

NATIONAL  
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# Success in STEM Education, Research, & Workforce Preparedness at MSIs

Capstone Event of MSI Town Hall Series

*Board on Higher Education & Workforce, Policy and Global Affairs Division*

WEDNESDAY, JUNE 15, 2022

*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

**CONSENSUS STUDY REPORT**

# MINORITY SERVING INSTITUTIONS

America's Underutilized Resource for  
Strengthening the STEM Workforce



“A calculated and coordinated method of engagement used by institutions, agencies, organizations, and the private sector to effectively meet the needs of a designated population, in this case within a given higher education institution”

INTENTIONALITY

# Effective Strategies

- Dynamic, multilevel, mission-driven leadership
- Institutional responsiveness to student needs
- Campus climates that support a sense of belonging for students
- Student-centered academic and social supports
- Effective mentorship and sponsorship
- Undergraduate research experiences
- Mutually beneficial public- and private-sector partnerships

# Report Recommendations

- Leadership
- Public- and Private-Sector Partnerships
- Financial Investments and Support for Institutional Research Capacity
- Performance Measures and Accountability

# Leadership

- Leadership of MSIs, including governing boards, presidents, deans, and provosts, should develop appropriate policies, infrastructure, and practices that together create a culture of intentionality upon which evidence-based, outcomes-driven programs and strategies to support student success are created and sustained.
- To cultivate the next generation of forward-looking, mission-driven MSI leaders, MSIs and their stakeholders should prioritize and invest in succession planning and professional development training programs for current and future leaders of these institutions.

# Public- and Private-Sector Partnerships

- Leadership from within MSIs, non-MSIs, government agencies, tribal nations, state agencies, private and corporate foundations, and professional, higher education, and scientific associations should prioritize efforts to establish new or expand current mutually beneficial and sustainable partnerships that support education, research, and workforce training for the nation's current and future STEM workforce.

# New and Expanded Financial Investments

- Public and private funding agencies should continue to develop and expand grant competition programs that serve the nation's MSIs \*and\* issue new and expand current grant opportunities to support evidence-based research on effective practice on MSI campuses.
- As it considers regular adjustments to federal higher education policies and programs—including, but not limited to, its reauthorization of the Higher Education Act—Congress should use the legislative process to incent greater investments in MSIs and the strategies outlined in this report.



# MSI Performance and Accountability

- Federal and state educational agencies, state legislators, and other entities that utilize indicators of institutional success, including for accountability purposes, should reassess and refine methods of measuring student outcomes to take into consideration institutional missions, faculty investment, student populations, student needs, and institutional resource constraints.

# Closing the Equity Gap: Report Dissemination

- 18 town hall events and presentations across the U.S. disseminated the findings of the 2019 report from the Committee on Closing the Equity Gap: Revitalizing STEM Education and Workforce Readiness Programs in the Nation's Minority-Serving Institutions
- Institutions that worked with us on these events:
  - University of Arizona; Virginia State University; Spelman College; Xavier University of Louisiana;  
Olin College of Engineering; California State University, Fresno; Foothill College (Los Altos Hills, California);  
University of California, Merced; Florida International University; North Carolina A&T State University;  
University of Texas at El Paso; Morgan State University; Morehouse College; United Tribes Technical College;  
Navajo Technical University; Salish Kootenai College; Chief Dull Knife College of the Northern Cheyenne Nation;  
Community College of Philadelphia; University of the Virgin Islands; Dillard University

# STEM Student Success: Investing in Minority Serving Institutions for Our Future Workforce (November 4, 2019 town hall)

- First town hall of our series, held November 4, 2019, in-person at the National Academy of Sciences building in Washington, DC
- Our one-day town hall meeting convened key stakeholders from Minority Serving Institutions, federal and state government agencies, and philanthropic and private sectors from the Washington DC area and surrounding states to—
  - Examine promising approaches to increase MSI student success and workforce preparation in STEM fields
  - Discuss strategies for enabling stronger, more productive partnerships between MSIs and public and private stakeholders that support STEM investments
  - Develop ideas and strategies that bridge the gaps between the MSI community and government agencies
  - Raise awareness among policymakers, the media, and the public of the vital role of MSIs in supporting economic development and national security.

# Pre-Pandemic

- **AIHEC-Department of Defense TCU STEM Faculty Partnering and Sharing Meeting**
  - Held at Southwestern Indian Polytechnic Institute in Albuquerque, NM on December 4, 2019
- **Advancing STEM Equity at Minority Serving Institutions**
  - Held at on campus at the University of Arizona on January 23, 2020
- **Building a STEAM-CTE Workforce of the Future**
  - Briefing at Rayburn House Office Building, Washington, DC) held February 27, 2020
- **Translating Intentionality to Strengthen STEM Education and Workforce Readiness in Hispanic Serving Institutions**
  - A symposium at the 2019 American Association of Hispanics in Higher Education (AAHHE) annual conference in Costa Mesa, CA on March 7, 2020

# Summer 2020

- **COVID-19, Systemic Racism, and the Responses of HBCUs: A Virtual Town Hall Discussion** (June 29, 2020)
  - Presidents of Virginia State University, Spelman College, Xavier University of Louisiana
  - Moderated by Gilda Barabino, Olin College of Engineering
- **COVID-19, DACA, and the Responses of Hispanic Serving Institutions (HSIs): A Virtual Town Hall Discussion** (July 8, 2020)
  - Leadership of California State University, Fresno; Foothill College (Los Altos Hills, California); University of California, Merced; Florida International University.
  - Moderated by Lorelle Espinosa, Sloan Foundation
- **Florida International University Virtual Town Hall: Advancing STEM Equity Through Research-Based Education Practices** (August 5, 2020)

# Fall/Winter 2020

- **North Carolina A&T State University  
Town Hall: Building the Next Generation  
of STEM Leaders**
  - October 8, 2020
- **The University of Texas at El Paso Town  
Hall: A Flagship for Strengthening the  
STEM Workforce**
  - December 11, 2020

# Early 2021

- **Morgan State University  
Town Hall: Supporting  
STEM at MSU and Other  
HBCUs**
  - March 16, 2021
- **Morehouse College  
Town Hall: Successes in  
STEM Education,  
Research, and  
Workforce Preparedness**
  - April 27, 2021
- **Town Hall: Advancing  
STEM Workforce  
Preparation and  
Research Capacity at  
Tribal Colleges and  
Universities**
  - May 13, 2021

# 2021 continued

- **Community College of Philadelphia Virtual Town Hall**
  - May 24, 2021
- **Supporting Diversity and Excellence in Research Pathways at UC Merced**
  - October 28, 2021
- **University of the Virgin Islands Virtual Town Hall**
  - November 16, 2021



# 2022 events

- **Dillard University Virtual Town Hall**
  - February 22, 2022
- **Building Research Partnerships between the Department of Defense University Affiliated Research Centers and HBCUs/MIs**
  - March 23, 2022

# Effective Strategies

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# Dynamic, multilevel, mission-driven leadership

- Dillard University, 2022:
  - “Under President Kimbrough’s leadership, Dillard has risen to new heights in fundraising, enrollment, academics, co-curricular programming and student support”
- Florida International University, 2020 :
  - Leadership in Discipline–Based Education Research (DBER)

# Institutional responsiveness to student needs

- Salish Kootenai College, 2021:
  - Small faculty that teaches and advises; small classes, lots of hands-on and field time and accessible tribal lands
- UC Merced, 2021:
  - “Teaching the ‘Hidden Curriculum’ at UC Merced: It Takes a Village”
- University of the Virgin Islands, 2021:
  - E.L.O.C. (Environmental Learning Outside the Classroom)

# Campus climates that support a sense of belonging for students

- University of Texas at El Paso, 2020:
  - UTEP Edge Program, supporting student and faculty engagement through an asset-based approach
- Navajo Technical University, 2021 (TCU):
  - Navajo culture is expressed through native ways of knowing in science, math, and creativity (a key component of Navajo education)

# Student-centered academic and social supports

- Morgan State, 2021:
  - DMV MSI STEM Alliance
- United Tribes Technical College, 2021 (TCU):
  - Students as the creators of new knowledge
- University of the Virgin Islands, 2021:
  - UVI “Constellation of Supports”

# Effective mentorship and sponsorship

- Morgan State, 2021:
  - Decadal goal to provide students with a comprehensive education that develops their intellectual, emotional, social, physical, artistic, creative, and spiritual potential
  - ASCEND Scholars program
- UC Merced, 2021:
  - Competitive Edge Summer Bridge Program; Excel Peer Mentorship Program; graduate professional development courses
  - Early student engagement with the university and early student awareness of the research community will broaden participation in research pathways.

# Undergraduate research experiences

- North Carolina A&T, 2020:
  - The university has expanded and developed in its role as a leading land grant, doctoral-granting, high-research activity institution
- United Tribes Technical College, 2021 (TCU):
  - Participation in several National Science Foundation (NSF programs to advance STEM workforce preparation and build research capacity at institution)
- UC Merced, 2021:
  - CUREs program: Course Based Undergraduate Research Experiences



# Mutually beneficial public- and private-sector partnerships

- Community College of Philadelphia, 2021:
  - “Cell and Gene Therapy and Connected Health Needs Assessment Study”
  - “Biomedical Technician Training Program”
  
- Morgan State, 2021:
  - “Goddard Earth Sciences Technology And Research”

Thank you, and please enjoy the rest of our capstone event