
Keeping the LGBTQ Community in STEM: a Need for a Change in Academic Climate

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Academic Science, Technology, Engineering and Mathematics (STEM) settings continue to have trouble retaining diverse populations. It is well-known that African Americans, Native Americans, Latinx and women are disproportionately underrepresented in academic research. Recently, the University of California Los Angeles Higher Education Research Institute has quantified the consequences of barriers facing sexual minorities in STEM. Their [four-year analysis of surveys](http://advances.sciencemag.org/content/4/3/eaao6373) (<http://advances.sciencemag.org/content/4/3/eaao6373>) indicates that the Lesbian, Gay, Bisexual and Queer (LGBTQ) community disproportionately struggles to thrive in STEM.

Disparity in retention rates for LGBTQ in STEM

The analysis, summarized in a [Science article \(http://www.sciencemag.org/careers/2018/03/stem-losing-male-lgbq-undergrads\)](http://www.sciencemag.org/careers/2018/03/stem-losing-male-lgbq-undergrads), sampled 4,162 respondents with implemented controls for variables known to influence retention, and shows that entering LGBTQ students are around ten percent less likely to complete their intended degree in STEM compared to their heterosexual classmates. Two other notable trends were extracted from the data. It turns out that LGBTQ women in STEM were retained at higher rates than straight women, while the opposite is true for men. Additionally, LGBTQ students were about ten percent more likely to participate in undergraduate STEM research than the non-LGBTQ population. Engagement in undergraduate research is a significant predictor of future degree completion in STEM, but reduced retention rates for LGBTQ students is observed despite an apparently elevated chance for success. Having identified these correlations, can the root cause be identified and mitigated? The social climate in STEM is a strong candidate to explain the observed imbalances.

A review

<https://www.tandfonline.com/doi/full/10.1080/19378629.2010.545065?scroll=top&needAccess=true>

of related literature shed light on some of the environmental factors that led LGBTQ students to abandon their STEM aspirations. Many students report individual hostile experiences featuring one or more prominent figures who could be expected to be mentors but instead displayed sexually prejudicial rhetoric and behavior. These instances are clearly in violation of most workplace anti-discrimination policies, yet continue to be common place. Unfortunately, less overt hostility towards the Lesbian, Gay, Bisexual, Transsexual and Queer (LGBTQ) community is quite commonplace in STEM, where generally masculine and heterosexist attitudes are pervasive. Meanwhile, in contrast to disciplines of the arts and humanities, there is less discussion in the STEM community regarding issues of sexuality and equity. The heteronormative history of STEM coupled with its aversion to social discourse may well explain why these fields are socially far less progressive than others.

Questions posed by STEM interactions with LGBTQ

Apart from the legal and ethical motivations to eliminate all forms of discrimination from the classroom and workplace, the [growth of STEM positions in the United States \(http://www.esa.doc.gov/reports/stem-jobs-2017-update\)](http://www.esa.doc.gov/reports/stem-jobs-2017-update) currently out-pace non-STEM jobs. This trend is expected to continue and provides a strong economic incentive to encourage and support all individuals interested in pursuing STEM training. So where do the STEM fields go from here? Article author Katie Langin suggests there is more to learn about the current climate by taking the findings and probing deeper with future programs.

The data presented show that the retention rate of LGBTQ members is lower than that of other students despite their elevated rate of research. What are the experiences in these settings and could it be that their greater exposure to the laboratory setting is actually a contributing factor to diminished retention? Is the structure of mentorship and supervision an important component?

Since the analysis only included students who completed surveys at both the beginning and end of college, what can be found about the experiences of LGBTQ students who choose to leave academia all together? While the academic community should continue to gather data and perspectives to fine tune barriers to retention of LGBTQ researchers, heteronormative STEM culture can be a substantial environmental obstacle facing LGBTQ trainees along various stages of education and training.

Strategic Plans to Improve LGBTQ retention

The STEM community should continue to facilitate individual self-empowerment of research trainees by providing resources that encourage sexual minority students to share their experiences and better navigate the challenging road ahead together. However, the burden of successfully navigating any biased climate cannot lie solely within the marginalized community. The author suggests action to educate STEM faculty and administration leadership in hopes of normalizing and welcoming LGBTQ researchers in STEM. Specific recommendations include additional training from programs like [Safe Zone \(http://thesafezoneproject.com/\)](http://thesafezoneproject.com/) and encouraging the formation of local [Out in STEM \(https://www.ostem.org/\)](https://www.ostem.org/) (oSTEM) club chapters.

There are reasons to be guardedly optimistic for a brighter future. Though this analysis provides a first quantification of a STEM climate biased against the success of sexual minorities, college campuses in general have followed the broad societal trend of [becoming increasingly welcoming toward these communities \(https://www.campuspride.org/wp-content/uploads/campuspride2010lgbtreportsummary.pdf\)](https://www.campuspride.org/wp-content/uploads/campuspride2010lgbtreportsummary.pdf). It is reasonable to assume that if a similar study were administered a few decades ago, the results are likely to have revealed a far more alarming and unfair situation. The community should continue to increase understanding of existing imbalances while also taking action towards breaking down the remaining barriers currently preventing the equal participation of the LGBTQ community in STEM.

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