Student Engagement in Ethics Education: Quantity and Quality
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1. Context

Engagement
- Variety of curricular and co-curricular experiences and the amount of time student spend on them (quantity)
- Level of involvement with those experiences (quality)

Engagement has been shown to improve outcomes including academic achievement, cognitive complexity, and ethical development

Research Questions
- What is the quantity of curricular and co-curricular experiences related to ethics in which students are engaged?
- What is the quality of those experiences?

2. Methods

Conceptual Framework

Data Collection
- 18 Partner institutions that vary by:
  - Size
  - Geography
  - Carnegie classification
  - Characteristics of student body
  - Survey of 3,914 Undergraduate engineering students

Variables
- Quality: Serve as leader and participate in service; view ethics education as influential; cognitive depth of ethics education

Quantity: Participation in co-curricular activities; experience with ethics education in different settings and pedagogies

3. Co-Curricular Quantity and Quality

<table>
<thead>
<tr>
<th>Pedagogy of &quot;most influential&quot; experience</th>
<th>Pre-college program</th>
<th>Presentation by a professor</th>
<th>Presentation by professional engineer</th>
<th>Role-playing</th>
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<tbody>
<tr>
<td>Presentation by a professor</td>
<td>36%</td>
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<td>Presentation by guest speaker</td>
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<tr>
<td>Presentation by pre-college program</td>
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<td>Discussion with classmates</td>
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<td>Sr design/capstone course</td>
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<td>Pre-college program</td>
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<td>Introductory engineering course</td>
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4. Curricular Engagement Quantity and Quality

- Quantity of curricular experiences is high
- Curricular experiences spread among variety of pedagogies and settings
- Almost all students receive ethics education in introductory engineering classes
- Much ethics instruction occurring outside of engineering classes
- High cognitive depth is needed for most influential experience
- Fewer than half would rely on most influential experience when encountering engineering ethics dilemma in the future

5. Suggestions for Educators

1. Incorporate students’ co-curricular experiences into formal ethics education
2. Connect ethics education to students’ inclination to engage in service through co-curricular activities
3. Provide opportunities for faculty to share ideas and strategies for teaching ethics
4. Help students connect non-engineering curricular ethics education to engineering context
5. Spread ethics education throughout the engineering curriculum
6. Emphasize how curricular ethics instruction connects to students’ future professional ethical dilemmas

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