University of New Hampshire
UNH TODAY

Building Equity Leadership Skills

Fellowship program provides professional development for STEM teachers in New Hampshire

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BELS PROVIDES SUPPORT TO MIDDLE SCHOOL AND HIGH SCHOOL STEM TEACHERS

“We have a lot of students who struggle with access to materials because of their socioeconomic status and they also might be experiencing a social-emotional gap. Now there is the added challenge of getting out of the pandemic — the COVID gap,” says Valerie Morneault, who teaches life sciences at Spaulding High School in Rochester.

To build her leadership skills and better understand equity pedagogies for STEM instruction, Morneault applied for and was awarded a fellowship through the five-year Building Equity Leaders for STEM (BELS) in NH program.

BELS in NH is funded by the National Science Foundation's Robert Noyce Teacher Scholarship Program. Faculty and staff from the University of New Hampshire support middle and high school STEM teachers through a combination of in-person and virtual workshops and remote assignments. The cohort is comprised of teachers from the Manchester, Nashua and Rochester school districts, which represent some of the largest and most culturally, linguistically, racially and socioeconomically diverse school districts in the Granite State.

Morneault says the BELS program has provided her with insight into how a student's home life can affect learning in school. "BELS has given me a better understanding of where my students are coming from, which has made me a more effective teacher. It's been uplifting," she says.

Spaulding is a Title 1 school, meaning that it is eligible for federal funding to supplement local and state funds due to the number of students who qualify for free or reduced lunch based on family income. Morneault says that Rochester can sometimes be perceived in a negative light due to regional economic and social challenges. It's a perception that she's quick to refute, pointing out the many opportunities available to young people, like the career and technical education offered through the Richard W. Creteau Regional Technology Center.

One of Morneault's assignments through BELS was an activity called Asset Mapping to identify the community resources that students and teachers might not be aware of or appreciate. These "assets" include parks and walking trails, public art, community clubs and organizations and a wide array of businesses. It was

eye-opening. “I don’t think people understand the vast opportunities that students have here,” she says.

Support from the State’s Flagship University

One of the unique aspects of BELS is the ability for teachers to work with colleagues from other school districts. “The work that we’ve been able to do together as a group through in-person sessions in the summer feels important and like we’re making a difference. The mentors at UNH have been amazing,” says Morneault.

BELS is led by principal investigator Lara Gengarelly, UNH Extension specialist and affiliate professor for science education in UNH’s Joan and James Leitzel Center for Mathematics, Science and Engineering Education. As principal investigator of the grant, Gengarelly says, “I am grateful to the National Science Foundation Noyce program and fantastic UNH team that makes the BELS leadership program possible in New Hampshire. The 12 BELS teachers have both inspired and impressed me with their insights, dedication and creativity.”

Gengarelly is joined by Chris Bauer, co-principal investigator and professor of chemistry at UNH; Karen Graham, co-principal investigator and professor of mathematics at UNH; Stephen Hale, project director at the Leitzel Center; Judy Sharkey, co-principal investigator and professor of education at UNH; and Ruth Varner, co-principal investigator and professor of Earth science at UNH.

BELS comprises three strands: teacher leadership, equity pedagogies and enriched STEM content and pedagogies, collaboratively designed by UNH faculty; Manchester, Nashua and Rochester school district partners; and representatives from two STEM professional societies — New Hampshire Teachers of Mathematics and New Hampshire Science Teachers Association.

In the first phase of the program, BELS teacher fellows explore, experience and examine key principles within each of the three strands. In the second phase, fellows teach, model, partner and initiate their teacher leadership plan. Throughout all activities, STEM content is adapted to the needs and subject areas of the fellows who share in the process of determining what it means to be a BELS teacher leader in their school district. In this way, the leadership opportunities of fellows are supported and differentiated to address the complex types of leadership work required in each district.

Increasing Access to Academic Content in Linguistically Diverse Classrooms

For Brandi Dutton ’08, who teaches sixth grade mathematics at Fairgrounds Middle School in the Nashua School District, joining the BELS program has been instrumental in helping her better

reach her multilingual students. Her school district is one of the most linguistically diverse in the state; close to 50 languages are spoken by students and their families. According to professor Judy Sharkey, “Emergent bilingual students have 'double the work' because they are learning a new language while also learning the same grade-level content as their English-speaking peers."

Dutton can relate to the sentiment of finding mathematics intimidating. “I was always scared of math. But then I took a math methods course with UNH professor Neil Portnoy who helped us make real world connections.” That key learning moment led to her career in mathematics education and inspired her to foster a learning environment that encourages students to see and make connections on their own. “It’s those lightbulb moments — like when they realize that fractions and decimals mean the same thing,” she says.

Through BELS, Dutton is learning new ways of making content more relevant and meaningful. This means making curriculum more reflective of students’ lives, realities and interests. “Questions need to be written on their level to provide an entry point to the curriculum,” she says.

“For example, a math problem for a middle schooler about gas efficiency is probably not going to resonate.”

Mentors Who Care About Student Success

Over in the Manchester School District, middle school science teacher Adena English also says that the curriculum considerations for multilingual students have been significant takeaways from her participation in the BELS program.

“It’s about being more aware of students who are new to the country and the language and providing those students with tools be more successful,” she says.

The guidance from UNH faculty and staff has been a valuable component to this professional development program. “I love it because the mentors in the program are so supportive and there for you if you have questions. They are always bringing interesting topics to the table that we discuss. I can meet a lot of people from other schools to see what works for them. I love learning new things.”

English says that teaching can be a “go-go-go” profession and sometimes it feels like there’s not enough time. But a program like BELS in NH creates space for educators to form connections, brainstorm solutions to problems and reflect on their profession.

One of the most gratifying aspects for English?

“I love to see when kids go on to study science.”

WRITTEN BY: Emma Joyce | UNH Cooperative Extension | emma.joyce@unh.edu | 603-862-1814

PHOTOGRAPHER: Paker Kitterman | For Communications and Public Affairs

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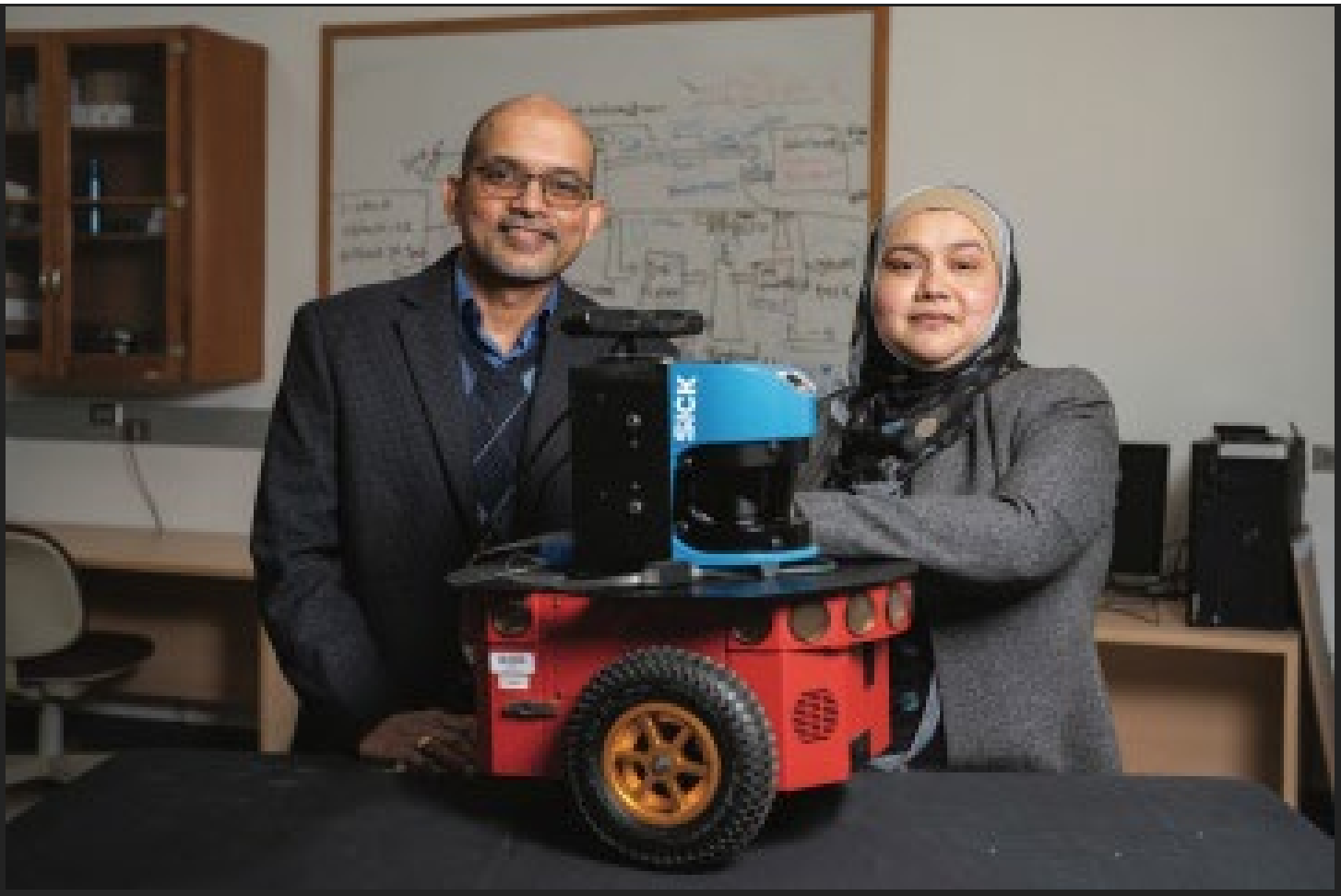

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