

Study examines motivations behind adult learners' engineering degree pursuit

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Students who transfer from a community college to an engineering program at a four-year university often do so because they are motivated to solve problems and understand how things work.

But, according to a new study from The University of Texas at Arlington, adult learners, aged 25 and older, are also motivated to transfer because of the perceived prestige that is associated with becoming an engineer.

These influences are important, say the study's authors, because understanding the role of community colleges and the way that individuals learn is needed to help meet national goals of increasing the number of graduates in science, technology, engineering and mathematics, or STEM, fields by 1 million over the next 10 years.

"One important strategy that responds to the national need for engineers, scientists and mathematicians, is in promoting the [community college](#) transfer pathway for obtaining a STEM baccalaureate degree," said Taryn Ozuna Allen, who co-authored the study with Yi "Leaf" Zhang, both assistant professors in the UTA College of Education. "But we have to understand what drives this unique group of [students](#) if we're going to better meet their needs and prepare them for the workforce."

Allen and Zhang's research is aligned with the state's ambitious "60 by 30" goal, which aims to increase the numbers of college-educated Texans. Specifically, 60x30TX wants to have 60 percent of Texans ages 25-34 obtain a college certificate or degree by 2030.

"The 60x30TX plan recognizes the need for strengthening the numbers of educated Texans who can contribute to the state's workforce demands," said Commissioner of Higher Education Raymund Paredes.

"A major component of this process will require institutions of [higher education](#) targeting female STEM students, veterans, adults who have completed courses and left without completing degrees, and students in adult basic education programs, among others."

Previous studies, the UTA researchers noted, have shown that community colleges have great potential to affect the growth and diversification of the STEM enrollment and workforce, as they have a long history of enrolling underrepresented students, including students of color, first-generation students, and non-traditional aged students.

The new study, "Dedicated to their Degrees: Adult Transfer Students in Engineering Baccalaureate Programs," is published in the current journal *Community College Review*. It takes a qualitative approach and represents one of the first efforts to explore educational experiences of this unique student population, researchers said.

The study is part of a larger, ongoing research project on engineering transfer students' experiences and issues. For the larger study, the team invited more than 300 engineering transfers via email and finally conducted two individual interviews with 21 volunteers.

For the smaller study Allen and Zhang examined the motivations, challenges and learning experiences of 18 adult learners who transferred from a two-year college to pursue an engineering degree at a four-year research institution. Each participant was interviewed twice using a one-on-one, semi-structured format.

In addition to possessing a personal curiosity for solving problems and the perceived prestige, participants demonstrated their motivation for learning through their high post-baccalaureate aspirations, which included actively planning for graduate school or internships. To achieve academic and vocational success, students strategically developed peer relationships and selectively participated in engagement opportunities with student organizations that presented the greatest professional or academic benefits.

Among other findings, the study revealed that participants viewed

engineering as a constantly growing field that provides higher salary and better job security than almost all the other majors.

Conversations with the participants revealed they were inspired to pursue an engineering degree because they believed, as future engineers that they could improve local and global communities and translate groundbreaking ideas to practical realities.

"These students face different challenges, emotional ones, and they acknowledged that they sometimes feel invisible or isolated as they transition while trying to balance work responsibilities and many family obligations," Zhang said. "But, in general, they were highly motivated and self-directed learners who were clear about their career goals and possessed positive attitudes toward being an engineer."

The study offers recommendations for campus policies and practices that include restructuring campus involvement opportunities to allow adult learners to access information through self-paced activities.

Future research, Allen said, should investigate adult students' career goals to understand if they remain in their intended degree program or change over time.

"This additional research can influence vocational opportunities to help transfer students reach their goals," Allen said.

Jeanne Gerlach, dean of the UTA College of Education, said the higher education and community college research by Allen and Zhang speaks to each of the four core themes of UTA's Strategic Plan 2020: Bold Solutions | Global Impact.

"Knowing what drives community college students to pursue a STEM degree at a four-year institution means being better equipped to meet the

academic needs of the next generation of teachers, doctors, researchers, and other leaders who will impact health and the human condition, sustainable urban communities, the global environmental, and data-driven discovery," Dean Gerlach said.

Provided by University of Texas at Arlington

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