
DEMOGRAPHIC FACTORS INFLUENCING PERCEPTIONS OF BELONGING IN HIGHER EDUCATION STEM STUDENTS

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INTRODUCTION

Empirical research shows that student belonging plays a key role in retention and success at university. The impact on women's success in STEM has been of particular interest both here and overseas. But there are fewer studies, particularly in Australia, that have looked more broadly at the intersecting demographics of our students, to understand their sense of belonging and thus inform interventions to support their inclusion and success. The study aimed to identify a broad set of demographic characteristics associated with a sense of belonging in tertiary STEM students studying at an Australian university.

DESIGN AND METHODS

Students enrolled in a Bachelor of Science were surveyed about their sense of belonging and inclusion within their degree. Demographic and enrollment information were collected and used to identify key risk factors negatively impacting students. Participation was voluntary and all data were collected between March and June 2024.

RESULTS

Quantitative data analysis revealed that overall, the students surveyed ($N = 312$) have strong perceptions of belonging, positive peer and student relationships, and high cognitive and behavioral engagement with their studies. Counter to our expectations, cis-gender women, non-English first language speakers, first generation students, and those with a disability scored well on all measures. Conversely, students from low SES communities, trans and gender diverse students, and those identifying as neurodivergent reported lower perceptions of belonging, poor interpersonal relationships, and lower self-efficacy. These and other surprising demographic effects, including intersecting effects, will be discussed to provide nuanced insight into the experiences of tertiary STEM students. Qualitative data suggests that students associated with peer-organised groups and societies have more positive perceptions of belonging and relationships with their peers and staff. We will discuss the potential importance of extra-curricular activities for improving minority student experiences in STEM, as well as the potential implications of these results for classroom practices.

CONCLUSIONS

This systematic approach to understanding student belonging has revealed surprisingly positive results for some demographic groups traditionally viewed as marginalised in STEM, as well as groups with a lower sense of belonging. This highlights the importance of understanding students' localised experience to inform interventions designed to enhance inclusivity and promote a greater sense of belonging for all students within a STEM community.

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