Experts: STEM program a model for serving minority students

A 30-year-old pre-college summer program for middle and high school students is credited with helping Xavier University of Louisiana continue to rank first nationally in the number of black students earning degrees in science, technology, engineering and mathematics, and first in the U.S. in the number of minority students who go on to complete medical school, according to a new report.

Marianna Hayes, senior fellow for the Alliance for Excellent Education, showcased the program in the report Building a STEM Pathway: Xavier University of Louisiana's Summer Science Academy.

The report examined how the summer bridge program prepares students of color to succeed in STEM fields and how it relies on a particular academic and social learning structure to build students' competencies in STEM coursework. She said the program serves as a model to states and districts for improving the participation of underrepresented student groups in STEM careers.

"For those who design the programs and for those who implement them, they must use many research strategies simultaneously," Hayes said during an event on Feb. 19, coinciding with the report's release. "The Xavier model demonstrates high impact learning strategies that other educators can distill, adapt, and scale to improve proficiency in math and science."

Former West Virginia Gov. Bob Wise, president of the Alliance for Excellent Education, said Xavier University of Louisiana has "perfected a model" for educating minority students in key STEM subjects.

The summer academy was built on the principle that "everybody is special and can learn in a loving and caring environment, where achievement really is a virtue that needs to be nourished, and at the same time, expectations are high for those who wish to use their talents," said Norman Francis, Xavier University of Louisiana president and recipient of the 2006 Presidential Medal of Freedom. The program initially grew out of concerns that few black students were getting accepted into medical school, he added.

Improving outcomes

Loren Blanchard, provost and senior vice president for academic affairs at Xavier University of Louisiana, said the program is also built on an understanding that "[minority] students often come in underprepared to handle the rigor of a college curriculum, particularly in the STEM disciplines."

"It's no secret," he said. "Based on longitudinal empirical data, African-American students, in particular, lag behind others as it relates to math, science, and reading."

The summer program seeks to eliminate or reduce student fear and anxiety toward math and science by introducing positive experiences in the subjects before they enter ninth grade and
take algebra. This builds their confidence through competitive tasks and team-building exercises and grows their understanding of math and science and how such subjects relate to one another, Blanchard explained.

To help inform the program, Xavier faculty work closely with local K-12 educators to ensure the curriculum meets secondary academic goals, while also keeping an eye on reducing the need for remediation among incoming college freshman by targeting specific mathematical and scientific concepts and skills, he said.

"Thirty years ago, faculty at Xavier joined faculty at local feeder schools in the greater New Orleans area to make determinations about what can be done to improve outcomes of minority students and to start bridging this gap so that students who had been coming in underprepared can really shore themselves up, not only in the STEM disciplines, but more importantly in the areas of analytical reasoning, scientific reasoning, as well as critical thinking," Blanchard explained.

Thanks to early exposure to STEM subjects and careers through the program, many students attend Xavier, major in a STEM discipline, and continue receiving learning supports throughout their academic career, oftentimes into graduate and doctoral programs, he said.

Teachers also receive training and professional development from Xavier faculty to help identify and address learning gaps during the school year, he noted.

'What works'

Michael Smith, special assistant to President Obama and senior director of cabinet affairs for the My Brother's Keeper initiative at the White House, applauded the summer academy's method for helping address persistent opportunity gaps faced specifically by boys and young men of color.

"If we're going to make a difference and have an impact, we've got to focus on what works," he said. "Focusing on what works also means we have to look at what's innovative."

In that vein, he said the My Brother's Keeper Task Force is "actively pursuing policies" that address the most pressing issues facing minority students, and the task force plans to release a report next month on key strategies that have shown to eliminate suspensions and expulsions, as well as offer effective early learning models for students of color.

Smith said there's clear support from the Obama administration for the work undertaken by Historically Black Colleges and Universities to help level the playing field for minority students.

Indeed, President Obama's FY 2016 budget request provides $200 million for the First in the World fund, a $120 million increase over the FY 2015 funding level. It sets aside 30 percent of the funding for minority-serving institutions, he said.

"This is an administration that deeply believes in this issue and is trying to make sure we align our resources with where our passion is," Smith said.

--Emily Ann Brown covers competitiveness issues for LRP Publications.