Diversity and Educational Benefits: A Solid Link Or An Article of Faith?

Moving Beyond Self-Reported Data

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Purpose of Study

• Estimate the impact of diversity on educational outcomes
• Use of objective measures of diversity and educational outcomes
• Inform theory on effects of diversity in higher education
  – Inform curriculum development
The Diversity Rationale

• Racial and ethnic diversity in higher education benefits:*  
  – Individual students  
  – Higher education institutions  
  – The economy and private enterprise  
  – Society

*(Milem, 2003)

Cumulative Findings from Higher Education Research

• “Students who experience the most racially/ethnically diverse interaction show the greatest engagement in active thinking, growth in intellectual/academic skills” (Shaw, 2005)
• “Diversity provides interactions important for developing critical thinking skills” (AAUP, 2000)
• “Diversity enhances complex thinking, educational aspirations,” and attainment of advanced education. Institutional efforts (e.g. diversity courses) are critical to realize these benefits. (Milem et al., 2005; Milem, 2003)
Cumulative Findings from Higher Education Research

- Individual benefits include:
  - Enhanced critical, complex thinking ability
  - Enhanced classroom discussions
  - Greater satisfaction with the college experience
  - Enhanced ability to understand diverse perspectives

From *Compelling Interest: Examining the Evidence on Racial Dynamics in Colleges and Universities* (Eds. Chang et al., 2003, p. 130)

Limitations in Findings from Higher Education Research

- “[A]ll the findings are based solely on student self-reports.” (Pascarella and Terenzini, 2005, p. 130)
  - E.g., attended racial awareness workshop, interacted with racially/ethnically different students, perception of diversity focus in curriculum)
- Lack of randomized studies
- Lack of meta-analysis based on campus-level assessments. (Friedl, 1999)
- Lack of empirical research linking cognitive growth to diversity in the classroom. (Perloff and Bryant, 2000)
Limitations with Survey-Based, Self-Reported Data

- **Attitudinal questions**: Responses are subjective, impressionistic (e.g., growth in critical thinking, racial understanding)
- **Lack of conceptual/operational definition**: what is ‘critical thinking’, person from ‘different background’ (Banta, 1991).
- **Social desirability bias**: Over-reporting of socially desirable behavior (e.g., interacting with person from different background) Marlowe-Crowne Social Desirability Scale?! (Gonyea, 2005)

**Halo Error**: Responders tend to ignore specific evaluation criteria associated with specific questions due to general perception
- Halo effect may account for significant variation in perceived learning (Gonyea, 2005)
- Modest correlation between self-reported and objective measures of learning (Pascarella, 2001)
Limitations with Survey-Based, Self-Reported Data

- Recommendations by *New Directions for Institutional Research* (Gonyea, 2005):
  - Back up the accuracy of self-reported data with school records, especially when data are used in high-stakes decisions
  - Use multiple data sources or triangulation rather than relying solely on self-reported data

- High-stakes Supreme Court decision in *Grutter v. Bollinger* (2003 Michigan affirmative action case) based on:
  - Self-reported survey data (CIRP, MSS, IGRCC) only in amicus brief (Gurin expert report)
    - Self-selected, non-randomized convenience samples
    - No testing of compositional/structural diversity interaction term
    - No separation of Asian Americans in analyses
Beyond Self-Reported Data

• Capturing ‘diversity’ via direct, objective measures in this study:
  - Minority: 12.5% critical-mass categorized (Hispanic, Black, Native Am)
  - Asian Am
  - Female
  - Foreign

  Average % of enrollees in all regular courses completed by individual student

Student Compositional and Interactional Metrics

Beyond Self-Reported Data

• Capturing ‘diversity’ via direct, objective measures in this study:
  - Minority
    - (Hispanic, Black, Native Am, Asian)
  - Irregular contract
  - Female
  - Full professor (age)

  Average % of faculty who taught all regular courses completed by individual student

Faculty Compositional and Interactional Metrics
Beyond Self-Reported Data

• Capturing interaction of compositional ‘diversity’ with curricular ‘diversity’ via direct, objective measures in this study:

- Minority: critical mass cat. (Hispanic, Black, Native Am)
- Asian Am
- Female
- Foreign

Average % of enrollees in all ‘diversity’ courses completed by individual student

Student Compositional and Interactional Metrics for ‘diversity’ courses by level of ethnic/racial/gender/cultural focus, at least 1 course is required for graduation (list of courses)

Beyond Self-Reported Data

• Capturing curricular ‘diversity’ via direct, objective measures in this study:

- Number completed
- Avg grade for student
- Avg grade for classmates
- Avg class size
- Enrollment timing

‘Diversity’ courses completed by individual student

Metrics for participation in, and achievement with, curricular ‘diversity’ at the institution: 55% of graduates took two or more ‘diversity courses’
Beyond Self-Reported Data

- Capturing educational outcomes via direct, objective measures in this study:
  - Final cumulative GPA
  - GRE/GMAT Quantitative score
  - GRE/GMAT Verbal score
  - Graduate school enrollment by type of institution

For graduated bachelor degree recipients

Metrics for growth in academic skills after controlling for pre-collegiate achievement and ability

Beyond Self-Reported Data

- Capturing self-reported student assessment of their ability:
  - to think critically
  - to think independently
  - to think creatively
  - to understand racial issues
  - to understand other cultures
  - to understand gender issues
  - to understand moral/ethical issues

For graduated bachelor degree recipients

Attitudinal metrics for post-graduate satisfaction with undergraduate experience and correlation with objective ‘diversity’ indicators
Control Variables

• **Demographic**
  - Gender
  - Ethnicity/race
  - Age (Time-to-degree)
  - Parent income (via financial aid)

• **Academic Growth**
  - ACT/SAT
  - AP credits
  - Probation status (Y/N)
  - GPA trend (1st Y/final)
  - New vs. transfer-in

• **Campus Experience**
  - On-campus living (length)
  - Varsity athlete (Y/N)

• **Financial Aid**
  - Merit-based $ received
  - Need-based $ received
  - Remaining need (avg/year)

• **Academic Experience**
  - Program major
  - Remedial English/math
  - Math credits earned
  - Upper div. science credits
  - Earned/attempted credits ratio
  - Avg grade awarded in classes taken (peer effect)
  - Avg size of classes taken

• **Core Curriculum Grades**
  - English/math gateway courses for major
  - Core humanities

Control Variables (cont.)

• **Culminating Experiences**
  - Senior thesis (Y/N)
  - Number of independent studies
  - Number of capstone courses
  - Number of internships/practicum

Data Sources

• Student Information System
• National Student Clearinghouse (90% match)
• Alumni Survey
• College Student Survey (CIRP) for validation only
Cohorts for Study

- For final GPA:
  - Non-transfer bachelor degree recipients from spring 1999 through spring 2005: 4,194 graduates, i.e. 80% of all 5,310 non-transfer graduates after listwise deletion of missing cases, statistical outliers, and homogenization of required curriculum over time (e.g., math and English)

- For graduate school enrollment:
  - All BA/BS degree recipients from 1995-2001: 6,252 graduates (~70% of population after listwise deletion, excl. of outliers) with four-year tracking period

- For GRE score outcome: (GMAT is GRE-normalized)
  - 814 graduates for math, 512 graduates for verbal

- For satisfaction with undergraduate experience:
  - BA/BS degree recipients from 2002-2005: ~3,000 graduates (~40% of all based on survey-response rate)

Statistical Methods

- Undergraduate Achievement (final GPA, GRE scores): Mixed-level regression models (HLM) with 57 categorized program majors at level 2

- Graduate school enrollment and post-graduate satisfaction: Multinomial, non-ordered logit models

- Data quality confirmed via:
  - Collinearity diagnostics (VIF < 3, variance decomp. < 0.5)
  - Regression diagnostics (std residuals <3, Cook’s D no visual separation)
  - Cross-tabulation with program major variable to obviate data sparseness in logit models
  - % distribution on student demographics for small-N models

- Model fit based on intraclass correlation, deviation chi-square, explained residual/intergroup variance, AIC, -2 log likelihood, Nagelkerke $R^2$

- No centering of level-1 variables due to focus on individual effects (see Paccagnella, 2006)
Statistical Methods

- Determination of statistical significance
  - HLM models: t-ratio (no effect size measure)
  - Logit models: percentage change in outcome probability associated with unit change in predictor at $\alpha \leq .05$, using linear transformation for log odds $(p^* (1-p)^* \beta)$ (slightly larger than Peterson's $p$, but more intuitive, see Morgan & Teachman, 1988; Aldrich & Nelson, 1984)

Self-Rating vs. Objective Rating
Self-Rating vs. Objective Rating

Classroom Ethnic/Racial Composition: Bachelor Degree Recipients, 1995-2005
What’s in a Grade?

• “On might argue that grades merely reflect the ability to repeat on exams material that has been memorized the night before and forgotten the night after. [G]rades reflect far more. Rather than testing for rote memorization, exams typically call for thoughtful essays, comprehension of reading assignment, displaying more than one perspective on a topic, and organizing and expressing one’s thoughts effectively. Grades also depend on papers that plumb the student’s ability to research and master a topic, think creatively about it, and write skillfully. Often grades are also determined by independent research, group projects, oral presentations, and lab experiments.”


Estimating Graduating GPA: Variables with Significant Negative Correlation ($\alpha = .05$)

- Took remedial math
- Hispanic / African Am.1
- % of courses taken taught by full professors
- Number of failed class registration attempts
- General capstone less than B
- College algebra (124) less than B
- Calculus for Bus/Soc Sci (176) less than B
- English 101 less than B
- Number of semesters living on campus
- Core humanities (201) less than B
- Core humanities (202) less than B
- Core humanities (203) less than B
- Pre-Calculus / Trigonometry (128) less than B
- Calculus 1 (181) less than B
- Fundamentals of college math (120) less than B
- Major capstone less than B
- At least once on probation

Beige-to-orange: Academic
Green shades: Non-Academic
Blue: Demographic
Estimating Graduating GPA: Variables with Significant Positive Correlation ($\alpha \leq .05$)

- Number of math credits earned
- Major capstone B or higher
- Varsity athlete member
- Foreign
- Core humanities (203) B or higher
- General capstone B or higher
- Earned AP credits
- Avg credit load per semester
- College algebra (124) B or higher
- Fundamentals of college math (120) B or higher
- Core humanities (201) B or higher
- Calculus 1 (181) B or higher
- Calculus for Bus/Soc Sci (176) B or higher
- Pre-Calculus/Trigonometry (128) B or higher
- Stopout time: % elapsed months to graduation
- Incompletes/Withdrawals as % of all grades
- GPA trend (1st vs final x 100)
- ACT/SAT Composite
- Merit-based aid ($1K increment)
- Avg grade awarded in courses taken
- Ratio of earned vs. attempted credits

Beige-to-orange: Academic; Green: Non-Academic; Blue: Demographic

HLM t-ratio

Estimating Graduating GPA: Variables with No Significant Correlation

- 7.5 to 12.5% of classmates were ethn/racial minority
- Took overseas course (USAC)
- % of classmates that were female
- % of classmates that were Asian Am
- Core humanities (202) B or higher
- % of classmates that were foreign
- English 101 B or higher
- Number of diversity courses taken
- % of courses taken taught by female faculty
- Ethnicity / Race unknown
- Over 12.5% of classmates were ethn/racial minority
- Need-based aid ($1K increment)
- Asian Am.
- Male
- % of courses taken taught by minority faculty
- Took remedial English
- % of courses taken taught by irregular faculty
Estimating Graduating GPA: Adding Exposure to ‘Diversity’ Courses

- GPA for diversity courses taken
- % of classmates that were Asian Am
- Avg years from completion of course(s) to graduation
- % of classmates that were ethnic/racial minority
- % of classmates that were female
- Avg class size
- % of classmates that were foreign
- Avg grade awarded in diversity courses taken

Significant at $\alpha \leq 0.05$ (bold)

Estimating Graduating GPA: Adding Exposure to ‘Diversity’ Courses Focused on Ethnicity/Race, Gender, and Culture

- GPA for diversity courses taken
- Avg years from completion of course(s) to graduation
- % of classmates that were Asian Am
- % of classmates that were female
- % of classmates that were ethnic/racial minority
- Avg class size
- % of classmates that were foreign
- Avg grade awarded in diversity courses taken

Significant at $\alpha \leq 0.01$ (bold)
Estimating Graduating GPA for Those Who Took Focused* Diversity Capstone Courses: Variables with Significant Negative Correlation ($\alpha \leq .05$; $N = 1,439$)

- Took remedial math
- Avg class size for focused diversity courses
- Calculus 1 (181) less than B
- Avg grade in focused div courses taken
- Calculus for Bus/Soc Sci (176) less than B
- Number of semesters living on campus
- Core humanities (202) less than B
- Core humanities (201) less than B
- Core humanities (203) less than B
- Pre-Calculus / Trigonometry (128) less than B
- At least once on probation
- Major capstone less than B

Beige-to-orange: Academic; Green: Non-Academic; Shaded: Diversity-related

*Ethnicity/race, gender, culture

Estimating Graduating GPA for Those Who Took Focused* Diversity Capstone Courses: Variables with Significant Positive Correlation ($\alpha \leq .05$; $N = 1,439$)

- GPA for focused div courses taken
- Ratio of earned vs. attempted credits
- Avg grade awarded in courses taken
- Merit-based aid ($1K increment)
- Incompletes/Withdrawals as % of all grades
- ACT/SAT Composite
- GPA trend (1st/final x 100)
- Pre-Calculus / Trigonometry (128) B or higher
- Core humanities (201) B or higher
- Earned AP credits
- Calculus 1 (181) B or higher
- Fundamentals of college math (120) B or higher
- Stopout time: % elapsed months to graduation
- Avg credit load per semester
- Calculus for Bus/Soc Sci (176) B or higher
- College algebra (124) B or higher

Beige-to-orange: Academic; Green: Non-Academic; Shaded: Diversity-related

*Ethnicity/race, gender, culture
Estimating Graduating GPA for Those Who Took Focused* Diversity Capstone Courses: Variables with Significant Correlation ($\alpha \leq .05$; $N = 1,439$) 
Excluding Campus Experience, General Academic, and Core Curriculum Variables

Shaded: Diversity-related

Estimating Graduating GPA: Results

- No significant correlation with compositional diversity among students or faculty
- Negative correlation associated with some aspects of curricular diversity (% of foreign students enrolled, grades awarded, number of courses taken)
  - Personal effort (grade), not classroom composition, correlates positively with cumulative GPA
- No change in results with separate ethnic/race models (i.e. direct vs. indirect effects), continuous vs. categorical metrics, interaction effects, or single vs. block entry, or race/gender-focused capstone vs. general diversity courses
- Model covariates removed significant variance in GPA across program major (Null intraclass corr = .123), regardless of level of classroom exposure to minority students for a given major (non-sig. random effect)
### Estimating GRE Verbal Score: Variables with Significant Correlation ($\alpha \leq .05$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>HLM t-ratio</th>
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<tbody>
<tr>
<td>ACT/SAT Composite</td>
<td></td>
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<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Number of math credits earned</td>
<td></td>
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<tr>
<td>GPA trend (1st/final x 100)</td>
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<tr>
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<tr>
<td>Asian Am.1</td>
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<tr>
<td>Ratio of earned vs. attempted credits</td>
<td></td>
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<tr>
<td>English 101 B or higher</td>
<td></td>
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<tr>
<td>Calculus 1 (181) less than B</td>
<td></td>
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<tr>
<td>Took remedial English</td>
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</tbody>
</table>

### Estimating GRE Verbal Score: Correlation Level of ‘Diversity’ Variables

- % of classmates that were female
- 30-60%tile: classmates were ethn/racial minority
- 90%tile: classmates were ethn/racial minority
- % of courses taken taught by minority faculty
- % of classmates that were Asian Am
- 60-90%tile: classmates were ethn/racial minority
- % of courses taken taught by full professors
- Number of diversity courses taken
- % of courses taken taught by irregular faculty
- % of classmates were ethnic/racial minority
- % of classmates that were foreign
- % of courses taken taught by female faculty

None at $\alpha \leq .05$
Estimating GRE Verbal Score: Correlation Level of ‘Diversity’ Variables Excluding Control Variables

Significant at $\alpha \leq .05$

Estimating GRE Math Score: Variables with Significant Correlation ($\alpha \leq .05$)
Estimating GRE Math Score: Correlation Level of ‘Diversity’ Variables

- % of classmates that were foreign
- % of courses taken taught by full professors
- % of courses taken taught by minority faculty
- % of classmates that were female
- % of courses taken taught by irregular faculty
- % of courses taken taught by female faculty
- Number of diversity courses taken
- % of classmates that were Asian Am
- % of classmates were ethnic/racial minority

HLM t-ratio

Estimating GRE Math Score: Adding Exposure to ‘Diversity’ Courses, Excluding Control Variables

- GPA for diversity courses taken
- % of classmates that were female
- % of classmates that were ethnic/racial minority
- Avg class size
- % of classmates that were foreign
- % of classmates that were Asian Am
- Avg grade awarded in diversity courses taken
- Avg years from completion of course(s) to graduation

HLM t-ratio

Significant at $\alpha \leq .05$
Estimating GRE Math Score: Adding Exposure to ‘Diversity’ Courses with Race/Gender/Culture Focus*

- GPA for diversity courses taken
- % of classmates that were ethnic/racial minority
- Avg class size
- % of classmates that were Asian Am
- % of classmates that were female
- Avg grade awarded in diversity courses taken
- Avg years from completion of course(s) to graduation
- % of classmates that were foreign

Significant at $\alpha \leq .05$

*On first model entry, excluding control variables

Estimating GRE Scores: Results

- General academic achievement (ACT/SAT, GPA trend), particularly in math, show strongest correlation
- Verbal:
  - No significant correlation with compositional or curricular diversity among students or faculty
- Math:
  - Mixed results, with positive for foreign students, negative for ethnic/racial minorities and Asian Am.
  - Positive impact on GRE score likely derive from personal effort, not student or faculty diversity in classroom (i.e., opposite correlation with individual vs. average grade awarded)
- Results are robust across program major, regardless of level of diversity (no sig. random effect)
Estimating Enrollment in 2nd Tier/lower* Graduate School:
Variables with Significant Negative Correlation ($\alpha \leq .05$)

- % of classmates that were Asian Am
- Avg years from completion of course(s) to graduation
- Over 12.5% of classmates were ethn/racial minority
- General capstone less than B
- Had one internship/practicum
- Had two or more internship/practicum
- Pre-Professional programs
- Number of math courses transferred in: two or more
- 7.5 to 12.5% of classmates were ethn/racial minority
- Avg grade awarded in diversity courses taken
- Physical sciences

*Reference: did not enroll; Source: USN&WR College Ranking, various issues

Estimating Enrollment in 2nd Tier/lower* Graduate School:
Variables with Significant Positive Correlation ($\alpha \leq .05$)

- Avg grade awarded in courses taken
- Education
- Double major
- Hispanic / African Am.
- Graduated with a minor
- Health sciences
- Male
- Number of diversity courses taken
- % of classmates that were foreign
- Number of math credits earned
- % of classmates that were female
- Number of upper division science courses
- % of courses taken taught by full professors
- Need-based aid received ($1K increment)

*Source: USN&WR College Ranking, various issues
Estimating Enrollment in 1st Tier/Med/Law* School:
Variables with Significant Negative Correlation (\(\alpha \leq .05\))

- % of classmates that were female
- Age at graduation (in years)
- Years to complete degree
- % of classmates that were foreign
- Had one internship/practicum
- Health sciences
- Asian Am.
- Natural sciences
- Business/Economics
- Education
- Physical sciences

*Source: USN&WR College Ranking, various issues

Estimating Enrollment in 1st Tier/Med/Law* School:
Variables with Significant Positive Correlation (\(\alpha \leq .05\))

- Hispanic / African Am.
- Had two or more independent studies
- Male
- Had one independent study
- Cumulative graduating GPA
- % of classmates that were Asian Am
- Number of upper division science courses
- % of classmates in div courses that were ethnic/racial minority
- Avg class size of courses taken
- % of classmates in div courses that were female

*Source: USN&WR College Ranking, various issues
Estimating Enrollment in 2<sup>nd</sup> Tier/lower* Graduate School for Caucasian Students Only: Significant Diversity-Related Variables at $\alpha \leq .05$

*Source: USN&WR College Ranking, various issues

- Number of diversity courses taken
- % of classmates that were foreign
- % of courses taken taught by full professors
- % of classmates in div courses that were female
- % of classmates that were female
- % of classmates that were Asian Am
- Avg years from completion of div course(s) to graduation
- Over 12.5% of classmates were ethn/racial minority
- Avg grade awarded in diversity courses taken
- 7.5 to 12.5% of classmates were ethn/racial minority

Estimating Enrollment in 1<sup>st</sup> Tier/Law/Med School* for Caucasian Students Only: Significant Diversity-Related Variables at $\alpha \leq .05$

*Source: USN&WR College Ranking, various issues
Estimating Graduate School Enrollment: Results

- Negative correlation with small-to-medium effect size for *compositional* diversity
- Positive correlation with small effect size for *curricular* diversity
- Ethnic/racial minority graduates are more likely to enroll in graduate school than Caucasians
- Results are consistent across student ethnic/racial background and do not vary with level of compositional diversity (i.e., *no significant interaction effects*)

Estimating Impact of Educational Experience on Critical Thinking Ability: Significant Correlation (**α ≤ .05**) with ‘Very Positive’ Survey Response*

* Reference response: ‘neutral or negative’
Estimating Impact of Educational Experience on Critical Thinking Ability: Significant Correlation ($\alpha \leq .05$) with ‘Somewhat Positive’ Survey Response*

* Reference response: ‘neutral or negative’

No sig. with ‘diversity’ variables

Estimating Growth in Self-Reported Critical Thinking Skills: Results

- No significant correlation associated with compositional or curricular diversity
- Response strongly correlated with overall disposition vis-à-vis institution
- Do independent studies and overseas courses nurture critical thinking skills?
Estimating Impact of Educational Experience on Understanding Racial Issues: Significant Correlation ($\alpha \leq 0.05$) with ‘Very Positive’ Survey Response*

* Reference response: ‘neutral or negative’

Estimating Impact of Educational Experience on Understanding Racial Issues: Significant Correlation ($\alpha \leq 0.05$) with ‘Somewhat Positive’ Survey Response*

* Reference response: ‘neutral or negative’
Estimating Impact of Educational Experience on Understanding Racial Issues: Significant Correlation ($\alpha \leq .10$) with 'Very Positive' Survey Response* for **Caucasians Only**, Controlling for Racial Disposition (CIRP), (N=402)

- Number of diversity courses taken
- Avg years from completion of course(s) to graduation
- Need-based aid received ($\$1K$ increment)
- Number of math credits earned
- % of classmates that were ethnic/racial minority

* Reference response: ‘neutral or negative’

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Estimating Impact of Educational Experience on Understanding Racial Issues: Significant Correlation ($\alpha \leq .10$) with 'Somewhat Positive' Survey Response* for **Caucasians Only**, Controlling for Racial Disposition (CIRP), (N=402)

- Racial discrimination is no longer a problem: disagree strongly
- Core humanities (202) less than B
- Number of diversity courses taken
- % of classmates that were ethnic/racial minority
- % of classmates that were Asian Am

Interaction term: Racial discrimination is no longer a problem (disagree strongly) w/ number of diversity courses taken
Interaction term: Racial discrimination is no longer a problem (disagree somewhat) w/ number of diversity courses taken

* Reference response: ‘neutral or negative’
Estimating Growth in Self-Reported Understanding of Racial Issues: Results

• Significant positive correlation with small effect size associated with compositional and curricular diversity
  – No significance associated with compositional diversity within diversity courses
• Results for Caucasian-only model conditioned by:
  – Initial disposition on racial issues, with curricular diversity having a negative effect
  – But, results based on relatively small N

Estimating Impact of Educational Experience on Understanding Cultural Issues: Significant Correlation (α ≤ .05) with ‘Very Positive’ Survey Response*

- 2 002 0 4 0 6 0 % Change (delta-p)

Would attend again: definitely yes
Took overseas course (USAC)
Would attend again: probably yes
Number of diversity courses taken
Age at graduation (in years)
Number of upper division science courses
Ethnicity / Race unknown
Business/Economics

* Reference response: ‘neutral or negative’
Estimating Impact of Educational Experience on Understanding Cultural Issues: Significant Correlation ($\alpha \leq .05$) with ‘Somewhat Positive’ Survey Response*  

* Reference response: ‘neutral or negative’  

Estimating Growth in Self-Reported Understanding of Cultural Issues: Results  

- Significant positive correlation with small effect size associated with curricular diversity  
- No significance associated with compositional diversity, in general or within diversity courses  
- Response strongly correlated with overall disposition vis-à-vis institution (i.e., “Would attend again, yes/no?”)  
- Significant positive correlation with medium effect size associated with taking overseas courses
Limitations of Study

• No control for diversity engagement outside of classroom
• Freshmen year disposition on racial issues to substitute for lack of pre-collegiate diversity exposure metric
• Relatively small population of GRE/GMAT tested students (N=814, and 512)
• Socio-economic background is based on financial aid profile of aid applicants (i.e. merit/need-based aid, remaining need), or 70% of tested population (inference accuracy for non-applicant graduate?)

Conclusion

• **Growth in academic skills**, as reflected in cumulative grades and preparation for graduate school, show no significant positive correlation with compositional or curricular diversity, independent of
  – level of student or faculty diversity within a student’s academic discipline
  – interaction between compositional and curricular diversity (i.e., no significant synergistic effect)
  – level of classroom interaction among students (i.e., capstone vs. lower-division courses)
  – type of diversity courses (e.g., race/gender vs. general area)
• **Attainment of advanced education**, as reflected in graduate school enrollment, is positively correlated with curricular diversity, but negatively correlated with compositional diversity
  – Ethnic/racial minority students are more likely to enter graduate school (compared to Caucasians)
Conclusion

- **Growth in self-reported critical thinking skills** shows *no significant* correlation with compositional or curricular diversity.
- **Growth in self-reported understanding of racial issues** shows a *significant positive* correlation with compositional and *general curricular diversity* (but *not focused* ‘diversity’ courses).
- **Growth in self-reported understanding of cultural issues** shows a significant *positive* correlation with curricular diversity, but no correlation with compositional diversity.
- **Results are robust** on first-entry of diversity variables into model to gauge *direct* from *indirect* effects, i.e., *little modifier effects* associated with control variables.
- Where significant, diversity effects are of small to medium size.

Implications

- Assuming growth in cognitive skills during college is significantly affected by *what happens in the classroom*, **results from this study cast doubt on the validity of the cumulative findings from higher education research on the impact of diversity.**
- Results from this study amplify the need to:
  - go beyond subjective measures when gauging the effect of diversity in higher education
  - Conduct campus-based assessment of diversity effects to *inductively* inform cumulative findings (as opposed to multi-institution national survey approach, e.g., NSSE, CIRP, with large unobserved campus-specific heterogeneity!)
A Call for Better Data

• “It is counterproductive to make decisions based on assumptions derived from unexamined numbers. Yet, that is what we in higher education do when we fail to question statistical assertions, when we fail to triangulate—that is, to find other sources and types of evidence to affirm or contradict those assertions.”

One View of Diversity

• “Although 97 percent of our students are racially categorized as ‘black’, the student body is, in fact, quite diverse. Spelman students come from all regions of the United States and many foreign countries, from white suburban and rural communities as well as urban black ones.”

Link to presentation and paper:
http://www.unr.edu/ia/research/
Examples of ‘Diversity’ Courses

• General
  – Dance in Ancient Civilization (Dan 467)
  – American Literature & Culture (Eng 304)
  – History of East Asia (Hist 243)
  – International Management/Marketing (Mgt/Mkt 480/456)
  – World Religions (Phil 210)

• Race/Gender/Culture Focused
  – Identity Across Borders (Anth 378, WS 378)
  – Ethnic/Race Relations (Soc 379)
  – Identity Politics in the US (Psc 353)
  – Introduction to Women’s Studies (WS 101)