

A social-belonging intervention improves STEM outcomes for ESL students

October 2 2020

A Social-Belonging Intervention Improves STEM Outcomes for Students who Speak English as a Second Language

Many ESL students do not feel like they belong in college.

Do I belong?

Hola
سلام
你好

Study included 19 universities

Over 12,000 students interested in STEM

Social Belonging Intervention:

Reading Exercise: Upperclassman Stories

"At first, I experienced a lot of challenges when transitioning to college and I didn't feel like I belonged. But, over time, I overcame those challenges and felt like I belonged."

Writing Exercise: Write About What You Read

A social-belonging intervention improves STEM outcomes for students who speak English as a second language. Credit: Indiana University

A study conducted at 19 universities by IU researchers and their

colleagues in the U.S. and Canada, found that a brief social belonging exercise, administered online before students arrive on campus, boosts the performance and persistence of students in STEM disciplines—science, technology, engineering and math—who speak English as a second language.

Published this week in the journal *Science Advances*, the study demonstrates that the exercise increases ESL students' perception that a sense of belonging on campus will grow over time. It also increases the number of STEM credits ESL students successfully completed, as well as their STEM GPAs.

As Jennifer LaCosse, an IU post-doctoral researcher and lead author on the study, explained, ESL students are greatly underrepresented in U.S. colleges, particularly within STEM fields, and their absence is a disadvantage both to the students themselves and the economy more broadly. Having a [college degree](#), particularly in STEM fields, gives ESL students the opportunity to have higher paying jobs and more successful careers overall. It also creates a diverse and multilingual workforce that is needed to meet the needs of an increasingly globalized economy.

Results of the study suggest that one way to increase the representation and academic success of ESL students in STEM is to target their sense of belonging. "Students often ask themselves, 'Do I belong here?' and we know that this concern can undermine academic performance and persistence," said LaCosse.

Students who speak English as a second language often report concerns about not fitting in with native English-speaking students and a lack of social connections. In addition, many are required to pass language proficiency tests or enroll in special ESL courses during their first few years of college.

"These policies can metaphorically and literally separate ESL students from non-ESL students during the pivotal transition to college when feelings of belonging are critical," said LaCosse. "Finding ways of buttressing ESL students' feelings of belonging may be essential to their academic success—which is what we wanted to examine in our research."

The study utilized data collected at 19 universities from more than 12,000 STEM students by the College Transition Collaborative, a partnership co-founded by IU social psychologist and study co-author Mary Murphy. Students in the study who were randomly assigned to receive the social belonging treatment, read short stories attributed to juniors and seniors describing the challenges they faced in their transition to college. The students in the stories initially questioned the degree to which they belonged in college; and yet, with time they ultimately developed a greater sense of belonging. Study participants followed the readings with a writing exercise about their own experiences.

Results of the study revealed that both ESL and non-ESL students who received the social belonging exercise anticipated greater growth in their sense of belonging than students who received the control treatment. However, these psychological gains in belonging only bolstered the academic persistence and performance of ESL students. Specifically, STEM-interested ESL students who received the social-belonging exercise (vs. the control group, which did not) completed more of the STEM courses that they began in their first term in college—and this effect persisted through the first year. ESL students who completed the social belonging exercise also earned higher STEM GPAs in Term 1 than did their ESL peers who did not.

"People do not often think about ESL students as a disadvantaged group in the same way they do about other disadvantaged students, such as

Black or women students," observed LaCosse. "The results of this study, however, provide rigorous empirical evidence that ESL students have similar psychological experiences to these other disadvantaged students."

As co-author Mary Murphy, IU professor of psychological and brain sciences noted, "Because of the large sample size across so many universities this is one of the first studies to quantitatively examine and mitigate this important psychological barrier for ESL students in STEM fields as they begin [college](#)."

"The findings are really exciting," said LaCosse, "because ESL students' psychological experiences in higher education have received far less attention than they deserve. Our research suggests that we need to rethink the policies and practices that are in place that create and maintain the underrepresentation of ESL students in higher education."

More information: J. LaCosse et al., "A social-belonging intervention improves STEM outcomes for students who speak English as a second language," *Science Advances* (2020). advances.sciencemag.org/lookup.../1126/sciadv.abb6543

Provided by Indiana University

Citation: A social-belonging intervention improves STEM outcomes for ESL students (2020, October 2) retrieved 3 May 2024 from <https://phys.org/news/2020-10-social-belonging-intervention-stem-outcomes-esl.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.