



Online Ethics Center  
FOR ENGINEERING AND SCIENCE

# Understanding and Evaluating Ethical Engineering Practice

## Author(s)

Anonymous

## Description

This project qualitatively investigates how practicing engineers experience ethical issues in their workplace. This understanding of practicing engineers' experiences will support a better alignment of engineering ethics instruction with what students might experience in professional practice.

## Body

**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.**

## *Description*

Engineering degree programs recognize that ethics is essential in preparing students for professional practice. However, current efforts in ethics education may not adequately reflect practicing engineers' experiences with ethical issues.

We are applying phenomenography, a qualitative, empirical research methodology for investigating qualitatively different ways people experience a phenomenon, to comprehensively understand how practicing engineers experience ethical issues in their workplaces. We will categorize and explore variations in the ways engineers experience ethics in professional practice based on 45 phenomenographic interviews. While we do not presuppose core features of such variation, such features may include ethical decision-making processes, relationships between stakeholders, and organizational culture. Whereas others have interviewed practicing engineers to gather cases for ethics education, we aim for fundamental understanding. Our approach is descriptive, not normative. We are not aware of previous phenomenographic research studies in engineering ethics education.

We are conducting semi-structured interviews with engineers from three areas of the health products industry: orthopedic, pharmaceutical, and other medical devices. Participants were selected to ensure variation on several criteria, including years of experience, workplace roles, gender, and academic degrees. Phenomenographic analysis will enable us to generate a comprehensive framework to understand engineering ethics, grounded in the experiences of engineers. This understanding of practicing engineers' experiences will support a better alignment of engineering ethics instruction with what students might experience in professional practice.

## ***Leadership***

### **Dayoung Kim**

School of Engineering Education  
Purdue University

### **Carla B. Zoltowski**

School of Electrical and Computer Engineering  
School of Engineering Education

### **Michael Loui**

School of Engineering Education  
Purdue University

**Alison J. Kerr**

University of Tulsa

**Justin L. Hess**

STEM Education Innovation & Research Institute  
Indiana University Purdue University Indianapolis

**Nicholas D. Fila**

Department of Industrial Design  
Iowa State University

## **Funding**

Engineering of 2020 Seed Grant, College of Engineering, Purdue University; National Science Foundation Awards: 1737303 and 1623125

## ***Recipient Organization***

Purdue University, West Lafayette, Indiana, USA

## ***Start and End Date***

September 2017-August 2020

## ***Contact Information***

Andrew O. Brightman (aob@purdue.edu)

## ***Attached Resources***

- [Applying Phenomonegraphy to Understand Practicing Engineers' Lived Experiences About Ethics in Engineering and its Implications for Ethics Education](#)

## **Rights**

Use of Materials on the OEC

## **Resource Type**

Projects

## **Parent Collection**

STEM Ethics Projects (2017-Present)

## **Topics**

Organizational Climate

Workplace Ethics

## **Discipline(s)**

Engineering

Research Ethics