Key points

• Campus climate and improving students’ sense of belonging relies on institutional agents
• Organizational learning perspective on institutional change processes and diversity
• Model of Inclusive Science
• Examples of campus strategies—achieving equity and student success building on three projects that involve mixed methods case studies
Percent of Latinx Students Experiencing Different Types of Discrimination and Bias

Exclusion

Verbal comments

Offensive visual images

% URM Enrollment at Institution

0-20

21-35

36+
Bias Affects Sense of Belonging in College

Negative Correlation Between Discrimination/Bias and Sense of Belonging

Correlation Coefficient

Percentage of Underrepresented Minorities at Institution

0-20 21-35 36+

-0.5 -0.4 -0.3 -0.2 -0.1 0 0.1 0.2 0.3 0.4 0.5
Mean First-year Sense of Belonging by Completion and Race

Note: Differences significant at \( p < .001 \) except for Multiracial, which was \( p < .01 \).
Factors in Managing Academic Success in the 1st Year


* Indicates effect is stronger for URM STEM students

<table>
<thead>
<tr>
<th>NEGATIVE EFFECTS</th>
<th>POSITIVE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Interfering family responsibilities</td>
<td>• Self-rated ability to manage time</td>
</tr>
<tr>
<td>• Concern about financing college*</td>
<td>• Best guess they will communicate with faculty</td>
</tr>
<tr>
<td>• Perceptions of a competitive environment *</td>
<td>• Sense of belonging</td>
</tr>
<tr>
<td>• Perceptions of a hostile racial climate *</td>
<td>• Worked with an academic advisor to select courses</td>
</tr>
<tr>
<td>• Institutional selectivity</td>
<td>• Academic advice from a junior/senior and major/preprof clubs*</td>
</tr>
<tr>
<td>• Academic advice from a freshman peer *</td>
<td>• Change in ability to conduct research</td>
</tr>
</tbody>
</table>
Validation and Institutional Agents

*Academic validation* occurs when agents actively assist students to “trust their innate capacity to learn and to acquire confidence in being a college student” (p. 40, Rendón 1994).

Agents foster *interpersonal validation* when they engage in students’ personal development and social adjustment to college as well as provide social capital to navigate the institution (Museus & Neville, 2012).
The Effect of Discrimination and Bias on Students’ Sense of Belonging

- Discrimination and Bias

- Sense of Belonging in College

-.11***
Validation Mediates the Effect of Discrimination and Bias on Students’ Sense of Belonging

Nature of Organizational Identity

Organizational View of Faculty, Staff, & Students

Perceptions of Institutional Identity and Change

Strategic
- Mission
- Purpose

Construed External
- Reputation
- Projected Images

Temporal
- Past Identity
- Future Identity

Cultural
- Values
- Beliefs
- Daily Practice

Multiple Identity Discrepancies

Stable

Campus Leaders

Mid-Level Leaders

Grassroots Leaders
Elements Of Organizational Learning and Transformation

Data/Research

Changing Mindsets

Diffusing Knowledge

Changing Behavior

Sustaining Change

Navigating Power Dynamics

Accountability

Buy-in and Relationships

External Pressures

Training/Development
Sustained Commitment to Student Success
I mean the really remarkable thing, right, is that there's a very low difference between the success rate of our majority students and minority students. I mean that's to me what's really stunning about [this campus]. Why is that? I think it is because of things that have been going on at this campus for a long time to help students feel very welcome here.

Growth Mindset
I think there is a lot of untapped quality out there among the underrepresented populations that the fact to the matter is we can bring to our campuses, and in the right environment they will succeed. .. Take a walk around campus, you can’t help but root for these students [to succeed].
Campus Practices for Increasing Retention Rates

Diffusion of Innovation—Accountability—Assuring Departments Meet Goals
The biggest thing we have done is we have hired a ... permanent teaching faculty member whose job it is, is both to teach first year math but also to run the first year math program...so we’ve done that in math and we've done that in chemistry and then we’re getting to work on that in biology... chemistry is where we started, but math is where the biggest problem is.  It's a big battleship to turn but chemistry has shown that you can do it. So having seen the model in chemistry, we went to the math department and we got in a tussle ...finally someone – some people within the math department basically said let's step up the plate and address this problem. And so we're in the first year but they hired an LSOE in [math].
Long Term Impact of Practices
(Quasi-experimental, Longitudinal Study)

• **Supplemental instruction as a way to establish a community of practice**
  – Strengthens students’ STEM identity; particularly beneficial for URM STEM identity development
  – Boosts grades in introductory courses
  – Increases likelihood to plan to enroll in STEM graduate programs

• **Faculty Mentorship and Support**
  – Improved performance in STEM courses
  – Mentorship even more impactful for URM students’ STEM identity development
  – Increases students’ intentions to enroll in graduate school
  – Benefits of mentorship extend even after accounting for the types of students likely to receive or seek out mentorship
Advancing Institutional Practice: Convergence of Commitment to Diversity and Science Training

Inclusive Science

Participation of Diverse Researchers

Training
- Integrated race/gender and science identities
- Culturally Responsive Practice

Curriculum
- Diversity Innovations in Science
- Climate for diversity

Partnerships
- Connections with Diverse Communities

Program Activities
Effort Seeks to Improve the Climate For Diversity

Studies indicate that a hostile climate and/or competitive climate impacts adjustment to college for URM aspiring scientists.

Campuses are creating an ethos of a growth mindset, inclusive views of talent, and welcoming environment.

Students to become aware of race, gender and class issues and how to respond, and staff and science faculty are trained on how this impacts URM aspiring scientists—taking into account how race makes a difference (CRT training).
**Campuses are Engaged in Powerful Partnerships**

**Outreach:** Many students are transfer students at BUILD sites, and active recruitment of students from pipeline partners (e.g. community colleges, early college high schools) for program involvement.

Communicate with families, viewing their involvement as critical to student success.

Establish a network of opportunities for diverse students who do not leave the local area for science training, and use of resources through collaborative partnerships.
Emerging Culturally Responsive Practices in Science

Knowing their students identities as low-income, first generation and URMs

Asset-based approach to learning and training for science

Inclusive Classroom Practices: Active learning reduces disparities and authentic science experiences at early stages creates greater ownership of the production of scientific knowledge; Relevant health problems in curriculum

Faculty training in Culturally Aware Mentoring
Culturally Aware Mentoring

• Not a skill set but a mindset for research mentors—a way of being and perceiving one’s self and one’s mentee in the research mentoring relationship with cultural diversity matters at the center.
• Mentors critically self-reflect on and recognize their own personal cultural identity and worldviews
• Acknowledge mentees’ cultural identity and worldviews, and make use of this cultural knowledge (of self and others) to promote effective research mentoring relationships.
• All of this takes place within a cultural context.

Intergroup Dialogue on Campus as Identity-based Education

• Proactively addresses the climate for diversity
• Uses multiple-social identities and conflict as opportunities to learn
• Not simple race awareness workshops
• Empowers communities and individuals by naming experiences that previously were unrecognized:
  – Microaggressions
  – Cultural appropriation
  – Recognition bias
Assuming Agency and Responsibility in Advancing Diverse Student Success

Amid the growing numbers diverse students, the real work has begun to make campuses effective in helping students thrive. Strategy-building sessions that address:
- Fostering a positive campus climate
- Support programs (given high number of first generation in college and low-income students) and vulnerable DACA students
- Deep cultural changes that are embedded in daily practice from grassroots to upper level administration in valuing student success and equity
SOURCES
