Queer Identities and Experiences in STEM

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Queer in STEM: Study Purpose

How do LGBGTIA-identified individuals studying and working in STEM fields experience their professional environments?
Study Context

• Increasing focus on underrepresented groups in STEM fields, but limited to gender and race/ethnicity, little attention to gender identity and expression, sexual orientation, or intersectionality

• A fateful text message between two queer researchers
Transdisciplinary Queer Mixed Methods Research

1. Expansion of methodological understandings and extension of expertise

2. Rejection of dichotomous categories of identity and affiliation

3. Considerate and deliberate use of different modes of data collection and analysis

4. Explicit adoption of transformational goals
Queer in STEM Data set

• 1,427 responses to a 58-item online survey

• 149 completed open-response email questionnaires

• 55 individual interviews by phone or video conference
Queer in STEM:  
A Study of LGBTQQA+ Identities and Experiences

QiS 1.0 (Collected 2013)

- LGBTQQA
- 1427 respondents
  - 89% LGB, 11% T
  - 69% Academics, 31% Industry
- Qualitative Data
  - 149 completed open-response email questionnaires
  - 55 individual interviews by phone or video conference

QiS 2.0 (Collected 2016)

- LGBTQQA + S&C
- Regional distributions similar among surveys
- 3683 respondents
  - 67% LGBT (76% LGB, 24% T)
  - 67% Academics, 33% Industry
- New set of interviews ahead
Study Participants (2.0)

Orientation & Gender

- Other
- Transwoman
- Transman
- Trans
- Nonbinary
- Genderqueer
- Nonconforming
- Fluid
- Ciswoman
- Cisman
- Agender

Number of Participants

Legend:
- Asexual aromantic
- Asexual non-aromantic
- Bisexual
- Gay
- Lesbian
- Pansexual
- Queer
- Questioning
- Straight
- Other
Qualitative Data

149 completed 10-item open response questionnaires by email

Sample questions:

• Describe the first time you remember being in an environment (either socially, academically, or professionally) that was openly welcoming to people who identify as LGBTQ. What was it like and how did you feel?

• Would you say that you divide or "compartmentalize" your identity as STEM professional from your queer identity? If so, please explain.

55 individual interviews conducted by phone or video

Sample questions

• Do you think there is a particular culture or set of social norms typical of your field? (is there a way engineers, for example, are expected to be, act, or think?) How would you describe the character of a stereotypical [insert specific field here]

• How far away from wherever you consider yourself to be from do you currently live? How would you compare the general worldview of people you currently work or study with to that of the people with whom you grew up?

• Several respondents to the open-ended email questions noted that they felt they made an effort to overachieve in their STEM field to “compensate” for their LGBTQ identity. Does this describe your experience in any way?
Impact of Race and Ethnicity

• As a first-generation Filipino-American son of immigrants (and firstborn at that!), I’ve often felt like I carried the weight of my entire family and culture. If I fail, it reflects poorly on my people; likewise, if I succeed, I am honoring them.

• In the US, being Hispanic I think impacts a bit more than being gay. If I go to Mexico in the future, being gay will be more of an impact than obviously being Mexican.

• African Americans are underrepresented in astronomy by a factor of ten. So I already work in a culture that has almost no Latinos, almost no African Americans, [and] underrepresented women.
Impact of Gender Identity

• Honestly, being female in public is way more dangerous to me than being bi in public.

• I'm a female-to-male transgender person. I have had women call the cops on me for using the women's bathrooms, and had men threaten physical violence when I used the men's bathroom.

• I have been drawn to a field predominantly full of men, which I am not so it makes work more challenging.

• I am a very masculine individual and most assume that I am straight.

• I’m the only trans person that works here as far as anybody knows.
Professional Challenges

• I feel that my LGBTQ identity limits my profession life in STEM, particularly the field that I work in which often involves lots of time at rural or remote field stations. There are many jobs that I feel I would take if I were straight and didn't have to worry about finding a community I could identify with.

• I express my individual gender slightly more in some of these times and my favorite pair of dressing up looking snazzy shoes are actually heels. And they’re, I think they look fantastic and appropriate and everything but it’s definitely, you know, I’m definitely a unique sight at some of these robotics conferences, right? Looking fabulous and that’s not how people expect someone in my position to look.

• I'm really disillusioned with the mathematical community, and with my research, and with my prospects in math. So I kind of abandoned being a good student and I'm just kind of trying to get a PhD and leave this
Queer in STEM 2.0

Mentors with Shared Identity

Inside of STEM Field Gender

Outside of STEM Field Gender

Inside of STEM Field Orientation

Outside of STEM Field Orientation

T  LGB  S&C
Developing factors from analysis

• External influences of other STEM colleagues

• External influences of other queer communities

• Particular institutional workplaces and normative assumptions of field

• Interactivity and intertextuality of the personal and the professional
Implications for Practice

• The more highly participants rated the safety and welcomingness of their workplace, the more they were likely to be out to colleagues and students.

• Most respondents reported never having seen an out mentor in their field and described heteronormative and homophobic cultures in many of their STEM fields.

• In order to address issues of underrepresentation based on gender and race/ethnicity, STEM fields and programs must attend to intersectionality of identity