Assessing Student Engagement in Natural Resources Education: A Multi-Dimensional Approach

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http://warnercnr.colostate.edu
A global leader in learning, discovery and engagement that guides natural resource conservation, sustainability and stewardship.
National Survey of Student Engagement (NSSE)

Student Engagement

• Student participation in *educationally purposeful activities*
• *Institutional support* of student experiences

Benchmarks of Effective Educational Practice

• Level of Academic Challenge
• Active and Collaborative Learning
• Student-Faculty Interaction
• Supportive Campus Environment
• Enriching Educational Experiences

http://nsse.iub.edu/
http://education.indiana.edu/
Pilot Studies in WCNR Student Engagement

Why not assess with NSSE?

• Unique variables
• Different measures
• Lack of measures for persistence and success
• WCNR subsample too small within CSU sample
Multi-Dimensional Assessment Plan

WCNR Student Engagement Variables

Barriers & Ways to Address Them

Links between Engagement, Persistence & Success

Importance & Satisfaction
Methods

• **Identify Variables:** Literature & Expert Evaluation
• **Measure Importance & Satisfaction:** Surveys
• **Evaluate Student Engagement, Persistence & Success:** Surveys, Student Focus Groups & Faculty Interviews
• **Examine Barriers to Success & Ways to Address Them:** Analysis of Surveys, Expert Evaluation, Strategic Planning
Findings

WCNR Indices of Engagement

- Warner Course Experiences (WCE)
- Warner Experiential Learning (WEL)
- Warner Faculty Advising (WFA)
- Warner Community and Climate (WCC)
- Natural Resources Professionalism (NRP)

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Online Survey – Spring 2011

Strengths

• Engagement indices linked to WCNR policies and practices
• Assessment of student importance and satisfaction
• Direct measures of success and persistence

Limitations

• Long survey
• Sample size small ($n = 279$, response rate 23% of undergraduates)
• Limited to WCNR students

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Importance - Satisfaction Analysis

High Importance
Low Satisfaction
Concentrate Efforts Here.

Low Importance
Low Satisfaction
Low Priority.

High Importance
High Satisfaction
Keep up the Good Work!

Low Importance
High Satisfaction
Possible Overkill.

Highly Important
Highly Unimportant
Highly Unsatisfied
Highly Satisfied

1a. Importance & Satisfaction
Importance - Satisfaction Analysis

WCE  Warner Course Experiences

- Class discussions
- Writing papers
- Final projects
- Class presentations
- Group assignments
- Problem-solving
- Lab work
- Fieldwork
- Community service
Importance - Satisfaction Analysis

WFA  Warner Faculty Advising

- Course assignments
- Course grades
- Major or minor program options
- Planning classes to take
- Registering for classes
- Internship opportunities
- Field experience placements
- Research opportunities
- Scholarships or fellowships
- Graduate school
- Career plans
In-Class Paper Survey – Fall 2011

Strengths

- WCNR Indices condensed to eight WCNR Themes of Engagement
- Measures of success & persistence focused on eight questions
- Validity check included
- Large sample, \( n = 827 \) (WCNR \( n = 530 \), non-WCNR \( n = 297 \))

Limitations

- 30 course sections
- Primarily freshmen among non-WCNR subsample

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## Logistic Regression Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Success in WCNR</th>
<th>Choose WCNR</th>
<th>Choose Major</th>
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<td></td>
<td>Success</td>
<td>Affiliation</td>
<td>Retention</td>
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<tr>
<td>Course opportunities</td>
<td>Odds</td>
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<td>Group Projects</td>
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<td>Faculty advising</td>
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<td>1.60</td>
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<td>Classes / Schedule</td>
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<td>.007</td>
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<td>Development as a</td>
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<td>3.01</td>
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<td>natural resource professional</td>
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<td>.004</td>
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<tr>
<td>Grade Point Average</td>
<td>9.73</td>
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## Logistic Regression Analysis

<table>
<thead>
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<th>Variables</th>
<th>% Correctly Classified</th>
<th>Nagelkerke $R^2$</th>
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<tr>
<td>Success in WCNR</td>
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<tr>
<td>No – Feeling of success</td>
<td>80</td>
<td></td>
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<tr>
<td>Yes – Feeling of success</td>
<td>84</td>
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<tr>
<td>Total</td>
<td>84</td>
<td>44%</td>
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Focus Groups & Interviews – Spring 2012

Strengths

• 3 student groups ($n = 42$ students)
• Balanced student class representation
• 15 individual faculty interviews

Limitations

• Strong HDNR and FWCB representation across samples
• Uneven male/female representation in samples
Transcript Analysis

**Values**

Engaged Teaching

**Culture**

Engaged Learning

Commitment

Engaged Culture

Passion

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Summary & Next Steps

Key Findings

• Students believed their engagement-related experiences were both important and satisfying across all WCNR Indices of Engagement.
• Course experiences, faculty advising, and professional development were linked to student retention and sense of success.
• WCNR has an engaged culture in which faculty and students have similar values and expectations related to student learning.
• NSSE promotes *educationally purposeful activities*. Our findings suggest *professionally purposeful activities* are equally important for engagement, persistence and success.

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Next Steps

- Complete analysis of barriers and identification of at-risk students.
- Plans for ways to reduce/eliminate barriers to strengthen student engagement, retention & success.
- Milestones Program creation to further enhance student success.

Recommendations for Doing Your Own Assessment

- Define goals & variables based on your documents.
- Select formats & measures based on your staffing, technology & time.
- Make it sustainable with leadership and funding.
Acknowledgements

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Questions?

What Do You Want to Study?

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