ENGAGING CRITICAL QUANTITATIVE RESEARCH IN OUR ASSESSMENT PRACTICE

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How are you currently using quantitative data in your work @ USF?

- Using Dashboards in Tableau to understand trends
- Leading Conversations within Departments, Committees
- Personal Research Work
- Through Program Review Work
- Learning Assessment in and/or out of the Classroom
- Not really Yet Hoping to Better Do so Soon
TODAY’S SESSION

01 CHALLENGING TRADITION
Quantitative Research and Social Justice

02 CQR & QUANTCRIT
Foundational Understandings for Challenging Tradition

03 CRITICAL APPROACHES IN PRACTICE
Shared Principles & Examples

04 MAKING PLANS WITHIN OUR OWN WORK
Challenging Tradition: Quantitative Research and Social Justice
What limitations do you see for how quant data can help you in your efforts to make an impact for justice at USF?
Limitations of Standard Approaches to Quantitative Data Analysis

- Takes context of data collection for granted
- Homogenizes heterogeneous groups into oversimplified categories
- Statistical methods tend to justify stratification rather than challenge it
- Asterisks replace experiences of numerically smaller groups, rendering them invisible
- Race and other characteristics are situated as causal factors
Implications of Limitations

• Situates underserved communities in position of *deficit*

• Pressure to use quantitative data exclusively

• Structures our thinking – ontological implications

• Numbers games are rigged against smaller populations
Critical Quantitative Research & Quant Crit:
Challenging Traditional Notions of Quantitative Research
CQR

centered in critical theoretical paradigm broadly

“adapts a proactive stance by consciously choosing questions that seek to challenge...seeks to forge challenges, illuminate conflict, and develop critique through quantitative methods in an effort to move theory, knowledge, and policy to a higher plane.” (Stage, 2007, p. 8)

QuantCrit

Draws explicitly from CRT

“Quantitative approaches cannot be adopted for racial justice aims without an ontological reckoning that considers historical, social, political, and economical power relations.” (Garcia, López, & Vélez, 2018)
Critical Quantitative Research

- ask critical questions
- produce results that are linked to strategic and political actions and agendas
- ground in the historical and political context of the research questions and data
- examine systems of power and privilege
- critique current methods while proposing ways to modify them

(Baez, 2007; Covarrubias & Velez, 2013; Stage, 2007; St. John, 2007)
Tenets of QuantCrit

- centrality of racism not easily quantified
- numbers are not neutral and promote deficit analyses
- categories are not natural
- voice and insight are vital
- statistical analyses have no inherent value but can play a role in struggles for social justice

Gillborn, Warmington, & Demack, 2018
Critical Approaches to Quantitative Statistics in Practice
Shared Principles

For critical approaches to quantitative statistics in practice

Commit to anti-deficit framing of data
- Place institutional responsibility at the core of the work
- Race as indicator of relationships with power structures

Foreground and center *underserved* populations
- Identify opportunity gaps
- Foster unapologetic focus

Explore intersectional disaggregation
- Apply matrix of oppression to capture intersections
- Determine intentional disaggregation

Employ Critical creativity in data analysis
- Explore alternative ways of conducting & presenting analyses
- Include folks from marginalized populations in data collection and interpretation

Question the Data
- Evaluate context in which data collected
- Consider how data structured, what could change
Institutional Data Capacity Framework

Using Data to Inform Change

Questions
Asking the Right Questions that lend themselves to being answered by data
Shared responsibility across campus

Answers
Finding the right answers to the questions you’re asking
Reflects strength of institutional data processes

Meaning
Moving from information to knowledge
Making data real and actionable at your institution

Impact
Using data to inform decision-making and making necessary changes to impact results
EXAMPLES IN PRACTICE
(re)Framing Data Questions

What are retention rates for first-year students, and how do these vary across demographic groups?

What programs are most effective in helping students overcome their barriers to success?

Alternative Questions

Which students are we less likely to retain within their first year at our institution?

What barriers do we present during their first year that impedes their success?
Centering Responsibility for Student Outcomes

Success Rate in Math 101

- African American
- Latinx
- White
- Asian American
- Pell-Eligible
- Not Pell-Eligible
- First-Gen
- Not First-Gen
- Part-Time
- Full-Time

Success rates:
- African American: 42%
- Latinx: 49%
- White: 78%
- Asian American: 69%
- Pell-Eligible: 47%
- Not Pell-Eligible: 72%
- First-Gen: 51%
- Not First-Gen: 69%
- Part-Time: 42%
- Full-Time: 77%
Centering Responsibility for Student Outcomes

Better Understanding Students in Math 101

<table>
<thead>
<tr>
<th>Question</th>
<th>African American Students</th>
<th>All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had a faculty member of the same racial background</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Student met with advisor at least twice during semester</td>
<td>65%</td>
<td>71%</td>
</tr>
<tr>
<td>Course Taken As Part of Learning Community</td>
<td>53%</td>
<td>63%</td>
</tr>
<tr>
<td>Supplemental Instruction Provided</td>
<td>64%</td>
<td>64%</td>
</tr>
<tr>
<td>Course Taken at Main Campus</td>
<td>41%</td>
<td>41%</td>
</tr>
<tr>
<td>Adjunct Faculty Taught Course</td>
<td>36%</td>
<td>37%</td>
</tr>
</tbody>
</table>

Yes | No
---|---
---|---
89% | 11%
65% | 35%
63% | 29%
64% | 57%
41% | 36%
42% | 26%
87% | 13%
65% | 35%
Alternatives for Understanding Quantitative Data

Pacific Islander students are three times more likely to fail English courses than their White counterparts

**Alternative Approach**

- We were more successful in supporting White students than Pacific Islander students to successful course completion in English courses
Alternatives for Understanding Quantitative Data

The strongest predictors for student failing Mathematics courses was being African American, coming from a low-income household, and being in a course taught by part-time faculty.

**Alternative Approach**

- Across mathematics courses:
  - Low-income African American students are more likely to be in courses taught by part-time faculty.
  - Success rates in courses taught by part-time faculty are significantly lower than those taught by full-time faculty.
  - Just 20% of these courses are taught by full-time faculty.
Formulas for Re-Examining Performance

Target Group’s **Equity Index** for the educational outcome of interest = \[ \frac{\text{Target group with the educational outcome}}{\text{Total students with the educational outcome}} \div \frac{\text{Target group in the reference population}}{\text{Total students in the reference population}} \]

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>Equity Index Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Performance</td>
<td>Greater than or equal to 1</td>
<td>At or above equity</td>
</tr>
<tr>
<td>Medium-High Performance</td>
<td>$0.85 \leq \text{Equity Index} \leq 0.99$</td>
<td>Almost at equity</td>
</tr>
<tr>
<td>Medium-Low Performance</td>
<td>$0.70 \leq \text{Equity Index} &lt; 0.85$</td>
<td>Below equity</td>
</tr>
<tr>
<td>Low Performance</td>
<td>$\text{Equity Index} &lt; 0.70$</td>
<td>Far below equity</td>
</tr>
<tr>
<td>Goal</td>
<td>Objective</td>
<td>Cohort</td>
</tr>
<tr>
<td>------</td>
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<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equitable Enrolment Rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student Access and Success</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equitable Access to College-Level Courses</td>
<td></td>
</tr>
</tbody>
</table>

### Fall 2017 Start Students
- **#**: 83
- **%**: 6.4%
- **African American**: 37
- **American Indian-Alaska Native**: 104
- **Asian**: 150
- **Hispanic**: 36
- **Multi-Racial**: 27
- **Native HI/PI**: 57
- **Other-Unknown**: 800
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 1294

### Fall 2017 Start Degree-Seeking Students
- **#**: 53
- **%**: 5.8%
- **African American**: 28
- **American Indian-Alaska Native**: 82
- **Asian**: 106
- **Hispanic**: 28
- **Multi-Racial**: 21
- **Native HI/PI**: 31
- **Other-Unknown**: 565
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 914

### Equity Index
- **Fall 2017 Start Degree-Seeking Students**: 0.90
- **Equity Index**: 1.00

### Fall 2017 Start Prof Tech Seeking Students
- **#**: 27
- **%**: 7.7%
- **African American**: 8
- **American Indian-Alaska Native**: 27
- **Asian**: 42
- **Hispanic**: 8
- **Multi-Racial**: 6
- **Native HI/PI**: 24
- **Other-Unknown**: 212
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 349

### Fall 2017 Start Transfer Seeking Students
- **#**: 52
- **%**: 5.7%
- **African American**: 28
- **American Indian-Alaska Native**: 79
- **Asian**: 105
- **Hispanic**: 28
- **Multi-Racial**: 21
- **Native HI/PI**: 31
- **Other-Unknown**: 563
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 907

### Fall 2017 Start STEM
- **#**: 9
- **%**: 5.6%
- **African American**: 5
- **American Indian-Alaska Native**: 10
- **Asian**: 19
- **Hispanic**: 5
- **Multi-Racial**: 2
- **Native HI/PI**: 7
- **Other-Unknown**: 104
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 161

### Equity Index
- **Fall 2017 Start STEM**: 0.89

### Fall 2017 Faculty/Staff to Students ratio
- **#**: 33
- **%**: 3.4%
- **African American**: 13
- **American Indian-Alaska Native**: 51
- **Asian**: 23
- **Hispanic**: 40
- **Multi-Racial**: 11
- **Native HI/PI**: 10
- **Other-Unknown**: 794
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 975

### Equity Index
- **Fall 2017 Faculty/Staff to Students ratio**: 0.87

### Fall 2017 Start Students enrolled in College-Level Math
- **#**: 19
- **%**: 6.3%
- **African American**: 9
- **American Indian-Alaska Native**: 24
- **Asian**: 35
- **Hispanic**: 8
- **Multi-Racial**: 7
- **Native HI/PI**: 13
- **Other-Unknown**: 185
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 300

### Equity Index
- **Fall 2017 Start Students enrolled in College-Level Math**: 0.99

### Fall 2017 Start Students enrolled in College-Level English
- **#**: 19
- **%**: 6.3%
- **African American**: 9
- **American Indian-Alaska Native**: 24
- **Asian**: 35
- **Hispanic**: 8
- **Multi-Racial**: 7
- **Native HI/PI**: 13
- **Other-Unknown**: 185
- **Caucasian (White)**: 0
- **Int'l F-1 Visa**: 0
- **Total**: 300

### Equity Index
- **Fall 2017 Start Students enrolled in College-Level English**: 0.99
Graduation & Continuation Rates | First-Time, Full-Time Freshmen @ CSUs

All Students

**Fall 2012**
HS GPA: 3.31 | Units Attempted at Entry: 13,951 | SAT: 1013
Entering Cohort Size: 55,534

*Status After Year 6*
- Continuation: 5.7%
- Graduation: 61.2%
- Persistence: 67.0%

n=3,170

**Persistence Overview**
(2012 - 2018)

Pell Recipients

**Fall 2012**
HS GPA: 3.26 | Units Attempted at Entry: 13,821 | SAT: 948
Entering Cohort Size: 27,177

*Status After Year 6*
- Continuation: 6.7%
- Graduation: 56.2%
- Persistence: 63.0%

n=1,834

**Persistence Overview**
(2012 - 2017)

Black or African American Students

**Fall 2012**
HS GPA: 3.31 | Units Attempted at Entry: 13,951 | SAT: 1013
Entering Cohort Size: 55,534

*Status After Year 6*
- Continuation: 6.2%
- Graduation: 48.4%
- Persistence: 54.6%

n=167

**Persistence Overview**
(2012 - 2018)
With regards to Black or African American Pell Recipients, CSU campuses:

- Graduated these students **11.4% points lower** than all Pell recipients.
- Graduated these students **3.7% points lower** than all Black or African American students.
- Retained these students at a rate that was **11.9% lower** than all Pell recipients.
- Retained these students at a rate that was **3.5% lower** than all Black or African American students.
**Analyzing Data: Percentage Point Gap**  
*The RP Group*

**Percentage Point Gap** = % outcome for students in subgroup − % outcome for all students

### Table 1. Course Success Rates by Ethnicity and Percentage Point Gap Value

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Cohort Count</th>
<th>Outcome Count</th>
<th>Success Rate (Per Group)</th>
<th>MOE Threshold</th>
<th>Point Gap Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>2,547</td>
<td>1,388</td>
<td>54.50%</td>
<td>-3%</td>
<td>-11.8</td>
</tr>
<tr>
<td>American Indian</td>
<td>213</td>
<td>144</td>
<td>67.61%</td>
<td>-7%</td>
<td>+1.3</td>
</tr>
<tr>
<td>Asian</td>
<td>9,834</td>
<td>7,166</td>
<td>72.87%</td>
<td>-3%</td>
<td>+6.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>35,055</td>
<td>22,304</td>
<td>63.63%</td>
<td>-3%</td>
<td>-2.7</td>
</tr>
<tr>
<td>Multi Ethnic</td>
<td>2,261</td>
<td>1,468</td>
<td>64.93%</td>
<td>-3%</td>
<td>+1.4</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>286</td>
<td>153</td>
<td>53.50%</td>
<td>-6%</td>
<td>-12.8</td>
</tr>
<tr>
<td>White</td>
<td>16,696</td>
<td>11,878</td>
<td>71.14%</td>
<td>-3%</td>
<td>+4.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>2,508</td>
<td>1,509</td>
<td>60.17%</td>
<td>-3%</td>
<td>-6.1</td>
</tr>
<tr>
<td>Total</td>
<td>69,400</td>
<td>100%</td>
<td>66.30%</td>
<td>-3%</td>
<td></td>
</tr>
</tbody>
</table>
## Exploring Outcomes by Different Disaggregation Categories

### Retention of First-Generation in College Students

<table>
<thead>
<tr>
<th></th>
<th>First-Generation in College</th>
<th>Not First-Generation in College</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hispanic Latinx</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Retained</td>
<td>26.3%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Retained</td>
<td>73.7%</td>
<td>76.9%</td>
</tr>
<tr>
<td><strong>Non-Hispanic Latinx</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Retained</td>
<td>28.6%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Retained</td>
<td>71.4%</td>
<td>75.1%</td>
</tr>
<tr>
<td><strong>Black African American</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Retained</td>
<td>29.3%</td>
<td>28.1%</td>
</tr>
<tr>
<td>Retained</td>
<td>70.7%</td>
<td>71.9%</td>
</tr>
<tr>
<td><strong>Not Black African American</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Retained</td>
<td>26.3%</td>
<td>22.0%</td>
</tr>
<tr>
<td>Retained</td>
<td>73.7%</td>
<td>78.0%</td>
</tr>
</tbody>
</table>
Exploring Outcomes by Different Disaggregation Categories

Retention: Hispanic/Latinx Students by Nationality

<table>
<thead>
<tr>
<th>Country</th>
<th>Proportion of Total Hispanic/Latinx Population</th>
<th>Not Retained</th>
<th>Retained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Hispanic/Latinx Population</td>
<td>26.60%</td>
<td>75.40%</td>
<td></td>
</tr>
<tr>
<td>ARGENTINA</td>
<td>1.3%</td>
<td>24.0%</td>
<td>76.0%</td>
</tr>
<tr>
<td>BOLIVIA</td>
<td>0.2%</td>
<td>44.4%</td>
<td>55.6%</td>
</tr>
<tr>
<td>BRAZIL*</td>
<td>1.5%</td>
<td>35.6%</td>
<td>64.4%</td>
</tr>
<tr>
<td>CHILE</td>
<td>0.2%</td>
<td>11.1%</td>
<td>88.9%</td>
</tr>
<tr>
<td>COLOMBIA</td>
<td>5.2%</td>
<td>29.0%</td>
<td>71.0%</td>
</tr>
<tr>
<td>COSTA RICA</td>
<td>0.3%</td>
<td>18.2%</td>
<td>81.8%</td>
</tr>
<tr>
<td>CUBA</td>
<td>2.4%</td>
<td>28.0%</td>
<td>72.0%</td>
</tr>
<tr>
<td>DOMINICAN REPUBLIC</td>
<td>1.9%</td>
<td>18.3%</td>
<td>81.7%</td>
</tr>
<tr>
<td>ECUADOR</td>
<td>1.0%</td>
<td>24.3%</td>
<td>75.7%</td>
</tr>
<tr>
<td>SPAIN*</td>
<td>0.2%</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>GUATEMALA</td>
<td>0.4%</td>
<td>21.4%</td>
<td>78.6%</td>
</tr>
<tr>
<td>HONDURAS</td>
<td>0.9%</td>
<td>30.6%</td>
<td>69.4%</td>
</tr>
<tr>
<td>MEXICO</td>
<td>0.8%</td>
<td>20.0%</td>
<td>80.0%</td>
</tr>
<tr>
<td>NICARAGUA</td>
<td>0.7%</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>PANAMA</td>
<td>0.3%</td>
<td>45.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>PERU</td>
<td>2.3%</td>
<td>20.2%</td>
<td>79.8%</td>
</tr>
<tr>
<td>PUERTO RICO</td>
<td>1.9%</td>
<td>27.8%</td>
<td>72.2%</td>
</tr>
<tr>
<td>PARAGUAY</td>
<td>0.1%</td>
<td>25.0%</td>
<td>75.0%</td>
</tr>
<tr>
<td>EL SALVADOR</td>
<td>0.4%</td>
<td>28.6%</td>
<td>71.4%</td>
</tr>
<tr>
<td>UNITED STATES OF AMERICA</td>
<td>71.3%</td>
<td>23.3%</td>
<td>76.7%</td>
</tr>
<tr>
<td>URUGUAY</td>
<td>0.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>VENEZUELA</td>
<td>6.6%</td>
<td>29.0%</td>
<td>71.0%</td>
</tr>
</tbody>
</table>
Exploring Outcomes by Different Disaggregation Categories

Retention: Black or African American Students by Nationality

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Proportion of Total Black/African American Population</th>
<th>Not Retained</th>
<th>Retained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Black African American Population</td>
<td></td>
<td>28.7%</td>
<td>71.3%</td>
</tr>
<tr>
<td>BAHAMAS</td>
<td>0.2%</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>HAITI</td>
<td>2.7%</td>
<td>24.4%</td>
<td>75.6%</td>
</tr>
<tr>
<td>JAMAICA</td>
<td>1.8%</td>
<td>24.3%</td>
<td>75.7%</td>
</tr>
<tr>
<td>TRINIDAD &amp; TOBAGO</td>
<td>0.1%</td>
<td>30.0%</td>
<td>70.0%</td>
</tr>
<tr>
<td>United States</td>
<td>22.8%</td>
<td>29.6%</td>
<td>70.4%</td>
</tr>
</tbody>
</table>
Making Plans within Our Own Work
Reflections & Applications to Our Own Work
Possibilities and Plans

Practice in the Classroom
What did you learn from this process that you can apply to your teaching practice?

Decisions in Departments
How can these learnings inform decisions across the curriculum?

Campus Engagement
How can you impact the broader campus through your role on committees and in other spaces?

Using Data
How can you more strongly incorporate data into your work?
Some References