CONCORD MONITOR
Published on the *Concord Monitor* (http://www.concordmonitor.com)

Print this Page

My Turn: The STEM road less traveled

By SUSAN D'AGOSTINO
For the Monitor
Thursday, June 12, 2014
(Published in print: Friday, June 13, 2014)

President Obama recently hosted a White House Science Fair during which he announced new science, technology, engineering and mathematics initiatives to support his goal of producing one million more STEM graduates in a decade. It begs the question: From where will these students hail?

After earning a mathematics doctorate from a global university, I had not planned to teach at a regional university. But as Robert Frost – an alumnus of the institution that granted my degree – once wrote, the road less traveled can often make "all of the difference." The difference, in this case, was accepting a teaching position at a regional university. There, I encountered an untapped population of students with significant potential to increase the quantity and quality of highly educated STEM workers in areas of national need.

My alma mater, Dartmouth, and the regional institution that hired me, not-for-profit Southern New Hampshire University, have not historically offered many academic programs that overlap. For example, Dartmouth offers undergraduate programs in biology, chemistry, physics, neuroscience and engineering, while SNHU does not. SNHU, on the other hand, offers business, justice studies, culinary, accounting, fashion merchandising management and sports management while Dartmouth does not. It goes without saying that regional university students cannot pursue STEM degrees if their universities do not offer STEM degrees.

One might argue that students select universities based on programs of study. However, most students – some put the estimate at 80 percent – are either undecided upon entering college or change their majors once enrolled. So other factors – such as affordability and campus culture – play

a significant role in college selection. Dartmouth, for example, offers 54 percent of its undergraduates need-based financial aid to cover the $60,000-plus cost of tuition, room and board. Said differently, this means that nearly half of Dartmouth families are able to pay the full fare.

At SNHU, only 6 percent of families are able to cover the $39,000-plus cost of tuition, room, and board, or less if they commute, which many do. Dartmouth also draws a nontrivial population of legacy students, approximately 9 percent, who presumably heard about Dartmouth at a young age from their college-educated parents.

Regional universities, in their own way, also draw students who knew of the school from a young age, though not necessarily from college-educated parents. That is, regional universities are the schools down the road that allow students to commute, uphold family or work responsibilities, and study. One look at the percentage of first-generation college students at each institution – 33 percent at SNHU compared to 11 percent at Dartmouth – supports the notion that a family's socio-economic status plays a significant role in college choice.

A global university like Dartmouth, of course, draws valedictorians, award-winning athletes and community volunteers, but so does a regional university like SNHU. Admittedly, Dartmouth draws more valedictorians. However, SNHU draws a significant population of students who are eager to work hard and prove themselves, including more veterans than any other university in a state with a strong tradition of military service. And now that regional universities like SNHU have begun enhancing STEM offerings, including a new math major at SNHU, these students are eligible to participate in the STEM economy.

What does eligibility for participation in the STEM economy mean? According to the Bureau of Labor Statistics, STEM occupations present the best opportunities for future job growth, including wages that are nearly twice the U.S. average.

One recent SNHU math graduate, Jennifer, a first-generation college student, is headed to the math graduate program of her choice with a full scholarship and stipend.

Another first-generation math major, Michael, worked a significant amount at the local grocery store and a warehouse to pay for tuition and expenses. His math degree, together with his work experience, led to a position on an industrial engineering team at the largest wholesale grocery-supply company in the US.

Having taught at a global and a regional university, I can attest to the presence of bright, eager students as well as lazy students at both.

The main difference among the students is not so much in intellectual potential but in socio-economic status and prospects for participation in the STEM economy. Don't get me wrong; the nation needs every single STEM graduate that global universities like Dartmouth are already producing.

However, when it comes to achieving Obama's goal of producing one million more STEM graduates in a decade, the nation must lend strong support to the STEM road less traveled. That is, regional university students – including the relatively high percentage of first-generation college students, veterans and working adults – who represent an untapped population that may, in the words of Frost, make all of the difference.

(Susan D'Agostino is an associate professor of mathematics at Southern New Hampshire University. She earned her doctorate in mathematics at Dartmouth College.)
