

National Research and Trends on Senior Capstone Experiences

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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)
- Typologies proposed by Levine (1998) and Rowles, Koch, Hundley, & Hamilton (2004)
- 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)



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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

Capstone Experience	Percentage
Discipline-based course	84.7
Thesis/research paper	64.6
Exhibition of perform, music, art	58.2
Internship	46.6
Interdisciplinary course	33.2
Comprehensive exam	20.1
Other	7.1

Primary Capstone Offered

Capstone Experience	Percentage
Discipline-based course	59.6
Interdisciplinary course	12.9
Thesis/research paper	12.9
Other	7.1
Internship	3.9
Comprehensive exam	2.4
Exhibition of perform, music, art	1.2

Primary Capstone Offered

Capstone Experience	Percentage
Discipline-based course	59.6
Interdisciplinary course	
Thesis/research paper	
Other	
Internship	
Comprehensive exam	
Exhibition of perform, music, art	1.2

Most Common Disciplines:

- Business (32.7%)
- Applied Sciences (19.1%)
- Social Sciences (16.3%)
- Humanities (10.2%)

Primary Capstone Offered

Capstone Experience	Percentage
Discipline-based course	
Interdisciplinary course	
Thesis/research paper	
Other	
Internship	
Comprehensive exam	
Exhibition of perform, music, art	1.2

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%)

Primary Capstone Offered

Capstone Experience	Percentage
Discipline-based course	59.6
Interdisciplinary course	12.9
Thesis/research paper	12.9
Other	7.1
Internship	3.9
Comprehensive exam	2.4
Exhibition of perform, music, art	1.2

62.7% of project-based capstone experiences have a course component

Most Important Objectives

Objective	Percentage
Critical thinking/analytical skills	42.2
Ability to conduct research	27.6
Career preparation	25.0
Professional development	23.5
Proficiency written communication	22.8
Ability to perform independently	18.7
Appreciation of the discipline	17.5
Proficiency oral communication	14.9

CAPSTONE STRUCTURES

“How a capstone...is structured and administered defines how an institution views the purpose of the course within the curriculum.”
(Padgett & Kilgo, 2012)



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Campus Units

Administrative

Percentage

“Across all campus units administering the experience, approximately one-fourth had a dean, director, or coordinator.”
(Padgett & Kilgo, 2012)

Academic

College

Other

Career center

Senior program office

1

0.5

0.5



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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

Final Component	Percentage
Final project	54.9
Final presentation	47.4
Undergraduate research paper/thesis	38.8
Exhibit art/music/performance/recital	28.0
Portfolio – comprehensive curricular	23.1
Comprehensive exam	13.4
Final exam	12.3

INSTRUCTION, PEDAGOGY, & ASSESSMENT

“Only when [high-impact practices] are implemented well and continually evaluated...will they realize their considerable potential.” (Kuh, 2010)



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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

Topic	Percentage
Critical thinking/analytical skills	51.9
Discipline-specific topic	43.3
Conduct scholarly research	26.5
Writing skills	20.9
Teamwork/group work	16.8
Career development	16.4
Ethical issues	11.2

Objective	<i>n</i>	Percentage
Critical thinking/analytical skills	113	42.2
Ability to conduct research	74	27.6
Career preparation	67	25.0
Professional development	63	23.5
Proficiency written communication	61	22.8

Topic	<i>n</i>	Percentage
Critical thinking/analytical skills	139	51.9
Discipline-specific topic	116	43.3
Conduct scholarly research	71	26.5
Writing skills	56	20.9
Teamwork/group work	45	16.8

Incorporating Good Practices

Good Practice	Percentage
Integrative learning	60.1
Communication of high expectations	57.1
Course is academically challenging	55.2
Encouragement of active learning	45.1
Cooperative learning	38.4
Positive peer interactions	32.5
Higher-order exams and assignments	29.9
Time on task/submitting work	28.4

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

(see Chickering & Gamson, 1987, 1991; Pascarella, Cruce, Wolniak, & Blaich, 2004; Pascarella, Cruce, Umbach, Wolniak, Kuh, Carini, Hayek,  Gonyea, & Zhao, 2006, Swing, 2002)

Assessment and Evaluation



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

Type	Percentage
Student course evaluation	74.8
Analysis of institutional data	62.6
Accreditation	60.7
Survey instrument	43.0
Focus group with students	23.4
Focus group with instructors	16.8
Individual interviews w/ students	15.0
Individual interviews w/ instructors	12.1

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Assessment Outcomes

Outcome	Percentage
Critical thinking/analytical skills	71.0
Written communication	44.9
Connection to the discipline(s)	38.3
Oral communication	28.0
Satisfaction with instructor	14.0
Satisfaction with institution	9.3

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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