

The NSSE Update: Analysis and Design of Ten New Engagement Indicators

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Goals and Purposes

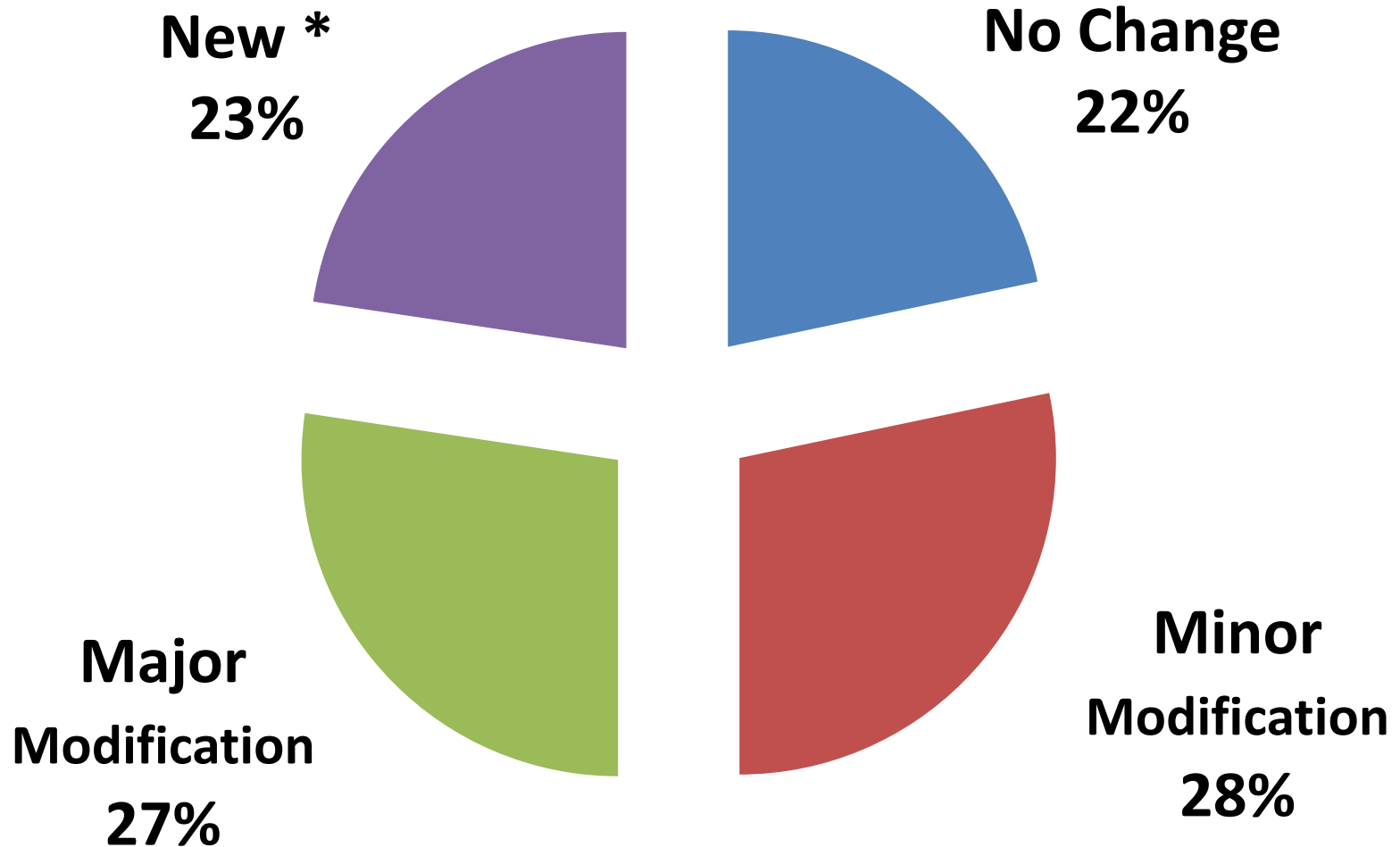
- To continue in our core purpose of assessing student engagement in effective educational practices to inform improvement efforts;
- To stay current with movements and trends in higher education;
- To improve the clarity, consistency, and applicability of the survey;
- To improve the properties of existing measures; and
- To incorporate new measures relevant to effective teaching and learning

Engagement

Student engagement is a domain of constructs representing two critical features of collegiate quality:

1. the amount of time and effort students put into educationally purposeful activities, and
2. how the institution organizes the curriculum and other learning opportunities to get students to participate in such activities.

The Updated NSSE



* Offset by deletions

Engagement Indicators

More **specificity**

More **actionability**

Themes and Indicators

Themes

Engagement Indicators

Academic Challenge

Higher-Order Learning
Reflective & Integrative Learning
Learning Strategies
Quantitative Reasoning

Learning with Peers

Collaborative Learning
Discussions with Diverse Others

Experiences with Faculty

Student-Faculty Interaction
Effective Teaching Practices

Campus Environment

Quality of Interactions
Supportive Environment

Engagement Indicators

Scoring

- **60-point scales**

- Each item is recoded to 60-point range (e.g., Never=0, Sometimes=20, Often=40, Very often=60)
- Student's EI is the average score across the individual items.
- Institution's EI is weighted average by class level
- EI's with five or more items are computed even if a student skips one item

Engagement Indicator Report

Use the following key:

- ▲ Your students' average was significantly higher ($p < .05$) with an effect size at least .3 in magnitude.
- △ Your students' average was significantly higher ($p < .05$) with an effect size less than .3 in magnitude.
- No significant difference.
- ▽ Your students' average was significantly lower ($p < .05$) with an effect size less than .3 in magnitude.
- ▼ Your students' average was significantly lower ($p < .05$) with an effect size at least .3 in magnitude.

First-Year (FY) Students

Theme	Engagement Indicator	Your FY students compared with Ohio Public	Your FY students compared with Peer and Aspirant	Your FY students compared with NSSE 2013
Academic Challenge	Higher-Order Learning	--	▽	--
	Reflective and Integrative Learning	▼	▼	▼
	Learning Strategies	--	--	--
	Quantitative Reasoning	--	--	--
Learning with Peers	Collaborative Learning	▲	--	△
	Discussions with Diverse Others	--	▽	--
Experiences with Faculty	Student-Faculty Interaction	▲	--	△
	Effective Teaching Practices	--	--	--
Campus Environment	Quality of Interactions	--	▽	--
	Supportive Environment	△	▽	--

















Engagement Indicator Report

Mean Comparisons

<i>Engagement Indicator</i>	NSSEville State <i>Mean</i>	Your first-year students compared with					
		Public Research Univ		Large Public		NSSE 2013	
		<i>Mean</i>	<i>Effect size</i>	<i>Mean</i>	<i>Effect size</i>	<i>Mean</i>	<i>Effect size</i>
Higher-Order Learning	38.3	38.5	-.01	38.6	-.03	39.1	-.06
Reflective & Integrative Learning	35.0	34.8	.02	35.0	.00	35.7	-.06
Learning Strategies	40.1	38.6 ***	.11	38.8 **	.09	39.8	.03
Quantitative Reasoning	28.5	28.0	.03	27.9	.04	27.3 *	.07

Engagement Indicator Report

Summary of Indicator Items

Higher-Order Learning	NSSEville State	Public Research		NSSE 2013
		Univ	Large Public	
<i>Percentage responding "Very much" or "Quite a bit" about how much coursework emphasized...</i>	%	%	%	%
4b. Applying facts, theories, or methods to practical problems or new situations	70 	75 	75 	74 
4c. Analyzing an idea, experience, or line of reasoning in depth by examining its parts	69 	72 	72 	73 
4d. Evaluating a point of view, decision, or information source	70 	66 	66 	70 
4e. Forming a new idea or understanding from various pieces of information	69 	66 	66 	69 

Scale Development and Testing

- **Data**
- **Methods**
- **Results**

Data: Pilot Administrations

- 2011
 - 19 institutions; 20,000 students
 - Institutional response rate average of 35%
- 2012
 - 55 institutions; 50,000 students
 - Institutional response rate average of 28%

Data: 2013 NSSE Sample

- 335,702 students
 - 41% first-year, 59% senior
 - 64% female
 - 70% White
 - 87% full-time
 - 29% at least 24 years old
 - 34% transfer student
 - 46% first generation
 - 35% living on campus
 - 10% taking all classes online
- 586 US colleges and universities
 - 61% Private
 - 20% research universities
 - 46% master's granting
 - 34% bachelor's granting
- 30% average response rate

Methods: Qualitative

- Qualitative information (pilot analyses)
 - In 2011 and 2012, 120 students in cognitive interviews, 79 students in 10 focus groups at 12 different campuses, phone interviews for specific questions, write-in responses from students completing the pilots, feedback from outside sources and institutional users

Methods: Individual Items

- Analyses were completed for all students and separately for online-only students
- Item descriptives included frequencies and means by class level, class level and gender, and class level and enrollment status
- Demographics results were compared to institution-provided information and available national databases

Methods: Engagement Indicators

- Exploratory factor analysis
- Confirmatory factor analysis
- Aggregate descriptives
- Validity differences by groups
- Internal consistency reliability
- Generalizability theory
- Concurrent validity (2011 pilot)
- Predictive validity (2012 pilot)
- Item response theory (2011 & 2012 pilot)

Methods: Criteria

- Full explanation of methods and criteria will be posted on the NSSE website
- Some example criteria:
 - Internal consistency
 - Cronbach's $\alpha \geq .7$
 - Average inter-item correlation between .15 and .50
 - Range of inter-item correlations between .15 and .85
 - Generalizability
 - Coefficients $\geq .7$ are acceptable, $\geq .8$ are good
 - Interpreting results for dependability of generalizability with samples around 25 students

Results: Themes & Engagement Indicators

- Academic Challenge
 - Higher-Order Learning
 - Reflective & Integrative Learning
 - Learning Strategies
 - Quantitative Reasoning
- Learning with Peers
 - Collaborative Learning
 - Discussions with Diverse Others
- Experiences with Faculty
 - Student-Faculty Interaction
 - Effective Teaching Practices
- Campus Environment
 - Quality of Interactions
 - Supportive Environment

Academic Challenge:

Higher-Order Learning, Reflective & Integrative Learning

	HO	RI
Item Descriptives	✓	✓
Qualitative Information	✓	✓
Exploratory Factor Analysis	✓	✓
Confirmatory Factor Analysis	✓	✓
Aggregate Descriptives	✓	✓
Known Differences by Groups	✓	✓
Concurrent Validity	✓	✓
Predictive Validity	✓	✓
Internal Consistency Reliability	✓	✓
Generalizability Theory	✓	✓
Appropriate for Online Students?	✓	✓

- Els met all criteria with no concerns.

Academic Challenge:

Learning Strategies, Quantitative Reasoning

	LS	QR
Item Descriptives	✓	✓
Qualitative Information	✓	✓
Exploratory Factor Analysis	✓	✓
Confirmatory Factor Analysis	✓	✓
Aggregate Descriptives	✓	✓
Known Differences by Groups	✓	✓
Concurrent Validity	-	✓
Predictive Validity	✓	✓
Internal Consistency Reliability	✓	✓
Generalizability Theory	✓	✓
Appropriate for Online Students?	✓	✓

- QR: items were more challenging for non-STEM majors, students spent more time thinking about these items but were able to answer them
- QR: no sig. relationship with GPA but strong relationship with persistence
- LS & QR: results are dependable when generalizing over students for samples of around 50 students

Learning with Peers:

Collaborative Learning, Discussions with Diverse Others

	CL	DD
Item Descriptives	✓	✓
Qualitative Information	✓	✓
Exploratory Factor Analysis	✓	✓
Confirmatory Factor Analysis	✓	✓
Aggregate Descriptives	✓	✓
Known Differences by Groups	✓	✓
Concurrent Validity	✓	✓
Predictive Validity	✓	?
Internal Consistency Reliability	✓	✓
Generalizability Theory	✓	✓
Appropriate for Online Students?	✓	?

- DD: many online students had limited knowledge about their peers and had discussions limited to brief posts on discussion boards
- DD: no sig relationship with GPA but small relationship with persistence
- DD: alphas and inter-correlations were very high for online students, particularly differences by race and economic background

Experiences with Faculty:

Student-Faculty Interaction, Effective Teaching Practices

	SF	ET
Item Descriptives	✓	✓
Qualitative Information	✓	✓
Exploratory Factor Analysis	✓	✓
Confirmatory Factor Analysis	✓	✓
Aggregate Descriptives	✓	✓
Known Differences by Groups	✓	✓
Concurrent Validity	✓	✓
Predictive Validity	✓	-
Internal Consistency Reliability	✓	✓
Generalizability Theory	✓	✓
Appropriate for Online Students?	✓	✓

- Els met all criteria with no concerns.

Campus Environment:

Quality of Interactions, Supportive Environment

	QI	SE
Item Descriptives	✓	✓
Qualitative Information	✓	✓
Exploratory Factor Analysis	✓	✓
Confirmatory Factor Analysis	✓	✓
Aggregate Descriptives	✓	✓
Known Differences by Groups	✓	✓
Concurrent Validity	✓	✓
Predictive Validity	✓	✓
Internal Consistency Reliability	✓	✓
Generalizability Theory	✓	✓
Appropriate for Online Students?	✓	?

- CFA results were adequate, but not ideal for online seniors
- SE: intercorrelations were higher than ideal, particularly items about campus events and activities

Questions?

Paper, presentation, and more
information about NSSE at
nsse.iub.edu

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