

Why Has Student Engagement Increased? A Decomposition Analysis

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Higher Education Reform

- Increasing calls for post-secondary accountability and reform
 - Spelling's Commission
 - Accreditation
 - State efforts
 - Trustees/regents
- Increased levels of assessment
- Little evidence of systemic change

Research Questions

1. How has undergraduate student engagement changed over time?
2. What factors account for the change in student engagement between 2005 and 2011?

Data

- National Survey of Student Engagement
 - 2005: 510 institutions
 - 2011: 653 institutions
 - Institution-level benchmarks of first-year and senior students
 - Level of Academic Challenge
 - Active & Collaborative Learning
 - Student-Faculty Interaction
 - Enriching Educational Experiences
 - Supportive Campus Environment
 - Weighted by student population

Data (cont.)

- Institutional characteristics
 - Structural characteristics: UG enrollment, % graduate students, & control
 - Student faculty ratio: Full & part-time faculty per FTE
 - Expenditures: Instruction, academic support, student services, & institutional support per FTE
 - Selectivity: Barron's ratings
 - Student demographics: Race, gender, age, part-time status, & living on-campus
 - Students' major

Methods

- Examined national NSSE Benchmark trends
- Compared benchmark means between 2005 & 2011 using t-tests
- Oaxaca-Blinder decomposition

Oaxaca-Blinder Decomposition

- Econometric technique
- Decomposes differences in an outcome into:
 - Differences in characteristics (explained component)
 - Differences in coefficients (unexplained component/discrimination effect)
- Originally used to examine discrimination by race or gender

Decomposition Procedures

- Regress outcome on observables by group

1. $Y_A = \alpha_A + \beta_A X_A + \varepsilon_A$

2. $Y_B = \alpha_B + \beta_B X_B + \varepsilon_B$

- Create a counterfactual equations where coefficients for one group are applied to the mean characteristic for the other group

3. $Y_A^* = \alpha_B + \beta_B X_A + \varepsilon_A$

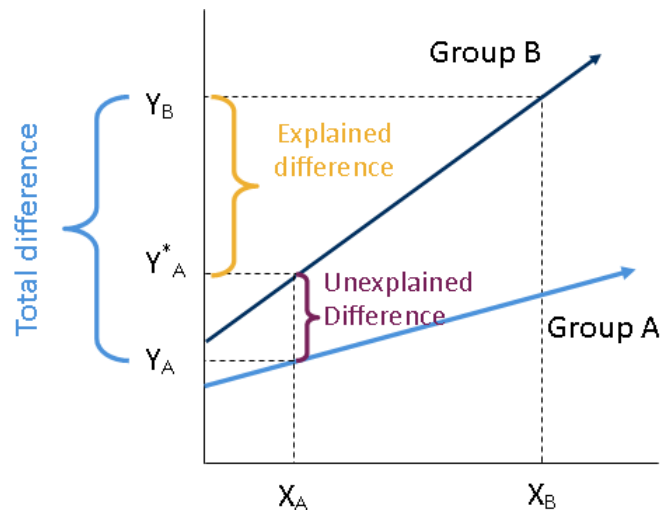
4. $Y_B^* = \alpha_A + \beta_A X_B + \varepsilon_B$

Decomposition Procedures

- Eqs 3 & 4 allows us to understand

$$4. Y_B - Y_A = \underbrace{(Y_B - Y_A^*)}_{\text{Difference due to characteristics}} + \underbrace{(Y_A^* - Y_A)}_{\text{Unexplained difference/discrimination effect}}$$

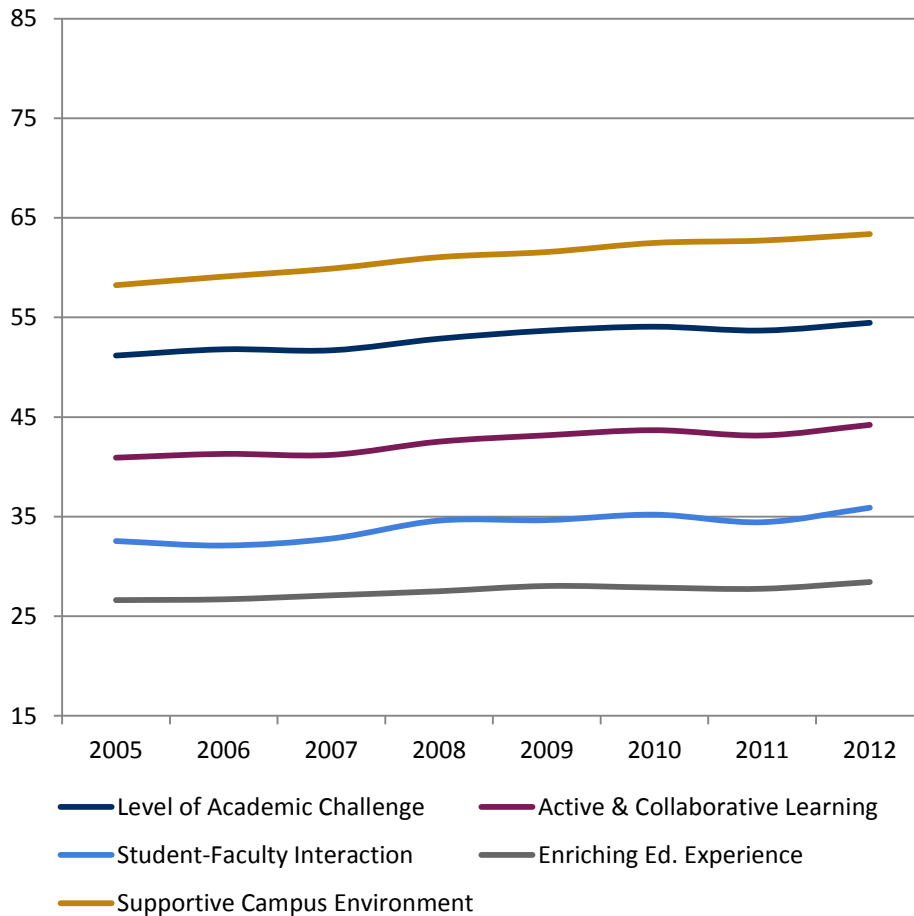
$$5. Y_B - Y_A^* = \beta_B (X_B - X_A)$$



OAXACA-BLINDER DECOMPOSITION DEMONSTRATION

RESULTS

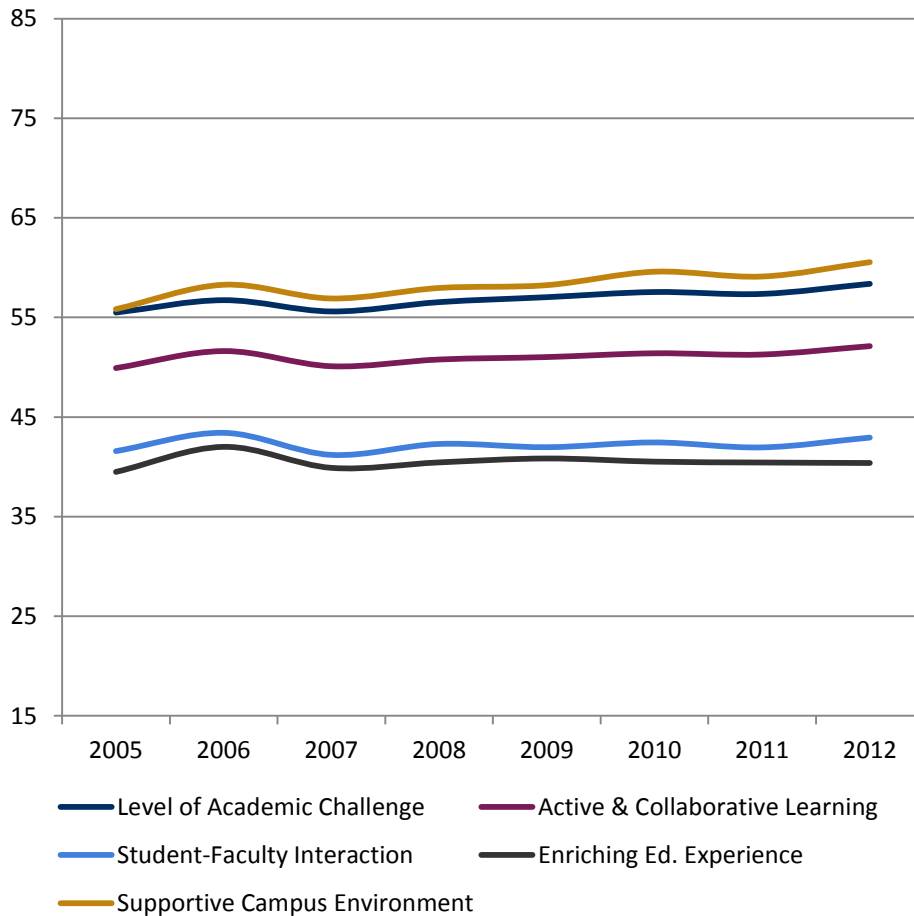
First-Year Benchmarks



	2005	2011	Δ	Eff. Sz.	Sig
Level of Academic Challenge	51.1	53.6	2.5	.81	***
Active & Collaborative Learning	40.9	43.3	2.4	.57	***
Student-Faculty Interaction	32.6	34.5	1.9	.49	***
Enriching Educational Experiences	26.6	27.9	1.3	.37	***
Supportive Campus Environment	58.2	62.6	4.4	1.07	***

Sig.: *** p < .001, ** p < .01, * p < .05

Senior Benchmarks



	2005	2011	Δ	Eff. Sz.	Sig
Level of Academic Challenge	55.49	57.31	1.82	.96	***
Active & Collaborative Learning	49.95	51.40	1.46	.56	***
Student-Faculty Interaction	41.64	42.06	.42	.37	***
Enriching Educational Experiences	39.56	40.61	1.05	.20	***
Supportive Campus Environment	55.83	59.04	3.21	.98	***

Sig.: *** p < .001, ** p < .01, * p < .05

Decomposition – First-Year

	Difference	Difference - Explained	Sig.	% Explained
Level of Academic Challenge	2.46	.24		10
Active & Collaborative Learning	2.39	.15		6
Student-Faculty Interaction	1.95	-.06		-3
Enriching Educational Experiences	1.35	.14		10
Supportive Campus Environment	4.37	.26		6

Sig.: *** $p < .001$, ** $p < .01$, * $p < .05$

Decomposition – First-Year

	Stud. Demo.	Struct. Char.	Selectivity	Stud./Fac. Ratio	Major	Expend.
Level of Academic Challenge					-	
Active & Collaborative Learning						
Student-Faculty Interaction	-				+	
Enriching Educational Experiences		-		+		
Supportive Campus Environment			-			

- Changes in characteristics account for a significant portion of the observed differences
- + Changes in characteristics would have significantly increased the observed differences

Decomposition – Senior

	Difference	Difference - Explained	Sig.	% Explained
Level of Academic Challenge	1.82	.19		10
Active & Collaborative Learning	1.46	.02		1
Student-Faculty Interaction	.42	-.52		-126
Enriching Educational Experiences	1.05	-.36		-34
Supportive Campus Environment	3.21	-.64	*	-20

Sig.: *** p < .001, ** p < .01, * p < .05

Decomposition – Senior

	Stud. Demo.	Struct. Char.	Selectivity	Stud./Fac. Ratio	Major	Expend.
Level of Academic Challenge					+	
Active & Collaborative Learning						
Student-Faculty Interaction				-	-	
Enriching Educational Experiences	-			-		
Supportive Campus Environment					+	

- Changes in characteristics account for a significant portion of the observed differences
- + Changes in characteristics would have significantly increased the observed differences

Implications

- Undergraduates enrolled in 2011 appear to be more engaged than students enrolled in 2005
- Changes in observable characteristics largely do not account for differences in undergraduate engagement over time
- Greater gains in first-year students' engagement
- Why has change occurred?

Questions/Comments

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