National Research and Trends on Senior Capstone Experiences

Jennifer R. Keup

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Atlanta, GA
Why Examine the Senior Year?

• They have invested time and effort and are a captive and deserving audience
• They have unique transition issues and needs
• It is the last chance to instill the competencies that the institution hopes that they achieve
• Important assessment point
• They are on course to be the next cohort of alumni  
  (Gardner & Van der Veer, 1998; Kinzie, 2012)
Senior Capstone: Background

- Historically categorized as curricular (course-based) or co-curricular (project based)
- Boyer Commission on Educating Undergraduates in the Research University (1998)
- 1999 National Survey of Senior Seminars and Capstone Courses
- Identification as a High Impact Practice by AAC&U
- NSSE research (2008, 2009)
“This is the first place...where I had the opportunity to integrate bits and hunks of information...and synthesize them into a new understanding. It’s like the difference between collecting a pile of bricks and building a house.”

(Student in Smith, 1999)
2011 National Survey of Senior Capstone Experiences

- Online instrument
  - Senior capstone experience type
  - Structural characteristics and administration
  - Instruction and pedagogy
  - Assessment and evaluation of outcomes

- Administration: June 29 – Sept. 5, 2011

- 325 institutional responses

- 268 4-year campuses reported having a senior capstone
Defining Senior Capstone Experiences

“The senior capstone experience is defined as a culminating course or project that is discipline-based or interdisciplinary; the course and/or experience concludes during the final year of study and is reserved for senior students (senior status is typically defined by credit-hours obtained).”

(National Survey of Senior Capstone Experiences, 2011)
Types of Capstone Experiences

• “Discipline-based capstone courses enroll seniors from the same discipline/major”

• “Interdisciplinary capstone courses are not dependent on a specific discipline and are inclusive of more than one discipline/major”

• “Project-based experiences are not dependent on a specific discipline or course and typically have a primary project as an end-product to the experience (e.g., internship, senior thesis, etc.)”
### All Types of Capstones Offered

<table>
<thead>
<tr>
<th>Capstone Experience</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discipline-based course</td>
<td>84.7</td>
</tr>
<tr>
<td>Thesis/research paper</td>
<td>64.6</td>
</tr>
<tr>
<td>Exhibition of perform, music, art</td>
<td>58.2</td>
</tr>
<tr>
<td>Internship</td>
<td>46.6</td>
</tr>
<tr>
<td>Interdisciplinary course</td>
<td>33.2</td>
</tr>
<tr>
<td>Comprehensive exam</td>
<td>20.1</td>
</tr>
<tr>
<td>Other</td>
<td>7.1</td>
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# Primary Capstone Offered

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</tr>
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<td>Comprehensive exam</td>
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### Most Common Disciplines:
- Business (32.7%)
- Applied Sciences (19.1%)
- Social Sciences (16.3%)
- Humanities (10.2%)
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<td>Internship</td>
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<tr>
<td>Comprehensive exam</td>
<td></td>
</tr>
<tr>
<td>Exhibition of perform, music, art</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

**Most Common Disciplines:**
- Humanities (51.5%)
- Business (39.4%)
- Social Sciences (39.4%)
- Natural Sciences (30.3%)
- Applied Sciences (30.3%)
- Performing Arts (21.2%)
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62.7% of project-based capstone experiences have a course component.
**Most Important Objectives**

<table>
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<tr>
<th>Objective</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical thinking/analytical skills</td>
<td>42.2</td>
</tr>
<tr>
<td>Ability to conduct research</td>
<td>27.6</td>
</tr>
<tr>
<td>Career preparation</td>
<td>25.0</td>
</tr>
<tr>
<td>Professional development</td>
<td>23.5</td>
</tr>
<tr>
<td>Proficiency written communication</td>
<td>22.8</td>
</tr>
<tr>
<td>Ability to perform independently</td>
<td>18.7</td>
</tr>
<tr>
<td>Appreciation of the discipline</td>
<td>17.5</td>
</tr>
<tr>
<td>Proficiency oral communication</td>
<td>14.9</td>
</tr>
</tbody>
</table>
“How a capstone...is structured and administered defines how an institution views the purpose of the course within the curriculum.”

(Padgett & Kilgo, 2012)
<table>
<thead>
<tr>
<th>Campus Unit</th>
<th>Administered by Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic department</td>
<td>68.9%</td>
</tr>
<tr>
<td>Academic affairs</td>
<td>16.3%</td>
</tr>
<tr>
<td>College or school</td>
<td>10.7%</td>
</tr>
<tr>
<td>Other</td>
<td>3.1%</td>
</tr>
<tr>
<td>Career center</td>
<td>0.5%</td>
</tr>
<tr>
<td>Senior program office</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

“Across all campus units administering the experience, approximately one-fourth had a dean, director, or coordinator.”

(Padgett & Kilgo, 2012)
Capstone Characteristics

• Duration tends to be one term
  – One semester (83.6%)
  – One quarter (3.0%)
• 89.6% are graded experiences
• 98.5% carry academic credit
  – Majority (70.4%) for 3 credits
  – 86.2% report that credits apply toward major
Course Characteristics

• 66.0% of classes have 19 or fewer students
• Most capstone course programs are small
  – 43.9% reported that they sponsored 10 or fewer sections
• 39.9% include an online instructional component
  – 15.9% are online only
• Only 35.0% are linked to another course
## Final Component/End Product

<table>
<thead>
<tr>
<th>Final Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final project</td>
<td>54.9</td>
</tr>
<tr>
<td>Final presentation</td>
<td>47.4</td>
</tr>
<tr>
<td>Undergraduate research paper/thesis</td>
<td>38.8</td>
</tr>
<tr>
<td>Exhibit art/music/performance/recital</td>
<td>28.0</td>
</tr>
<tr>
<td>Portfolio – comprehensive curricular</td>
<td>23.1</td>
</tr>
<tr>
<td>Comprehensive exam</td>
<td>13.4</td>
</tr>
<tr>
<td>Final exam</td>
<td>12.3</td>
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"Only when [high-impact practices] are implemented well and continually evaluated...will they realize their considerable potential." (Kuh, 2010)
Capstone Instruction

• Primary instructor
  – Tenure-track faculty (57.8%)
  – Full-time non-tenure-track faculty (18.3%)
  – Adjunct faculty (10.4%)

• Most campuses reported that less than 10% of senior capstone experiences were team taught

• 27.8% reported offering instructor training

• 7.7% paired students with a capstone taught by their advisor
### Most Important Capstone Topics

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<tr>
<th>Topic</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Critical thinking/analytical skills</td>
<td>51.9</td>
</tr>
<tr>
<td>Discipline-specific topic</td>
<td>43.3</td>
</tr>
<tr>
<td>Conduct scholarly research</td>
<td>26.5</td>
</tr>
<tr>
<td>Writing skills</td>
<td>20.9</td>
</tr>
<tr>
<td>Teamwork/group work</td>
<td>16.8</td>
</tr>
<tr>
<td>Career development</td>
<td>16.4</td>
</tr>
<tr>
<td>Ethical issues</td>
<td>11.2</td>
</tr>
<tr>
<td>Objective</td>
<td>n</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Critical thinking/analytical skills</td>
<td>113</td>
</tr>
<tr>
<td>Ability to conduct research</td>
<td>74</td>
</tr>
<tr>
<td>Career preparation</td>
<td>67</td>
</tr>
<tr>
<td>Professional development</td>
<td>63</td>
</tr>
<tr>
<td>Proficiency written communication</td>
<td>61</td>
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<thead>
<tr>
<th>Topic</th>
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<td>139</td>
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<td>116</td>
<td>43.3</td>
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<tr>
<td>Conduct scholarly research</td>
<td>71</td>
<td>26.5</td>
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<tr>
<td>Writing skills</td>
<td>56</td>
<td>20.9</td>
</tr>
<tr>
<td>Teamwork/group work</td>
<td>45</td>
<td>16.8</td>
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## Incorporating Good Practices

<table>
<thead>
<tr>
<th>Good Practice</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Integrative learning</td>
<td>60.1</td>
</tr>
<tr>
<td>Communication of high expectations</td>
<td>57.1</td>
</tr>
<tr>
<td>Course is academically challenging</td>
<td>55.2</td>
</tr>
<tr>
<td>Encouragement of active learning</td>
<td>45.1</td>
</tr>
<tr>
<td>Cooperative learning</td>
<td>38.4</td>
</tr>
<tr>
<td>Positive peer interactions</td>
<td>32.5</td>
</tr>
<tr>
<td>Higher-order exams and assignments</td>
<td>29.9</td>
</tr>
<tr>
<td>Time on task/submitting work</td>
<td>28.4</td>
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Vetted Good Practices

• Exposure to effective teaching
• Teaching clarity and organization
• Quality of nonclassroom interactions with faculty
• Active learning
• Influential interactions with other students
• Cooperative learning
• Academic challenge
• High expectations
• Integrative learning/experiences
• Diversity experiences inside/outside the classroom

Just over half of institutions (55.7%) report formally assessing or evaluating their senior capstone course or experience over the last three years.
## Assessment Methods

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<td>Student course evaluation</td>
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<td>Analysis of institutional data</td>
<td>62.6</td>
</tr>
<tr>
<td>Accreditation</td>
<td>60.7</td>
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<tr>
<td>Survey instrument</td>
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<tr>
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<td>71.0</td>
</tr>
<tr>
<td>Written communication</td>
<td>44.9</td>
</tr>
<tr>
<td>Connection to the discipline(s)</td>
<td>38.3</td>
</tr>
<tr>
<td>Oral communication</td>
<td>28.0</td>
</tr>
<tr>
<td>Satisfaction with instructor</td>
<td>14.0</td>
</tr>
<tr>
<td>Satisfaction with institution</td>
<td>9.3</td>
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Parting Thoughts

• “The primary capstone experiences are discipline-based or interdisciplinary courses”
  – “reliance on course-based experiences legitimizes capstones as an academic initiative incorporated into the curriculum”

• “Fewer innovative...experiences have been implemented across four-year institutions”
  – “Project-based courses...can serve as a vehicle for innovative initiatives”

• Still small scale
Parting Thoughts (cont.)

• “Institutions are introducing validated and vetted good practices within the capstone”
• “Institutions appear to be aligning their course objectives with their measured outcomes...to the topics introduced and practices implemented within it”
• “Only 55.7% of institutions are assessing their primary capstone”
Parting Thoughts (cont.)

• “The complexity for institutions with multiple capstone experiences”
  – Decentralization
  – Standardization of practice
  – Common assessment metrics for success
• Who “owns” the senior capstone experience?
• Comparatively “little research on the senior capstone experience exists”
• Sequencing of HIPs
Questions? Comments?

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