Minority-Serving Institutions: America’s Overlooked STEM Asset

Postsecondary institutions with an intentional focus on educating nontraditional students and students of color are a crucial part of solving the nation’s STEM workforce supply problem.
As a standing principle, the nation has a responsibility to direct the necessary funding, attention, and support to the strategies that best advance the education and workforce preparation for the next generation. To fulfill that responsibility, it has become critical to understand how the nation's demographic profile is changing and what those changes mean for public policies and practices.

Today's higher education system evolved to serve the demographic profile of students enrolling in college two generations ago—mostly white, majority male. This profile is changing in part because of the rapid rise in the number of students of color graduating from US high schools. But it's also changing because more college students are nontraditional—indepen dent, are parents, are single caregivers, lack a standard high school diploma, work full time, or attend school part time. Anyone who worries about the future of the STEM workforce should also be worrying about these trends, because today the nation's fastest-growing population groups, with the greatest employment potential, are also the most underrepresented across the entire STEM workforce.

And although the challenges tied to supporting the new profile of students in higher education are complex, including the need to reexamine every institution's current social, financial, educational, and cultural support systems, one obvious solution is to invest in institutions that already have an established record and focus on educating and training students who are underrepresented in STEM. Specifically, the nation should turn to its roughly 700 two- and four-year Minority-Serving Institutions (MSIs) and invest additional funding, attention, and support to help bolster the long-term success of the tens of millions of enrolled students. In support of this strategy, the National Academies of Sciences, Engineering, and Medicine in December 2018 issued the consensus study report Minority-Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce.

**Overlooked, underappreciated**

Outside the education sector, many people seem to be unfamiliar with MSIs—what they are, who attends them, and when, why, and how they are designated as MSIs. Many education advocates believe that a lack of basic understanding about these long-established institutions is due in part to society's historical neglect of minority-related issues and challenges. Regardless of the reason, for years, MSIs' contributions to STEM education and efforts to train the nation's workforce have been largely overlooked and underappreciated.

Yet MSIs enroll nearly 30% of all undergraduates in the United States. In terms of their contributions to STEM education, more undergraduate students (from all backgrounds) are enrolled in STEM fields at four-year MSIs than at four-year non-MSIs, and when taken together, Historically Black Colleges and Universities, Hispanic-Serving Institutions, and Asian American and Native American Pacific Islander-Serving Institutions produce one-fifth of the nation's STEM bachelor's degrees. Moreover, the individual contributions of these institutions to STEM degree completions (measured as a proportion of all completions) are on par with non-MSIs. Perhaps even more impressive, students who graduate from MSIs do as well as, or even better than, those who attended non-MSIs in achieving upward income mobility, including in moving from the lowest to the highest income quintile by age 30.

Given the nation’s urgent need for a well-trained, domestic STEM-capable workforce, and the strong equity-based argument for inclusion and diversity, MSIs are perhaps better poised than any sector within the US postsecondary education to solve the STEM workforce supply problem. As such, it is critical that policy-makers, education leaders, and STEM leaders alike more fully understand the needs of these institutions and their students—not only to better support current MSIs, but also to provide a welcoming landscape for the many MSIs that will continue to emerge in response to the nation's changing demographics. For example, in 2005 there were 245 Hispanic-serving institutions; in 2016 there were 492.

MSIs also play an important role in the two-year higher education sector. Two-year institutions are highly reflective of the nation's demographics and enroll a large portion of its students of color. Accordingly, in 2015, MSIs constituted almost 31% of all two-year institutions nationwide. Looked at another way, roughly 55% of all MSIs are community colleges. Still, these facts are often left out of the countless national conversations about STEM workforce, middle skills, multiple certificate programs, or the impact of free community college access. As such, there needs to be improved recognition and appreciation of the wide role that MSIs play in the nation’s education system.

Despite their relative invisibility, MSIs have long served as important national resources for education, particularly STEM education. They will continue to be pillars of US higher education—but their importance and promise should no longer remain hidden. Indeed, MSIs are crucial resources for helping many students of color overcome historically entrenched obstacles to social and economic opportunity, and preparing MSI students for STEM careers can be a powerful catalyst for career success. Thus, in the interest of bolstering national achievements in STEM, enhancing the well-being of all US residents, and remaining competitive in a global economy, it is urgent that the nation determine
the most effective practices and strategies to strengthen
the quality of STEM education, research, and workforce
preparation for MSI students.

The right stuff
But identifying what works at MSIs is only half the
battle. To effectively expand and diversify the nation’s
domestic STEM workforce, there is a clear and urgent
demand for large-scale investments in the nation’s
two- and four-year MSIs from key higher education
and STEM workforce stakeholders—including federal
and state governments, tribal nations (particularly in
the case of tribal colleges and universities), and the
philanthropic and private sectors. And to ensure that
these investments pay off, several principals must be
recognized and followed.

First, MSI leadership matters—a lot. It is critical that
institutional leaders at both established and emerging
MSIs—presidents, provosts, deans, and trustees—create
a campus culture grounded in devotion to students,
so that directly addressing their goals and needs (even
when not fully aligned with the goals of faculty, alumni,
or donors) becomes the anchor for all instruction,
curricula, research, and social support systems on
campus.

Second, going it alone may no longer work. It seems
essential, at least in some instances, for MSIs to
establish formal partnerships with local businesses and
industries, and even with nearby non-MSIs, so students
at less-resourced MSIs get access to high-quality
research and work experiences that ensure that they
enter the workforce with many of the same experiences
and skills as their peers at research-intensive
universities.

Third, the federal government needs to invest more
money in MSIs. Although the current administration’s
focus on private-sector investments in Historically Black
Colleges and Universities and other MSIs is laudable, it’s
not enough. More and stronger partnerships between
MSIs and private business and industry are essential.
But private investments by themselves won’t come
close to what is needed to create stronger research
labs, update the curricula, and increase internships and
other work-based learning opportunities at MSIs.
Historical inequities in funding have left the MSIs with
less capacity than many comprehensive universities.
There are innovative and exciting initiatives on many
MSI campuses, but too often still not at the level or
frequency of non-MSIs. Given the projection for
continued MSI growth, more money is needed, and
the federal government will have to be the primary
source of support. In addition to developing stronger
support mechanisms to assist MSIs in competing for
large grants from the National Science Foundation
and the National Institutes of Health, more needs to
be done to help these institutions successfully bid on
the large, $100 million-plus federal contracts that the
National Aeronautics and Space Administration, the
Department of Energy, and the Department of Defense,
among others, usually award to the major universities.
Congress has an obligation to invest in MSIs—and
should be incentivized to do so because the return on
investments to the students, the MSI communities,
and the national STEM workforce will be assets for the
nation’s future.

Finally, institutional accountability matters—a lot. But it needs to measure the right stuff and do so
in the context of the unique challenges facing MSIs
and their students. Specifically, federal and state
educational agencies, state legislatures, and others
should use accountability measures and metrics that
take into consideration institutional missions, student
populations, student needs, and institutional resource
constraints at MSIs. Most standard accountability
metrics fail to take these factors into consideration and
are therefore inadequate measures of MSI performance.
There is a need to explore additional attributes that
characterize student success, such as social mobility
and advancements in personal development and
interpersonal skills, and to reexamine the methods used
to measure success rates (for example, by expanding the
period over which students are tracked, particularly for
students who begin at two-year institutions).

The historical contributions, current value, and
future potential of MSIs are a crucial part of the nation’s
educational story—as is their relative neglect as key
pillars of the educational enterprise. That MSIs are so
little recognized and understood is an object lesson in
the difficulties of expanding minority representation
in STEM fields. But if demography is destiny, then US
economic prospects can no longer be separated from
the educational prospects of its increasingly diverse
student population. A substantial, and potentially
uncomfortable, shift in thinking about the potential
strategies to expand and diversify the nation’s STEM
workforce is essential for every American’s future.

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