

Synthesizing Engineering Ethics and Communication via Active Learning Exercises

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Abstract

Enriching engineering curricula with ethics- and communication-related content can be challenging for even the most accomplished educators. While some institutions devote standalone courses to these subjects, others infuse them into existing technical courses, meaning the vehicles for such infusion must be simple and portable. This workshop will discuss several best practices for engaging students in discussions of professional ethics and communication and lead workshop participants through three low-stakes, active-learning exercises: “The Propeller Car Letter: Writing to a Misguided Reader,” “The Pendergrass Email: Choose Your Own Adventure!,” and “Space Shuttle Challenger Document Analysis.” Although the workshop facilitator has devised and uses these exercises in a technical-communication course housed within a college of engineering, the exercises’ portability and simplicity mean they can be easily imported into technical courses. Workshop participants will receive copies of all workshop materials along with guidance on how to incorporate the materials into their own courses and curricula.

Keywords

Writing, ethics, active learning

Introduction

The need has been well established for engineering colleges and programs to train their students in both technical communication and professional ethics, though doing so remains a challenge for even the most accomplished educators. This challenge’s causes are varied, from a lack of time/space for these subjects in curricula to a dearth of faculty qualified to provide substantive communication- and ethics-related content. Nevertheless, whether institutions devote standalone courses to these subjects or infuse them into existing technical courses, the vehicles for such devotion and/or infusion must be simple and portable. To that end, this workshop will discuss several best practices for engaging students in discussions of professional ethics and communication and lead workshop participants through three low-stakes, active-learning exercises. The first two, “The Propeller Car Letter: Writing to a Misguided Reader” and “The Pendergrass Email: Choose Your Own Adventure!,” insert the writer into narrative scenarios that require a document or series of documents, each of which comes with its own distinct ethical considerations. The third activity, “Space Shuttle Challenger Document Analysis,” asks participants to read and analyze a brief document related to the space shuttle Challenger disaster, drawing on historical context, workplace dynamics, best writing practices, and standards of professional ethics to critique the document’s relative strengths and weaknesses. Although the workshop facilitator has devised and uses these exercises in a technical-communication course

housed within a college of engineering, the exercises' portability and simplicity mean they can be easily imported into technical courses, and they can also be modified to suit a variety of settings.

Learning Objectives/Outcomes

By the end of the workshop, participants will be able to do the following:

1. Incorporate a variety of active-learning writing/ethics activities into their own classroom situations
2. Adapt the workshop activities to suit their own individual purposes (e.g., low-stakes team assignments requiring minimal grading, high-stakes individual assignments requiring more intensive grading, similar case-study framework with modified technical content, and so on)

Workshop Agenda/Timeline

Table 1 below shows the tentative workshop agenda. The listed durations do not total precisely four hours in order to allow for “slippage” should the reflection/discussion periods become more expansive (as they often do).

Table 1. Workshop Agenda

Introductions and Preview of Workshop	15 minutes
Overview of Topics	15 minutes
“Propeller Car” Activity	30 minutes
Reflection/Discussion	15 minutes
Break	15 minutes
“Pendergrass Email” Activity	30 minutes
Reflection/Discussion	15 minutes
Break	15 minutes
“Challenger Document” Activity	45 minutes
Reflection/Discussion/Workshop Outcomes	15 minutes

Suggested Reading Prior to Attending Workshop

The first two activities require no preparatory reading. For the Challenger activity, participants will benefit from familiarizing themselves with the basic facts and timeline of the Challenger story. Many good summaries of this are available online, though the most authoritative is surely the official investigation's concluding document, *Report of the PRESIDENTIAL COMMISSION on the Space Shuttle Challenger Accident*, available in full at <http://history.nasa.gov/rogersrep/genindex.htm>; chapters I-VII, which are linked at the main page, contain the most significant information.

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John Brocato established and administers the Shackouls Technical Communication Program in the Bagley College of Engineering, which develops the writing/speaking skills of all engineering students at Mississippi State University. An ASEE member since 2004, John is the current President for ASEE's Southeastern Section as well as the Chair-Elect for the Liberal Education/Engineering and Society (LEES) Division and the National Campus Representative.