CHANGES IN A FIRST-YEAR TECHNICAL WRITING CLASS TO SUPPORT STUDENT SUCCESS AND RETENTION IN ENGINEERING AND APPLIED SCIENCES

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Outline

- Background of Technical Communication Class
- Rationale for Change
- Curricular Changes & Outcomes
- IME 1020 & STEP
- Future Work
- Conclusions
Technical Communication Overview

- Students who take IME 1020
- Service Course
- Discussions with STEM Faculty
- STEP (STEM Talent Expansion Program)
Rationale for Change

- Students Need to Better Understand Their Career Choices
- Recruitment and Retention Improvement Needed
- Instill Importance of Lifelong Learning (ABET)
- Industry Demand for Communication Skills
Curricular Changes

- Focus on Career Development
- Research Paper
- Lifelong Learning Activity Reports
Outcomes

- **Career Focus**: +
  - 90% participation in one activity
  - 80% in two or more activities

- **Research Paper**: +
  - 90% follow the writing process
  - 90% achieve C or better on paper

- **Lifelong Learning**: +/-(Still a Struggle)
  - 90% participate in one or more activity
  - 70% participate in four or more activities
IME 1020 & STEP

- **STEP Learning Communities (Anchor Class)**
  - Place ~24 students in the same 3-to-5 classes together

- **Early Intervention**
  - IME 1020 instructors leverage Residence Life staff to intervene when students missed consecutive classes

- **Academic Etiquette**
  - Part of Fall Welcome activities, focus on communication strategies for success (verbal/non-verbal, e-mail/phone)
### STEP Retention/Graduation

<table>
<thead>
<tr>
<th>CSDRE&lt;sup&gt;1&lt;/sup&gt;</th>
<th>WMU Baseline&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Retention</th>
<th>2005 (262)</th>
<th>2006 (303)</th>
<th>2007 (306)</th>
<th>2008 (349)</th>
<th>2009 (315)</th>
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<tbody>
<tr>
<td>69</td>
<td>57.4</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Year (%)</td>
<td>68.0</td>
<td>70.1</td>
<td>66.3</td>
<td>67.5</td>
<td>66.0</td>
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<tr>
<td>53</td>
<td>42.3</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Year (%)</td>
<td>54.3</td>
<td>52.8</td>
<td>52.0</td>
<td>52.1</td>
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<tr>
<td>NA</td>
<td>32.7</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; Year (%)</td>
<td>44.5</td>
<td>48.8&lt;sup&gt;5&lt;/sup&gt;</td>
<td>43.3</td>
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<tr>
<td>NA</td>
<td>32.8</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; Year (%)</td>
<td>44.6&lt;sup&gt;4&lt;/sup&gt;</td>
<td>45.0&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>40.7&lt;sup&gt;3&lt;/sup&gt;</td>
<td>32.3</td>
<td>6&lt;sup&gt;th&lt;/sup&gt; Year (%)</td>
<td>41.6&lt;sup&gt;6&lt;/sup&gt;</td>
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<sup>1</sup>For all institutions, 2005-06  
<sup>2</sup>Averaged 2000-2004  
<sup>3</sup>37.4% graduated in a STEM field in 6 years + 3.3% continued in 7<sup>th</sup> year  
<sup>4</sup>35.1% continued in 5<sup>th</sup> year + 9.5% graduated with CEAS degrees  
<sup>5</sup>48.8% returned to CEAS in Year 4 + 2 graduated with CEAS degrees  
<sup>6</sup>14.9% continued in 6<sup>th</sup> Year + 26.7% graduated with CEAS degrees  
<sup>7</sup>32.4% continued in Year 5 + 12.6% graduates with CEAS degrees
Early Intervention:
  -- (Needs better follow-up)
  -- Student Affairs & CEAS have different definition of success

Academic Etiquette (2010):
  -- 69.6% SA/A “session was interesting”
  -- 74.1% SA/A “learned some helpful tips about communicating with professors”
  -- 78.5% SA/A “will communicate more often with professors and others because of what I learned”
  -- 56.0% e-mailed instructor prior to first day of class of which 86% used proper e-mail communication (compare with 38.4% e-mailed and 72% used proper e-mail communication in 2009)
Future Work

- Next STEP
- Career Awareness Integration Across the four years
- Career Preparation: Emphasize Co-op and Internships
- Early Intervention: Continue but modify the follow-up procedures
Course Changes are Successful

- Research Writing is surprisingly so
- Students better see a need for communication skills
- Lifelong Learning is worth pursuing but a difficult sell to students
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