How Writing Contributes to Learning and How Institutions Can Increase That Contribution

Lessons from NSSE & FSSE

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Indiana University

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Presentation at the Annual Meeting of the Association of American Colleges & Universities
Writing’s Place in Higher Education

- Prominent component of liberal education
Writing’s PLACES in Higher Education

- Prominent component of liberal education
- Powerful aid to learning
Before we begin, please write . . .
Our Questions

- Does writing really lead to learning?
- Are all ways of using writing equally effective at promoting learning?
Our Questions

- Does writing really lead to learning?
- Are all ways of using writing equally effective at promoting learning?
- To what extent are faculty using the more effective ways?
- For institutional leaders: So what?
  - Institutional policy
  - Administrative action
Resources

- **Partners**
  - Council of Writing Program Administrative
  - NSSE

- **27 writing questions for NSSE**
  - Administered 2008, 2009: 151 schools, 60,104 respondents

- **Translate 27 writing questions for FSSE**
  - Administered 2009: 46 schools, 2,995 respondents
Acknowledgements

Study Collaborators

- **Chris Anson**
  - North Carolina State University

- **Charles Paine**
  - University of New Mexico
Findings from NSSE
Data & Sample

- Students: 60,104 (41% first-year, 59% senior)

### All students
- Female: 66%
- Part-time: 10%
- First-generation: 43%
- African American: 8%
- Asian: 5%
- White: 70%
- Hispanic/Latino: 8%
- Other: 10%

### Seniors only
- Transfer: 39%
- Arts & Humanities: 15%
- Biological Sciences: 8%
- Business: 16%
- Education: 10%
- Engineering: 5%
- Physical Sciences: 4%
- Professional Fields: 10%
- Social Sciences: 16%
Data & Sample

- **Institutions**: 151 from NSSE 2008 and 2009

<table>
<thead>
<tr>
<th>Carnegie</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Doc RU-VH</td>
<td>17%</td>
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<tr>
<td>Doc RU-H</td>
<td>21%</td>
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<tr>
<td>Doc DRU</td>
<td>3%</td>
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<td>Masters-L</td>
<td>30%</td>
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<tr>
<td>Masters-M</td>
<td>6%</td>
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<td>Masters-S</td>
<td>6%</td>
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<td>Bac-AS</td>
<td>9%</td>
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<tr>
<td>Bac-Diverse</td>
<td>6%</td>
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<table>
<thead>
<tr>
<th>Sector</th>
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<tbody>
<tr>
<td>Private</td>
<td>30%</td>
</tr>
<tr>
<td>Public</td>
<td>70%</td>
</tr>
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</table>
Writing Practices

- **Assign Meaning-Constructing Writing Tasks**
  - 7-items; $\alpha_{FY} = 0.80, \alpha_{SEN} = 0.76$

- **Explain Writing Expectations**
  - 3-items; $\alpha_{FY} = 0.83, \alpha_{SEN} = 0.82$

- **Encourage Interactive Writing Activities**
  - 6-items; $\alpha_{FY} = 0.82, \alpha_{SEN} = 0.83$
Mean Values for Student Writing Scales

Assign Meaning-Constructing Writing Tasks
- First-year: 3.0
- Senior: 3.0

Explain Writing Expectations Clearly
- First-year: 3.8
- Senior: 3.8

Encourage Interactive Writing Activities
- First-year: 3.0
- Senior: 2.6
Percentage of Students Who Indicated These for "Most" or "All" Assignments

- Analyze or evaluate something...
  - FY: 58%
  - Sen: 62%

- Argue a position using evidence...
  - FY: 46%
  - Sen: 40%

- Include drawings, tables, photos, etc...
  - Sen: 26%

FY: Freshman Year
Sen: Senior Year
Percentage of Students Who Indicated These for "Most" or "All" Assignments

- **Provided clear instructions for the task**
  - FY: 77%
  - Sen: 77%

- **Instructor explained learning goals in advance**
  - FY: 60%
  - Sen: 59%

- **Instructor explained in advance the grading criteria**
  - FY: 69%
  - Sen: 70%
Percentage of Students Who Indicated These for "Most" or "All" Assignments

- Brainstorm to develop ideas: 55% FY, 49% Sen
- Visit a campus-based writing or tutoring center: 15% FY, 9% Sen
- Received feedback from instructor on a draft: 47% FY, 30% Sen
Differences by Field
Mean Differences in Assign Meaning-Constructing Writing Tasks

<table>
<thead>
<tr>
<th>Field</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>2.9</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>3.1</td>
</tr>
<tr>
<td>Business</td>
<td>3.0</td>
</tr>
<tr>
<td>Education</td>
<td>2.9</td>
</tr>
<tr>
<td>Engineering</td>
<td>3.1</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td>Professional</td>
<td>3.1</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>3.2</td>
</tr>
</tbody>
</table>
Mean Differences in Explain Writing Expectations Clearly

- Arts & Humanities: 3.8
- Biological Sciences: 3.7
- Business: 3.8
- Education: 3.9
- Engineering: 3.5
- Physical Sciences: 3.6
- Professional: 3.9
- Social Sciences: 3.9

Seniors
Mean Differences in Encourage Interactive Writing Activities

- Arts & Humanities: 2.7
- Biological Sciences: 2.6
- Business: 2.7
- Education: 2.8
- Engineering: 2.5
- Physical Sciences: 2.4
- Professional: 2.7
- Social Sciences: 2.6

Seniors
The Relationship of Writing Practices to Deep Learning and Gains
Deep Approaches to Learning

- DAL Overall scale (combination of 3 sub-scales)

- Sub-Scales
  - Higher-order learning
  - Integrative learning
  - Reflective learning
Gains in Learning and Development

- Practical Competencies
- Personal & Social Development
- General Education Learning
## Writing and Deep Learning

### Results adjusting for student characteristics and writing amount

<table>
<thead>
<tr>
<th>First-Year Students</th>
<th>Independent Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Higher-Order Learning Activities</td>
</tr>
<tr>
<td></td>
<td>Encourage Interactive Writing Processes</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>Assign Meaning-Constructing Writing Tasks</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>Explain Writing Expectations Clearly</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

*Independent Variables:
- Encourage Interactive Writing Processes
- Assign Meaning-Constructing Writing Tasks
- Explain Writing Expectations Clearly*
## Writing and Gains

Results adjusting for student characteristics, writing amount, and deep learning

<table>
<thead>
<tr>
<th>First-Year Students</th>
<th>Practical Competencies</th>
<th>Personal &amp; Social</th>
<th>General Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage Interactive Writing Processes</td>
<td>✔️ ✔️ ✔️</td>
<td>✔️ ✔️ ✔️ ✔️</td>
<td>✔️ ✔️ ✔️</td>
</tr>
<tr>
<td>Assign Meaning-Constructing Writing Tasks</td>
<td>✔️ ✔️ ✔️</td>
<td>✔️ ✔️ ✔️</td>
<td>✔️ ✔️</td>
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<tr>
<td>Explain Writing Expectations Clearly</td>
<td>✔️ ✔️ ✔️</td>
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</tr>
</tbody>
</table>

*Dependent Variables*
Results Summary

1. Students experience writing to learn activities differently by major field.

2. Best practices in using writing to learn are positively associated with deep learning approaches and reported gains in learning.

3. These positive relationships exist above and beyond the amount of reading and writing students do.
Implications

First, note that our results all pertain to factors over which instructors have complete control

- Kind of projects they assign
- Way they explain their assignments
- Activities they require students to engage in while working on the assignments
Implications

- You can tell faculty that they are more likely to achieve their goals if they do the following:
  - Assign meaning-making projects
  - Explain their expectations clearly
  - Include interactive activities in the writing process

These practices are more effective when used in combination.
Writing Opportunity B

- Write it as a statement you could present to your faculty in order to encourage them to take a practical action based on the finding.
Note to yourself

Mozart’s music promotes recall; exams

Statement to your faculty

You can help your students perform better on in-class exams by playing Mozart on a boom box while they are taking the exam. Research shows that Mozart’s music promotes recall.
Share with one person

- Read your statement aloud to him or her
- Listen while he or she reads to you
- After you have both read, suggest a way that your partner might increase the likelihood that faculty will act on the statement.
Findings from FSSE
Goals

- Determine how much faculty emphasize good writing practices
- Find out which types of faculty emphasize good writing practices more
- Examining NSSE and FSSE together
Data & Sample

- 46 institutions from FSSE 2009
- 2,995 faculty with writing assignments

- 51% Women
- 79% White faculty
- 70% With doctorate
- 13% PT Lect/Instr
- 11% FT Lect/Instr
- 76% Tenure track
- Average course load = 6

- 29% Arts & Humanities
- 6% Biological Sciences
- 9% Business
- 8% Education
- 3% Engineering
- 8% Physical Sciences
- 8% Professional Fields
- 16% Social Sciences
- 13% Other Fields
Definition given to faculty

- **A writing assignment is...**
  - Collected from students to give a grade or feedback
  - Includes not only written papers, but also...
    - lab reports
    - multimedia projects
    - web pages
    - posters
    - PowerPoint presentations
    - and so on
<table>
<thead>
<tr>
<th>Disciplinary Area</th>
<th>Teaching FY</th>
<th>Teaching Sen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Professional Fields</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Other Fields</td>
<td>14%</td>
<td>8%</td>
</tr>
<tr>
<td>Business</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>16%</td>
<td>7%</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Engineering</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>42%</td>
<td>32%</td>
</tr>
</tbody>
</table>
Encouraging Good Writing

- Assign Meaning-Constructing Writing Tasks
  - 7-items; $\alpha_{FSSE} = 0.68$

- Explain Writing Expectations
  - 3-items; $\alpha_{FSSE} = 0.72$

- Encourage Interactive Writing Activities
  - 6-items; $\alpha_{FSSE} = 0.79$
Mean Values for Faculty Writing Scales

<table>
<thead>
<tr>
<th>Assign Meaning-Constructing Writing Tasks</th>
<th>Teaching FY</th>
<th>Teaching Sen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain Writing Expectations Clearly</td>
<td>2.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Encourage Interactive Writing Activities</td>
<td>2.8</td>
<td>2.8</td>
</tr>
</tbody>
</table>
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- Analyze or evaluate something: 69%
- Argue a position using evidence: 49%
- Include drawings, tables, photos: 29%
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- Provided clear instructions: 95%
- Explained in advance what you wanted: 86%
- Explained in advance the criteria: 89%
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- Brainstorm to develop ideas: 46%
- Visit a campus-based writing or tutoring center: 22%
- Provide feedback to students on a draft: 35%
Differences by Gender, Rank/ Employment Status, and Field
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- Analyze or evaluate something...
  - PT Lecturer: 63%
  - Full Prof: 70%

- Argue a position using evidence...
  - PT Lecturer: 41%
  - Full Prof: 53%

- Include drawings, tables, photos, ...
  - PT Lecturer: 24%
  - Full Prof: 31%
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- Brainstorm to develop ideas: 50% (PT Lecturer), 43% (Full Prof)
- Visit a campus-based writing or tutoring center: 26% (PT Lecturer), 18% (Full Prof)
- Provide feedback to students on a draft: 40% (PT Lecturer), 32% (Full Prof)
Percentage of Faculty Who Indicated Doing These for "Most" or "All" Assignments

- **Provide clear instructions...**
  - Women: 97%
  - Men: 93%

- **Explain in advance what you wanted...**
  - Women: 91%
  - Men: 82%

- **Explain in advance the criteria...**
  - Women: 92%
  - Men: 85%
Mean Differences in Assign Meaning-Constructing Writing Tasks

- Arts & Humanities: -0.21
- Biological Sciences: 0.36
- Physical Sciences: 0.06
Mean Differences in Explain Writing Expectations Clearly

- Arts & Humanities: 0.05
- Biological Sciences: -0.21
- Physical Sciences: -0.33
Mean Differences in Encourage Interactive Writing Activities

- Arts & Humanities: 0.34
- Biological Sciences: -0.04
- Physical Sciences: -0.39
Looking at students and faculty together
Mean Values for Assigning Meaning-Constructing Writing Tasks

- **NSSE**
  - First-year: 3.0
  - Senior: 3.0

- **FSSE**
  - Teaching FY: 2.9
  - Teaching Sen: 3.1
Mean Values for Explain Writing Expectations Clearly

- NSSE
  - First-year: 3.8
  - Senior: 3.8

- FSSE
  - Teaching FY: 4.6
  - Teaching Sen: 4.6
Mean Values for Encourage Interactive Writing Activities

- **First-year** (NSSE): 3.0
- **Senior** (NSSE): 2.6
- **Teaching FY** (FSSE): 2.8
- **Teaching Sen** (FSSE): 2.8
How institutional leaders can use these findings
Actionable conclusions

- Increase student learning through writing
- Realize greatest gains with more use of . . .
  - Meaning-constructing assignments
  - Interactive writing processes
Actions you can take

- Reposition writing
- Refocus from amount of writing to kind
- Encourage more writing
- Target efforts on certain disciplines
- Focus on writing in the majors
  - Advanced writing as a transition
  - Writing outcomes for programs
  - Develop a progressive approach to writing
Keeping costs low

- **Motivating**
  - Shift rationale
  - Use local data

- **Use existing resources**

- **Faculty development resources**
  - Person down the hall
  - Willing first adopters
  - Encourage local studies

- **Offer low-cost incentives**
Obtaining Money

- Gifts
- Grants
Please write . . .
Thank you

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