A cluster of hexagonal icons in shades of blue and teal. The icons include a thumbs-up, a lightbulb, a smartphone, and a magnifying glass.

Translating Assessment Findings to Improve Equity In Learning Outcomes

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Roadmap

**Equity-Minded
Assessment**

**Equity
Data
Analysis**

**Sharing
Findings**

Campus Description

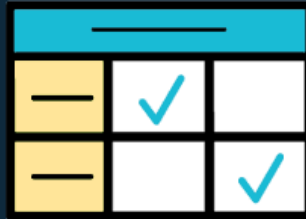
- ◆ Large research university
 - ◆ 64 undergraduate programs
 - ◆ 17,500 undergraduates (35% first-generation)
- ◆ Hispanic-serving institution (HSI)
- ◆ Equity is a focus
- ◆ Multiple support programs and initiatives related to equity in student success

UNIVERSITY OF CALIFORNIA
SANTA CRUZ

Program-Level Assessment at UCSC



Assessment of
Student Skills



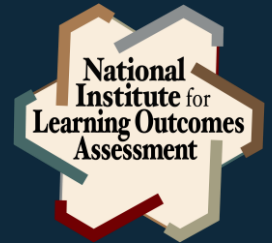
Criterion-based
Rubrics



Direct & Indirect
Evidence

Equity-Minded Assessment

Intentional consideration of **equity**
in **each step** of assessment process



Equity-Minded Assessment



Intentional consideration of **equity** in **each step** of assessment process



Recognize **diversity** of student experience



Meet **diverse needs**



Ensure opportunities to **succeed**

Equity-Minded Assessment

Intentional consideration of **equity** in **each step** of assessment process

DESIGN



ANALYSIS



REPORT



IMPROVE



Ethics & Equity in Assessment

Focus on **equity** requires consideration of **ethics** at every stage

Acting with **integrity** to:

- ◇ Recognize the **consequences** and **impacts** of our work.
- ◇ Be **responsible** data stewards.
- ◇ Provide **accurate** and **contextualized** information.
- ◇ Ensure **appropriate information** and **analysis** for decision support.
- ◇ Make our work **accessible**.
- ◇ Share principles of **IR**.
- ◇ Educate ourselves on trends and contribute to scholarship.
- ◇ Be fair, transparent, and avoid conflicts of interest.



Ethics in IR:
Riding the Waves of Data

Training and Access to IR Data



Access to
IR data



Training in
large datasets,
student databases,
& data analysis



Access to
student surveys

Positionality & Responsibilities



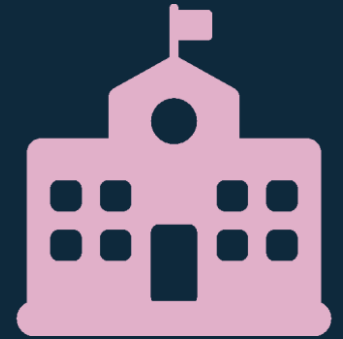
Expertise in design & execution of campus-wide projects

- ◇ Program review
- ◇ Accreditation
- ◇ Campus climate improvement



Historical connections

- ◇ Departments
- ◇ Deans
- ◇ Student Affairs
- ◇ Diversity & Inclusion



Campus-wide Impact

- ◇ Develop faculty expertise
- ◇ Conduct equity analyses
- ◇ Ensure ethical use



Equity Data Analysis

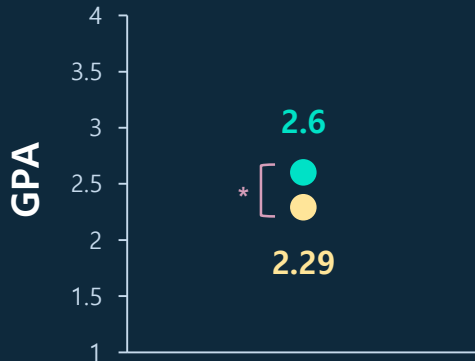
Are there **equity gaps**
in students' skills?



Grades-based Approach

Equity analyses based on **mean** GPA vs. **proportions**

MEANS
(*t*-test)



● First-generation

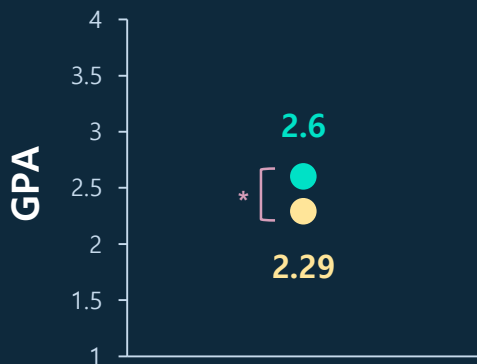
● Continuing-generation

*Significant at $p < .05$

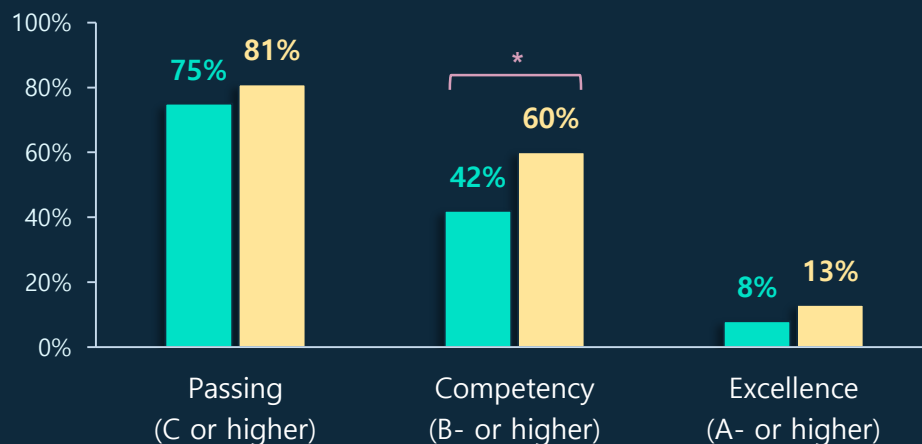
Grades-based Approach

Equity analyses based on **mean** GPA vs. **proportions**

MEANS (*t*-test)



PROPORTIONS (chi-squared test)



● First-generation

● Continuing-generation

*Significant at $p < .05$

Statistical Approach to Rubric Data



Skill	BEGINNER	APPROACHING COMPETENCY	COMPETENT	ACCOMPLISHED
Test Hypotheses	Has no appropriate attempts at hypothesis testing (either makes major mistakes in testing or tries to test an untestable hypothesis).	Shows at least one appropriate attempt at hypothesis testing but also includes inappropriate or oversimplified attempts.	Shows clear and appropriate attempts at hypothesis testing and evaluation; may have minor mistakes in evaluation.	Shows successful and precise attempts at hypothesis testing that lead to questions for future investigations.



Statistical Approach to Rubric Data

Equity analyses based on **proportions** rather than means

- ◇ Can select meaningful point(s) of difference



Statistical Approach to Rubric Data

Equity analyses based on **proportions** rather than means

- ◇ Can select meaningful point(s) of difference
- ◇ Multiple measures of equity



Statistical Approach to Rubric Data

Equity analyses based on **proportions** rather than means

- ◇ Can select meaningful point(s) of difference
- ◇ Multiple measures of equity
- ◇ Not affected by outliers



Statistical Approach to Rubric Data

Equity analyses based on **proportions** rather than means

- ◇ Can select meaningful point(s) of difference
- ◇ Multiple measures of equity
- ◇ Not affected by outliers
- ◇ Easy to visualize, discuss, and set goals



Responsible Data Stewardship

1. Confirm that sample is **representative**
2. Conduct statistical **tests**
3. Check **group size**
4. Explore **intersectionality**



Sharing Findings from Equity Analyses

How might findings guide
curricular **improvements** to
ensure that all students have the
opportunity to succeed?



Stakeholders in Assessment

Multiple stakeholders in various stages of assessment

DESIGN



- ◇ UG curriculum committees
- ◇ Faculty

COLLECT DATA



- ◇ Instructors

REPORT



- ◇ UG curriculum committees

IMPROVE



- ◇ Faculty
- ◇ Students
- ◇ Institution

Stakeholders in Assessment

Recent changes to ensure use of results



CITL

CENTER FOR INNOVATIONS
IN TEACHING AND LEARNING



Sharing Findings

- ◇ **Accurate**
 - Analyses are correct and accurately reported
- ◇ **Contextualized**
 - Analyses consider students' backgrounds and program curriculum
 - Written report includes interpretations of data analyses
- ◇ **Accessible**
 - Results are communicated appropriately for audience

Sharing Findings



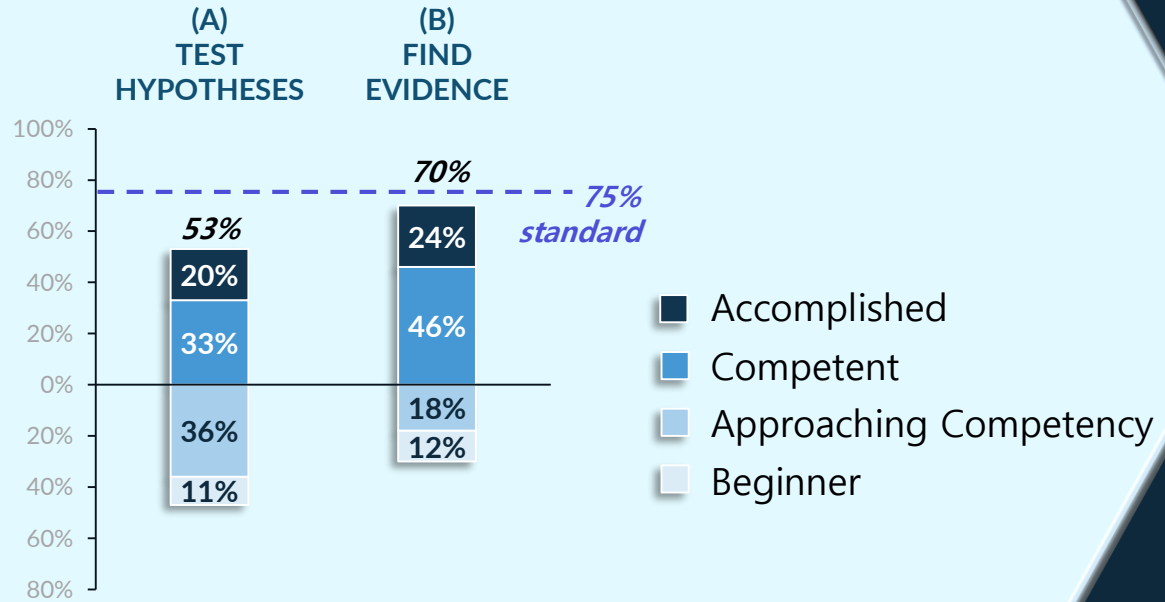
**Full-length
reports**



Infographics

Sharing Findings

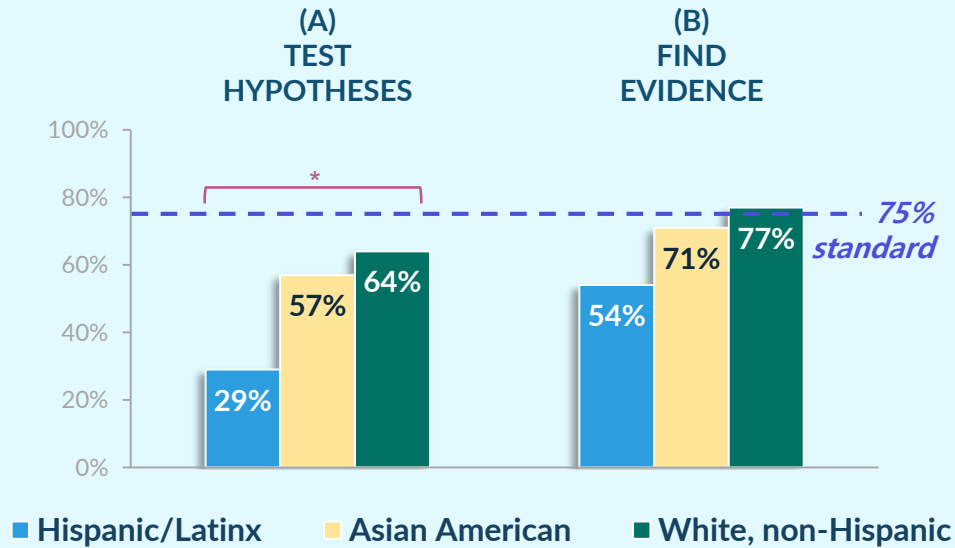
Research Skills



Sharing Findings

Research Skills

Percentage "Accomplished" or "Competent"



*Significant at $p < .05$

Sharing Findings

Research Skills

INDIRECT EVIDENCE

Survey questions:

*How would you rate your skills in **testing hypotheses** ...*

...now?

...when you first declared the major?

Very
poor

Poor

Fair

Good

Very
good

Excellent



Sharing Findings

Research Skills

INDIRECT EVIDENCE

Survey questions:

*How would you rate your skills in **testing hypotheses** ...*

...now?

...when you first declared the major?

Very
poor

Poor

Fair

Good

Very
good

Excellent



Starting &
Final Skills



Improvement
in Skills

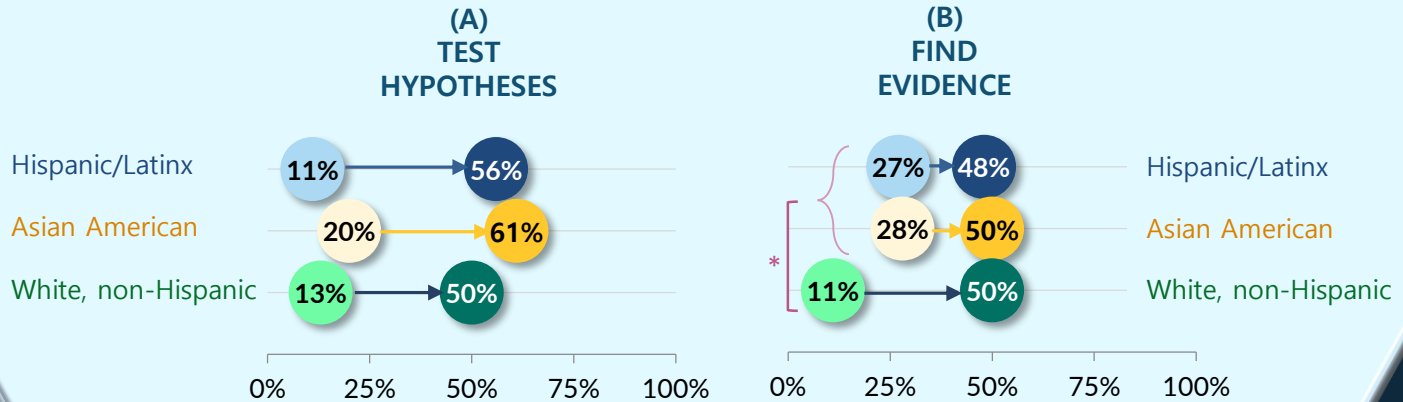
Sharing Findings

Research Skills

Survey question: *How would you rate your skills in the following skills now and when you first declared the major?*

○ Excellent/Very good STARTING skills

● Excellent/Very good FINAL skills



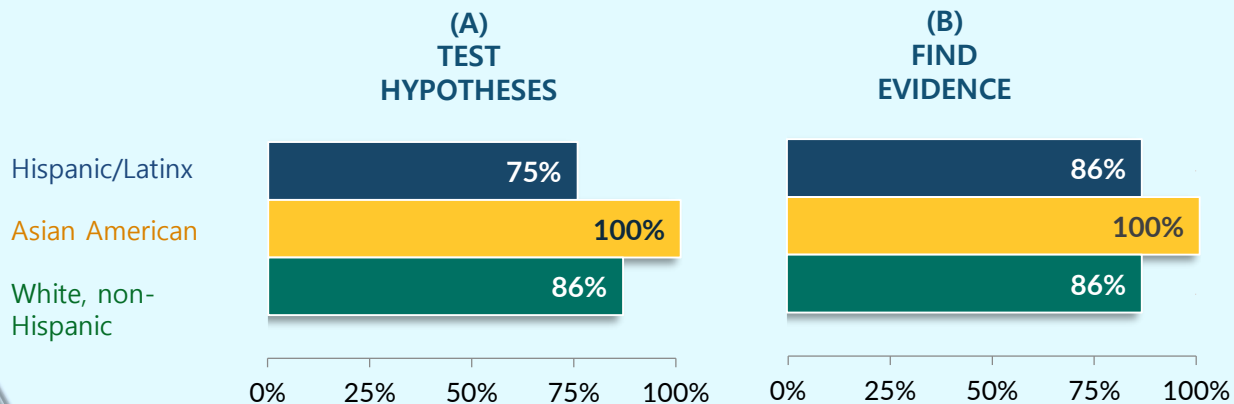
*Significant at $p < .05$

Sharing Findings

Research Skills

Survey question: *How would you rate your skills in the following skills now and when you first declared the major?*

**Percentage who improved
by at least one level of proficiency**



*Significant at $p < .05$

Exploring Intersectionality



GROUP 1

First-gen
URM
Bilingual

GROUP 2

First-gen
URM
Monolingual

GROUP 3

First-gen
Non-URM
Bilingual

GROUP 4

First-gen
Non-URM
Monolingual

GROUP 5

Continuing-gen
Non-URM
Monolingual

GROUP 6

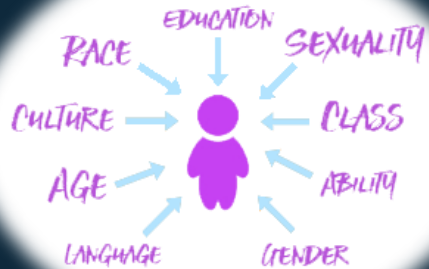
Continuing-gen
Non-URM
Bilingual

GROUP 7

Continuing-gen
URM
Monolingual

GROUP 8

Continuing-gen
URM
Bilingual





Exploring Complex Questions

To what extent are students meeting faculty expectations?

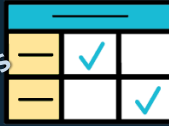
Exploring Complex Questions

To what extent are students meeting faculty expectations?

Assessment
of Student
Skills



Criterion-
based
Rubrics



Direct &
Indirect
Evidence



Exploring Complex Questions

To what extent are students meeting faculty expectations?

Assessment
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Criterion-
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Rubrics



Direct &
Indirect
Evidence



- ◇ To what extent are students from **different subgroups** meeting faculty expectations in **specific skills**?
- ◇ How are students' **self-assessed skills** growing over the course of their studies?
- ◇ To what extent are students from **different subgroups** reporting high proficiencies and/or **improvement** in **specific skills**?

Key Takeaways

Engaging in equity-minded assessment is **challenging** and **rewarding**



Ethical Considerations
& Responsibilities



- ◇ Intersectionality
- ◇ Statistical Analyses
- ◇ Limited Resources & Time

Questions?



*Assessment of
Student Learning
at UCSC*



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