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Undergraduate Research and the Difference It Makes for LGBTQ+ Students

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Vignettes

Undergraduate Research and the Difference It Makes for LGBTQ+ Students

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How do universities respond to the rapid cultural changes affecting how they educate and support their students—including the fluctuating provisions for transgender students? Cultural change has been swift in the three years since *Time Magazine* introduced the “transgender tipping point” with its cover of Laverne Cox in a blue dress. That story brought widespread attention to transgender people and their concerns. Then, in January 2017, the new Trump administration rescinded recent federal guidance protecting transgender students.

What’s a higher education institution to do? Most educational leaders consult their professional organizations and news about higher education within the changing legal landscape. They might also consider turning to other experts in the field: their students. When undergraduates combine their prior experience, values, and curiosity with formal research experiences, the result can be powerful for both them and their university environment. The experiences of students traditionally underrepresented in higher education can be particular strengths when folded into well-designed undergraduate research.

Consider the example of a student research team at Worcester Polytechnic Institute (WPI), a private STEM institution with a strong liberal arts core. In 2017, three undergraduates pursued a research project to discover the best way to support transgender students at WPI. They did so as part of a general education requirement to research a topic at the intersection of technology and human need. This junior-year project is unique in being interdisciplinary, team-based, and often the reason for students choosing to enroll at WPI. Undergraduates find this research exciting, engaging, and often transformative.

To understand how their personal interest in transgender issues motivated them during their 21-week project, the authors interviewed the two transgender students on this team. Sam (who identifies as nonbinary and uses plural pronouns) explained their expectations that this research and the recommendations for pronoun training would result in more open-minded faculty and inclusive classrooms. Mario was so interested in the topic that he made room for the project in his schedule one year early.

Both students explained how their personal investment in the project helped them to persist through difficulties, because, as Sam explained, “we know that the fruits of this project could . . . make life easier for transgender students who come after us.” The faculty adviser also witnessed this motivation. She told us that, although most students need some time to become comfortable with open-ended projects and to figure out the steps of the research process, this team was different. The students were eager to pursue the project and confident in their ability to tackle this open-ended problem.

On the other hand, all three students were novices in the research process. They were not familiar with the scholarly literature or the process of gathering and analyzing it, although they knew much of the popular literature about transgender issues. Working diligently, they conducted a formal literature review and gathered the local information they needed from college staff. Mario described the research process as entirely new but noted how the faculty adviser supported the team by guiding them through the steps of applying for Institutional Review Board approval, writing survey and interview questions, transcribing interviews, and analyzing data.

The students presented their findings at a campus-wide event and received encouraging feedback from people eager to know when they could sign up for pronoun training and see other results. Many of these recommendations are being implemented, including a new student seat on the college’s Safe Zone Committee, now occupied by Mario, who is responsible for tracking the progress of the recommendations from this and future student project teams.

The most important result of this project may be the sense of accomplishment and competence experienced by the students since delivering their findings. Both students concluded from this project that they could make a difference in their world; the research gave them a channel for the kind of effort that might appear as activism in a different context. Mario explained, “I really realized . . . that you really can effect change on your own campus” through research. He has subsequently discovered his “calling in life” as a game designer creating “social awareness games about trans issues that are accessible to all ages, all sorts of different people from different walks of life.”

Because both the research topic and team composition were nonnormative, their very existence in an engineering

environment is remarkable: engineering culture tends to be governed by a dominant “belief that engineering is a ‘technical’ space where ‘social’ or ‘political’ issues such as inequality are tangential to engineers’ work” (Cech 2013). The authors’ conversations with these two students demonstrate how undergraduate research projects can have a profound effect not only on the institution—helping it become more responsive to the needs of its expanding transgender student population—but also on the students themselves, empowering them with feelings of autonomy, competence, and purpose, and helping them set a life course that effectively combines their personal passions and their academic goals.

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Intentional Efforts Toward an Inclusive Undergraduate Research Environment for Underrepresented Students

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Rochester Institute of Technology (RIT) in Rochester, NY, which is home to the National Technical Institute for the Deaf (NTID), has actively engaged in enhancing the educational experience of underrepresented students, including those who are deaf/hard-of-hearing (D/HH), through involvement in unique undergraduate research experiences. These experiences focus on translating information learned in the classroom to systems that could be encountered in the real world. Many students from underrepresented minority and D/HH groups often do not know where to go to engage in research activities. Professors may not seem relatable to diverse students, which may deter some students from pursuing collaborative activities such as research. To address such matters and break down barriers that cause students to feel isolated, faculty members have actively recruited students from underrepresented and D/HH communities into their labs to introduce them to research that may have seemed out of reach. Painting a picture of possibilities entices students from diverse communities to imagine themselves as researchers.

RIT/NTID has a lively undergraduate research environment that is driven by the faculty and supported by the

administration. It boasts large, annual symposia where undergraduates can showcase the fruits of their research (including one specifically for students who are D/HH). In addition to institute funds for student researcher stipends, supplies, and conference travel, RIT/NTID has active grants from the National Institutes of Health, National Science Foundation, Howard Hughes Medical Institute, and Camille & Henry Dreyfus Foundation that support students from minority and D/HH communities in research projects. These mechanisms have helped these groups make tremendous strides in boosting their self-confidence, feel a sense of community, increase the likelihood that they pursue graduate degrees, and assist them in becoming more enculturated into their professional fields.

It is important to get to know the students as well as strategically coach and mentor them while teaching them the steps in the conduct of research. Designing projects that have achievable checkpoints helps students progress through the research and helps to prevent frustration, confusion regarding the direction of the project, or withdrawal from the activity. A good general resource for encouraging underrepresented students into undergraduate research was edited by Boyd and Wesemann (2009), and some best practices for involving students who are D/HH in research can be found in the articles by Pagano, Ross, and Smith (2015) and Smith, Ross, and Pagano (2016). Through perseverance and continued encouragement from the faculty mentor, students often achieve a level of success where the work they complete is featured in a publication or conference presentation. This reward leads students to engage on a deeper level and ask questions pertaining to achieving success in graduate school—which helps to combat the “leaking pipeline” for these groups of students in obtaining graduate degrees and entering quality careers. In effect, students who do participate in research programs like the RIT/NTID effort and obtain higher degrees or exciting jobs encourage other underrepresented students to engage in research activities—bringing the initiative full circle.

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