Students with autism gravitate toward STEM majors

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U.S. business and policy leaders have made it a priority to increase the number of students pursuing degrees in science, technology, engineering and math, collectively known as STEM. But one source of STEM talent is often overlooked: young people with autism spectrum disorders. A study published late last year in the Journal of Autism and Developmental Disorders found that students with autism choose majors in science, technology, engineering and math at higher rates than students in the general population. Yet students with autism enter college at far lower rates. The authors say the results highlight the need to encourage students with autism to pursue a post-secondary education and that doing so may strengthen participation in the STEM fields.

The only previous study to directly examine the connection between autism spectrum disorders and STEM majors was limited to a single university in the U.K. That paper, co-authored by Simon Baron-Cohen, director of the Autism Research Center at the University of Cambridge, found a link between autism and mathematical talent. The new study, led by researchers at the independent research institute SRI International, based in Menlo Park, CA, examined 11,000 students across the country and found that more young adults with an autism spectrum disorder choose STEM majors than their peers in the general population (34.31 vs. 22.8 percent) as well as their peers in 10 other disability groups (which included visual disabilities, intellectual disabilities, speech and language impairment and others). Students with autism, however, were unlikely to enroll in college at all—their rate of enrollment was the third lowest of all disability categories.

One theory proposes that people with autism are above average on systemizing, which includes analysis and understanding of rule-based systems, and below average on empathizing, which refers to emotional and social thinking, says Xin Wei, a senior research analyst at the Center for Education and Human Services at SRI International and the study's lead author. "It may be that people with autism naturally think like scientists," says Baron-Cohen. "They look for patterns, and, in science, you are always looking for patterns that you hope reflect a natural law." He says Wei and her colleagues findings are not surprising—they jibe with Baron-Cohen's own work. But he says he is worried that students with autism are underrepresented at universities.

Further research could point to strategies to boost enrollment among students with autism and thus STEM majors, says Julie Taylor, an assistant professor of pediatrics and investigator at the Vanderbilt Kennedy Center for Research on Education and Human Development. There are very few strategies that are commonly used, although more colleges are creating dedicated programs. Some strategies include giving students with autism a private room, without roommates, or providing guidance with organization and prioritizing tasks.

Baron-Cohen works with the disabilities resource center at the University of Cambridge and says it encourages parents of children with autism interested in enrolling to make contact with the university early—when they are 15 or 16 years old. Prospective students can visit the university and see the rooms where they will be interviewing during the application process. Students can familiarize themselves with lights and background noise—individuals with autism are often sensitive to sensory simulation—to give them a better shot for admission.

Wei and her colleagues are working on a series of papers that suggest actions to help students with autism enroll in post secondary education. The goal is to figure out what high schools can do to better prepare students with autism for college and beyond. The team is investigating high school factors linked to STEM participation—which classes best prepare students and how test performance is related to STEM enrollment, for example.

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Science education is key to remaining competitive in a global economy, Wei says and adds, "it becomes imperative to discover previously untapped sources of STEM talent." Students with autism could be one such source.

As our understanding of autism deepens, it may be necessary to change the way we think about the disorder, says Baron-Cohen. "We should think of it as a different way of thinking," he says. "These individuals are attracted less to people and emotions but more to

factual patterns. We should be focusing on the positive aspects of autism as well."

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