Implementation of writing-to-learn pedagogies in large-enrollment gateway courses in LSA and Engineering

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Writing To Learn (WTL)
- Different aim from Learning to Write
- Enhances content learning
- Fosters engagement with peers and instructors

Piloting WTL in MSE 250
- Approximately 30 students
- Reflective writing
- Conceptual-based writing
- Peer review
  - Evaluate peers’ writing using a rubric
  - Revise writing in response to critique

WTL Phase Diagrams

Implementation Scheme
- Engage with interested faculty
- Recruit writing fellows
- Identify difficult content
- Train writing fellows
- Develop writing prompts
- Implement prompts and writing fellows
- Assess conceptual learning

Technology to Support Writing
- Peer Review
  - Peer review system to support student generated feedback and supplement grading
- Tailored Feedback
  - Interface to intake student data and deliver individualized student feedback
- Text Analysis
  - Automated text analysis tools provide actionable data from student writing

National Implementation
- A pilot survey was administered to 200 faculty with a response rate of 18.5%
- A full-scale of over 28,000 STEM faculty is ongoing

Faculty Discipline

<table>
<thead>
<tr>
<th>Faculty Discipline</th>
<th>Percent of Respondents</th>
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<tbody>
<tr>
<td>5% CHEM</td>
<td>5% GEO</td>
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<tr>
<td>8% CS</td>
<td>14% PHYS</td>
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<tr>
<td>16% MATH</td>
<td>22% BIO</td>
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<tr>
<td>30% MSE</td>
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Faculty Response by Discipline

STEM faculty view WTL as effective for:
- Learning content knowledge
- Promoting critical thinking/scientific reasoning
- Training disciplinary thinking

Despite the favorable views of WTL only:
- 62.5% use writing in undergraduate classes
- 67% use technical writing
- 27% use concept-focused writing

So why aren’t they using it?
- Practical constraints
- Lack of confidence
- Failure of previous attempts

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