROLE OF VALUES

Without any ethics teaching, students obviously have a set of values (Box 1). Teaching students a behavioral code (Box 2) without the underlying values may lead to a compliance-based outlook of students. Teaching students ethical theories (Box 3), without covering the underlying values may cause students to think that ethics is like an intellectual chess game. But discussing how codes of ethics and the theories of ethics are informed by values, these elements acquire meaning for students. By letting students reflect on their values, their values are deepened (Box 4). We hope that students engage in honing these values throughout their professional career (Box 5).

VALUES AND ETHICAL GROWTH

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ORIGINAL RESEARCH/SCHOLARSHIP

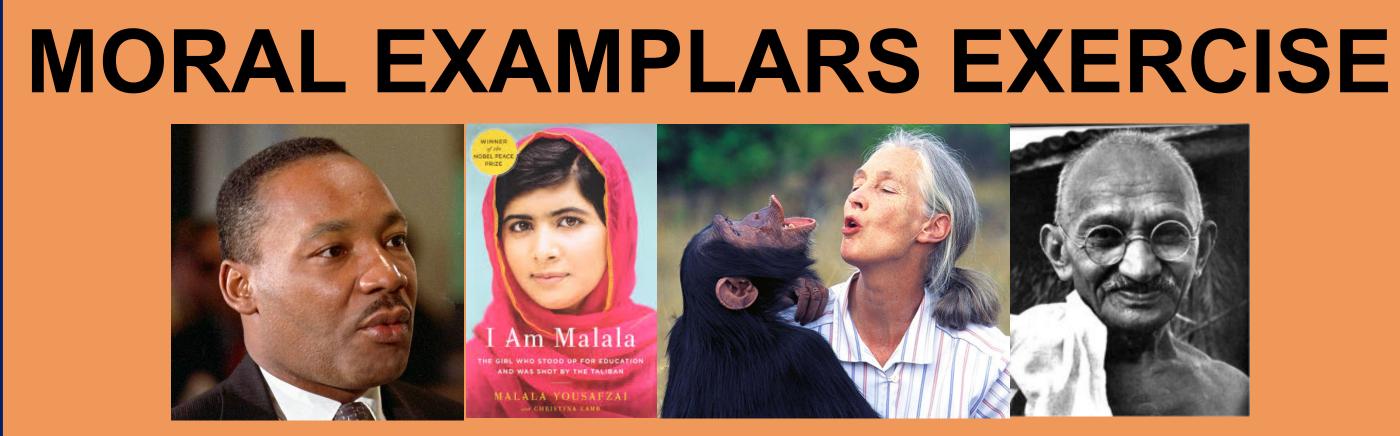### Connecting to the Heart: Teaching Value-Based Professional Ethics

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STUDENTS' FEEDBACK

"I enjoyed this class! The personal ethics statement was an eye-opener."

"I really like the way the class was conducted. And I think every student must take this class. I like the way you bring life experience to the class."

"It is really nice to learn about ethics like this. It makes us better persons."

MORAL EXAMPLARS EXERCISE

Perhaps surprisingly, students are often not aware of their values. In this exercise students write down the names of 7 people they admire, and list 3 characteristics of each of these people. The list of 21 characteristics helps students get clarity on their values.
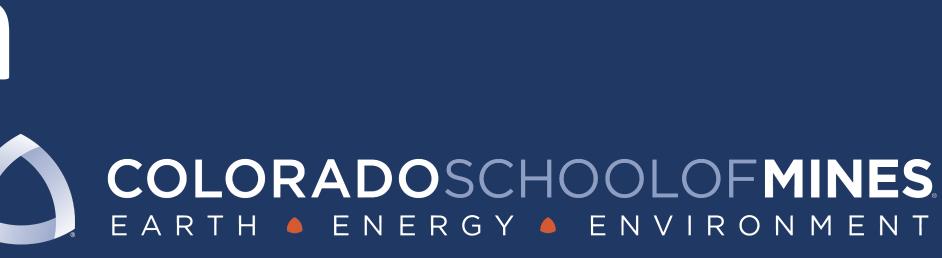
ETHICS AUTOBIOGRAPHY

An ethics autobiography is one's personal account of his or her moral experience, it has been widely used in health and psychological science programs. Students write their ethics autobiography following prompts such as:
- What is your idea of right and wrong moral behavior?
- What did you learn from your family about right or wrong behavior.
- What formative experiences account for how you live your life?
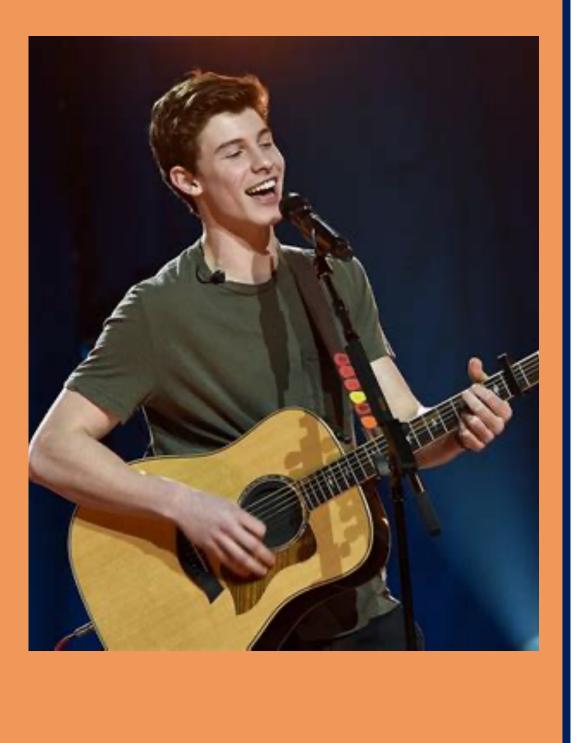
PERSONAL ETHICS STATEMENT

Students create and present their personal ethics statement. This can be a piece of text, but by allowing students to present in other creative way, students become very engaged in sharing the values that they seek to live by. We have had students sing, dance, read poetry, and even share home-made bread while explaining what this means to them.

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