



Online Ethics Center
FOR ENGINEERING AND SCIENCE

Intersections of Moral Foundations and Ethics Frameworks in STEM Enculturation

Year

2023

Description

Orientations to moral values are understudied preconditions for the responsible conduct of research. If we want to understand the conditions that promote ethical STEM research and practice, we have to first understand the values that guide individuals in STEM and how they relate to existing STEM structures of ethics. Such knowledge will shape how we recruit and retain students, and how we promote and prioritize their sense of ethical responsibility within their disciplines.

Body

This project will generate fundamental understanding of how students' values affect their recruitment, retention, and sense of responsibility (their enculturation) into STEM disciplines at a 21st century high research intensive, Hispanic-serving institution (University of Central Florida, 2016). It examines intersections between moral foundations (implicit values that guide individuals) and ethics frameworks (explicit content and structured experiences that shape professional development).

To identify foundations, the team will administer the Moral Foundations Questionnaire to undergraduate and graduate students in a mix of traditional STEM departments and interdisciplinary STEM programs to assess personal values of

developing professionals and to correlate values with demographics. To analyze frameworks, the team will apply linguistic coding to ethics codes, curriculum modules, and other sources of content embedded in disciplinary ethics. To understand their intersections, we will apply correspondence analysis to participant data collected through PI-led ethics workshops, focus groups, and individual interviews (the Ethics Intersections Program “EIP”) with a representative sample drawn from survey participants. Analysis will focus on whether and to what extent personal values map onto disciplinary values and the ways values are negotiated and established. The results will be compared to control-group data and formatively assessed to determine how students enculturate to disciplinary norms. The team will create models that predict enculturation and the impacts of personal values on the “Three Rs”: Recruitment, Retention, and Responsibility. The project will generate deeper understanding of the implications of values at the personal and disciplinary scales by examining the extent to which disciplines attract those who already share existing moral foundations (recruitment), the extent to which disciplinary members share certain foundations (retention), and the degree to which individual values are refined, rejected, or reinforced through the enculturation process (responsibility). Modules will be developed and disseminated to enable other institutions to apply developed methods.

The OEC Project Pages are intended to cultivate a community of practice and allow ethics researchers, educators, and practitioners to more effectively disseminate their work. This Project Page provides a detailed overview and relevant resources for an on-going science or engineering ethics project. Once you've explored this project, visit the "Projects" section under "Resources" to see more ethics projects.

Leadership

Jonathan Beever (Philosophy, Center for Ethics), PI

Stephen Kuebler (Chemistry, Optics, Center for Ethics), co-PI

Laurie A. Pinkert (Writing and Rhetoric, Center for Writing Excellence), co-PI

Elizabeth Klonoff (College of Graduate Studies, Psychology), co-PI

Lakelyn Taylor (Communication), Graduate Research Assistant, 2021-present

Allison Banzon (Learning Sciences), Graduate Research Assistant, 2022

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Eve Vazquez (Psychology), Undergraduate Research Assistant, 2022-2023

Victor Milanes (Psychology), Undergraduate Research Assistant, 2022-2023

Funding

National Science Foundation, Ethical and Responsible Research (ER2) program.

Recipient Institution

University of Central Florida

Start and End Date

2020-2025

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Project Website

[Click here](#)

Publications, Presentations, and Other Products

1. Beever, Jonathan and Kuebler, Stephen M. and Collins, Jordan "Where ethics is taught: an institutional epidemiology" *International Journal of Ethics Education*, 2021 <https://doi.org/10.1007/s40889-021-00121-7>
2. Surveying Methods and Applications of Moral Foundations Theory Across Disciplines (APPE 2022; presentation)
3. Pinkert, L.A. and Taylor, L. and Beever, J. and Kuebler, S.M. and Klonoff, E.. "Disciplinary Leaders Perceptions of Ethics: An Interview-Based Study of Ethics Frameworks Paper ID #37843" *ASEE*, 2022
4. Beever, Jonathan and Kuebler, Stephen and Pinkert, Laurie A. and Taylor, Lakelyn E. "Faculty perspectives on frameworks of responsibility in their disciplines" *IEEE International Symposium on Ethics in Engineering, Science and Technology (ETHICS)* , 2021 <https://doi.org/10.1109/ETHICS53270.2021.9632753>
5. Faculty Perspectives on Frameworks of Responsibility in their Disciplines (*ASEE*, 2021; proposal)
6. Surveying Methods and Applications of Moral Foundations Theory Across Disciplines (*APPE 2021*; proposal)
7. Understanding the Why: A Thematic Analysis of Participant Open-Ended Responses to the Moral Foundations Questionnaire (*APPE 2021*; proposal)

Contributor(s)

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Resource Type

Projects

Parent Collection

STEM Ethics Projects (2017-Present)

Topics

Ethics and Society

Goals of Ethics Education

Social Responsibility

Teaching Ethics

Evaluation and Assessment

Organizational Climate

Discipline(s)

Computer, Math, and Physical Sciences

Engineering

Life and Environmental Sciences

Social and Behavioral Sciences

Teaching Ethics in STEM

Research Ethics

Publisher

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