

Demographic Data Collection of LGBTQ+ Identities: Barriers and Motivations

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Abstract

Although recent studies highlight the unique difficulties that lesbian, gay, bisexual, transgender, and queer (LGBTQ+) engineering professionals face in their careers, the availability of data concerning this underserved population remains scant. Postsecondary educational institutions play a critical role in the collection of LGBTQ+ demographic data related to sexual orientation and gender identity (SOGI) among students, faculty, and staff. Such data can be utilized to measure retention and success of LGBTQ+ individuals. However, many institutions choose not to collect these data for various reasons, which can potentially further the marginalization of LGBTQ+ individuals in academic settings. This study explores both the motivations behind academic leaders—which includes facilitators of the demographic information collection process and advocates for the collection of SOGI data—along with the barriers that hinder efforts to make the collection of SOGI data a standard practice.

We first administered a nation-wide survey to the American Society for Engineering Education (ASEE) Engineering Deans Council to determine what types of SOGI data, if any, these institutions collect. Among the 46 respondents, we found that three institutions collect some type of SOGI data for students, faculty, or staff. Survey respondents were then invited to participate in semi-structured interviews to discuss their insights into institutional practices with respect to SOGI data collection. In total, six institutions are represented through the perspectives of the 6 interviewees. We analyzed the transcripts from the interviews and identified themes within two categories: barriers and motivations. Although SOGI data collection is in nascent stages, this study provides insight into the critical conversations academic leaders navigate to better serve the LGBTQ+ community, which may aid further efforts to implement SOGI data collection in academia.

Introduction

Demographic data is a powerful resource that can be employed to measure and address inequities within a population. Comprehensive demographic data collection allows for the representation of diverse lived experiences among the surveyed population. However, in many cases the survey instruments developed to collect demographic data lack the nuance required to fully capture the diversity of lived experience among all members of the population under study. In particular, the LGBTQ+ community is one that remains critically understudied. Recent studies have begun to examine the unique difficulties that LGBTQ+ people face in STEM careers and education, which include navigating coming out in the workplace [1], harassment, and professional devaluation [2]. These difficulties have detrimental effects on the success of LGBTQ+ people in STEM and can correlate with lower retention rates in STEM programs and increased health difficulties [2, 3]. To-date, sexual orientation and gender identity (SOGI) demographic data are not collected in national databases like the United States census or the Integrated Postsecondary Education Data System (IPEDS). Such data could provide additional insights into the factors that disproportionately inhibit LGBTQ+ success in STEM careers and education.

At a smaller scale, SOGI demographic data collected within academic institutions could be used to improve educational outcomes and vocational experiences for LGBTQ+ students, faculty, and staff. The types of demographic data that United States colleges and universities collect includes data that is federally mandated for Title IV eligibility, along with additional types of demographic information that the administration deems necessary to collect. In rare cases, academic institutions have adopted the collection of SOGI data for students, faculty, and staff [4].

Our motivation for conducting this study was to shed light on how prevalent the collection of SOGI demographic data is among academic institutions in the United States. Furthermore, we sought to understand how SOGI data collection can become standard practice. We also explored the barriers that

advocates for SOGI data collection faced when advocating for this practice, along with the motivations that drove their advocacy.

Methods

Positionality

Because the authors are especially interested in the issue of demographic information collected on LGBTQ+ individuals, the following explains their positionality in relation to the study subject.

Author 1: My interest in LGBTQ+ success in STEM is rooted in my own experience as a materials scientist and queer, biracial, cisgender man. Throughout my time as an undergraduate and graduate student, I saw fellow LGBTQ+ students in STEM struggle with the culture of STEM education, often feeling that their personal selves were at odds with the profession they sought to enter – myself included. To attempt to address the lacking inclusivity of STEM education, I spent a substantial amount of time building communities for LGBTQ+ STEM students locally and nationally during graduate school. I was a conference director for a national LGBTQ+ nonprofit for a few years, and I revived and led an LGBTQ+ student professional organization for two years. Although my usual area of research is in the field of materials science, my personal experience in STEM and academia motivates me to study and understand the unique difficulties LGBTQ+ people face in their educational pursuits.

Author 2: In my personal life and professional life I strive to be an LGBTQ+ ally. I am a cisgender, heterosexual woman and an engineering professor. I was raised in a middle-class town in the northeastern United States, the only child of parents with college degrees. My understanding of LGBTQ+ issues was influenced deeply by a 32-yearlong close friendship with a gay man. As an attorney who provided pro-bono legal services to LGBTQ+ asylum seekers, he inspired me to bring together my personal interest in LGBTQ+ advocacy with my professional interest in engineering education and institutional change. For the last several years much of my research, education and advocacy work has focused on changing the climate for students and faculty with marginalized identities through micro and macro level change efforts.

Author 3: I am a Hispanic, cisgender female, an engineer by training, and educator at heart. I consider myself a diversity and inclusion practitioner, and LGBTQ+ ally. I started my career as engineering faculty; however, I have been outside of academia over a decade. I was raised in a lower middle-class, Catholic home outside the U.S.—albeit I no longer practice a specific faith. In my home country, conversations about race, class, gender identity, and sexual orientation were not part of the national discourse. Moving to the U.S. broaden my understanding of these topics and helped me to recognize my own privilege in some areas, and my disadvantages in others. The awareness of these (new) identity facets and a shared concern to address issues around marginalization led me to integrate my interest in the areas of educational development, and professional communities, with the diversity, equity, and inclusion space.

Survey

In collaboration with ASEE, we administered a survey via email to the Engineering Deans Council of the American Society for Engineering Education to determine what types of SOGI data, if any, these institutions collect. The Council consists of approximately 350 members of engineering Deans and Program Directors from the United States. The survey invitation included a unique web link to participate in the survey. The survey was launched in early summer 2021. Participants received a follow-up reminder after one month of the original invitation, and the survey remained open a total of six weeks. Participants were asked their institutional affiliation, and whether their institution collects demographic data pertaining to sexual orientation and gender identity (SOGI). At the end of the survey, we invited participants to provide their contact information in a separate survey if they wished to become further involved in a semi-structured

interview to further detail their experience in collecting SOGI data. Two survey respondents provided their contact information.

Semi-structured Interviews

We recruited participants via the email survey and by cold-contacting individuals who had prominent leadership roles dealing with demographic data collection at their institution. We contacted a total of 41 individuals at 32 institutions. Six agreed to be interviewed. Interviews were conducted over video conference and in person. All interviewees were asked for consent to record the interview audio. Audio from the video conference interviews was captured by recording the meeting with video turned off to preserve the identities of the interviewees. Audio from the in-person interviews were captured with a voice recorder. Interviews were typically 15 to 40 minutes long. Using a semi-structured protocol, Author 1 asked participants various questions concerning their experience, thoughts, and feelings about the SOGI data collection process. Sample questions include:

- What efforts are there, ongoing or attempted, to add sexual orientation to the list of demographic data your institution collects on engineering students, faculty, and staff?
- What efforts are there, ongoing or attempted, to expand the gender identity demographic information collected on engineering students, faculty, and staff?
- What concerns do you have, or do you know of any concerns, regarding the collection and submission of sexual orientation and expanded gender information?

The semi-structured design of the interview script allowed for flexibility and sensitivity to the interviewee's willingness to describe their experiences and knowledge. The semi-structured design also allowed us to account for different levels of progress in the institution's incorporation of SOGI questions in demographic data collection. For example, we asked the following questions if the interviewee indicated an ongoing effort to include sexual orientation to the list of demographic data their institution collects:

- What role have you played, if any, in adding sexual orientation to the list of demographic data your institution collects on engineering students, faculty, and staff?
- Have you encountered any difficulties in adding sexual orientation data to the list of demographic data your institution collects on engineering students, faculty, and staff?

After transcribing the interview audio, we manually coded the interviewees' responses noting salient categories and themes. We were interested in codes and themes centered around (1) barriers that impeded efforts to make the collection of SOGI data a standard practice, and (2) motivations that drove participants to contribute to and/or lead efforts to make the collection an institutionally standardized practice.

Results

Survey

In total, we received 46 unique responses. All respondents represented a university or college from the United States. Some participants opted to skip some questions of the survey, resulting in a decreasing number of responses as the survey progressed (obtaining a minimum 42 responses in the question about sexual orientation categories, Fig. 3).

Survey results show that of the 46 institutions that responded, only three collect any type of sexual orientation demographic data on faculty & staff, while two institutions collect sexual orientation demographic data on their students (Fig. 1). All institutions that responded collect some type of demographic data on race/ethnicity and gender (the first question asked about "gender" and not "gender identity" to be consistent with the categories used by IPEDs).

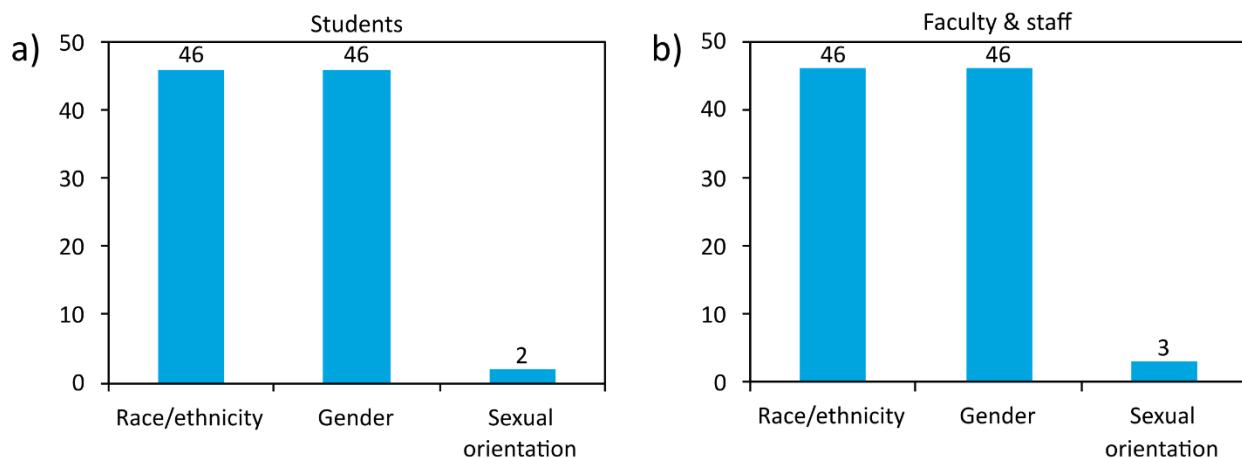


Figure 1. Types of demographic data that the surveyed institutions collect for a) students and b) faculty & staff in the institution's engineering program (n = 46).

Regarding gender identity demographic information (Fig. 2), all respondents reported that they collected data on male and female identities. Some of these institutions also collected data on transgender, nonbinary, gender nonconforming (GNC) identities for students and faculty & staff. For both students and faculty & staff, five institutions selected “Additional gender” to indicate that their institution used an additional type of descriptor not listed in the survey answer options. Respondents who selected this answer were taken to an additional question that allowed them to provide an open-ended response to describe what additional gender identities they include in their demographic data collection. These institutions reported to provide the following options for students:

- “Different Identity, Decline to State, Gender Queer/Gender Nonconforming”
- “Other”
- “Depending on the nature of the survey and use of the data, the additional gender (and sexual orientation) choices can be quite specific/atypical.”
- “prefer not to answer”
- “Different Identity (may include nonbinary)”

Respondents reported to provide the following options for faculty & staff:

- “Other, Decline to State”
- “Other”
- “Depending on the nature of the survey and use of the data, the additional gender (and sexual orientation) choices can be quite specific/atypical.”
- “prefer not to answer”
- “Different Identity”

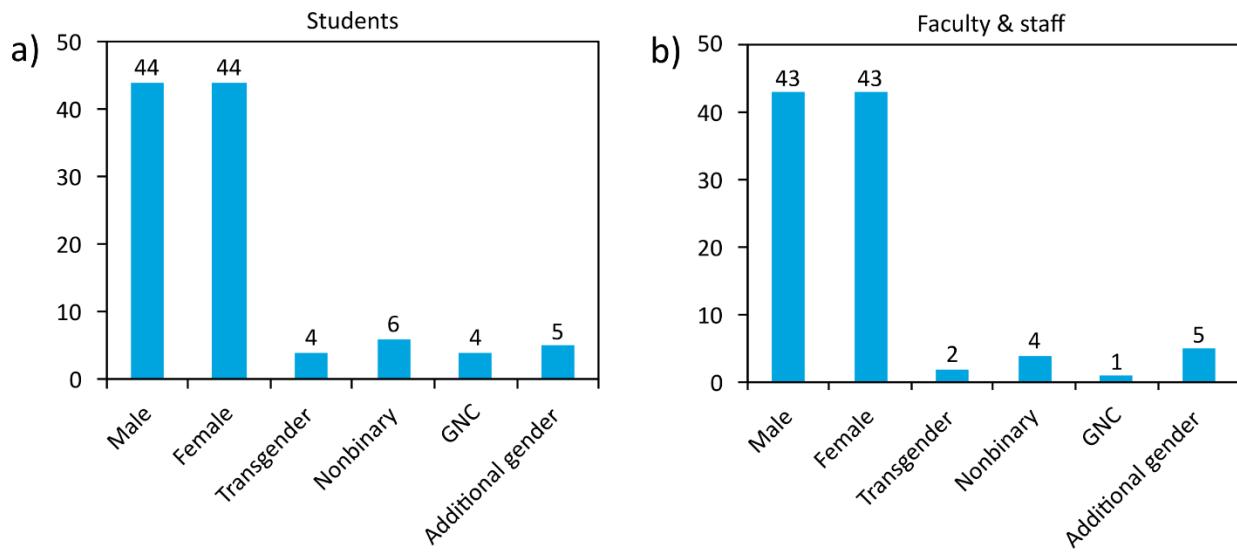


Figure 2. Types of gender identity demographic data that the surveyed institutions collect for a) students ($n = 44$), and b) faculty & staff ($n = 43$) in the institution's engineering program. Options include male, female, transgender, nonbinary, gender nonconforming (GNC), or additional gender not listed in the survey.

In general, it was less common for the surveyed institutions to collect data on sexual orientation (Fig. 3). Of the 42 respondents, 40 answered “not applicable (n/a)” to indicate that they do not collect any information on sexual orientation for both students and faculty & staff. There were two institutions that did collect information on sexual orientation. Both institutions selected “Additional sexual orientation (SO)” to indicate that their institution uses an additional type of descriptor not listed in the answer options. Respondents who selected this answer were taken to an additional survey question that allowed them to provide a free response to describe what additional sexual orientation they include in their demographic data collection. These institutions reported to provide the following options for students:

- “Depending on the nature of the survey and use of the data, the additional sexual orientation (and gender) choices can be quite specific/atypical.”
- “Not Listed”

For faculty & staff, the institutions that selected “Additional SO” responded to the free response question with the following:

- “Depending on the nature of the survey and use of the data, the additional sexual orientation (and gender) choices can be quite specific/atypical.”
- “Decline to State; Not Listed”

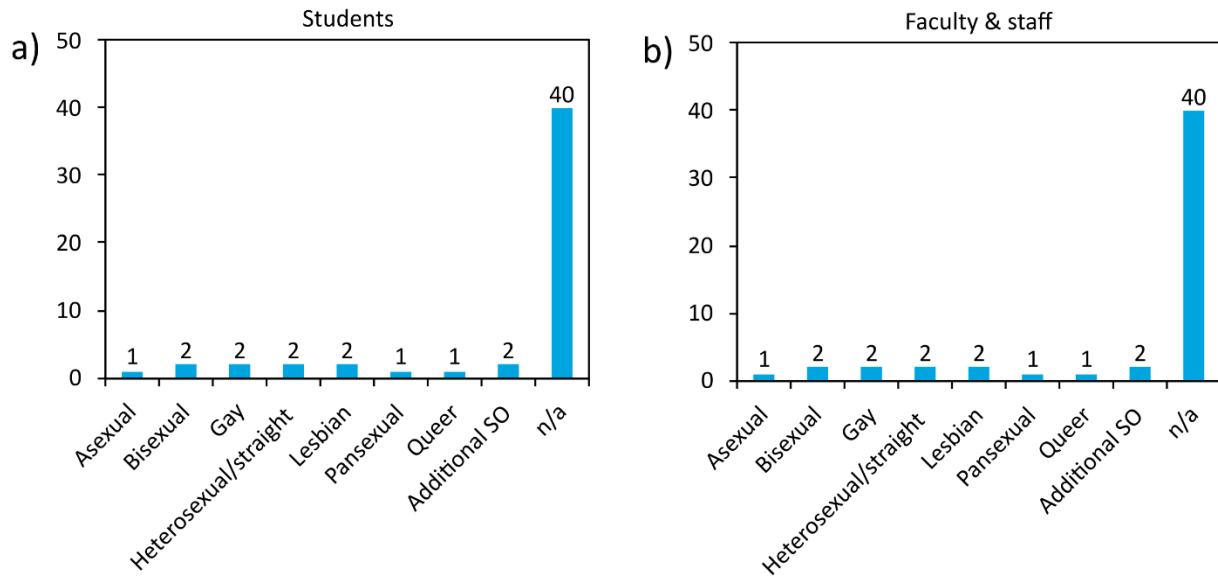


Figure 3. Types of sexual orientation demographic data that the surveyed institutions collect for a) students and b) faculty & staff in the institution's engineering program (n = 42). Options included asexual, bisexual, gay, heterosexual/straight, pansexual, queer, additional sexual orientation (SO) not listed here, or not applicable (n/a). A response of "not applicable (n/a)" indicates that the institution did not collect data on sexual orientation.

Semi-structured Interviews

In total, we interviewed six individuals from six unique institutions. The institutions represented in these interviews were geographically diverse (three institutions located in the Northeast region of the United States, one in the Southwest, one in the Midwest, and one in the West). These institutions represent a range of Carnegie Classifications, including four R1 doctoral universities, one R2 doctoral university, and one baccalaureate college with an arts and sciences focus. Of these six institutions, four were public and two were private. Two of the institutions represented in these interviews routinely collect some form of SOGI demographic data among their students, faculty, and/or staff. The roles of each participant within their respective institution also varied, and included tenure track professors, teaching professors, and data analytics administrators. Although we did not ask for the sexual orientations or gender identities of the interviewees, some volunteered this information during their interview.

Barriers

We noted four emergent barrier themes from the interviews. These themes broadly describe difficulties in implementing the collection of SOGI data as a standard practice.

1. There exists an unfavorable public perception concerning the collection of SOGI data.

Multiple interviewees described various ways in which the act of collecting SOGI data may generate a negative public perception of the institution, some of which might lead to unfavorable outcomes. Participants noted several types of stigmas associated with the idea or practice of collecting SOGI data within their institution.

“And I think that sexual orientation is like a step further out, like that is like ‘How could we possibly talk about that in this space?’”

In particular, one participant detailed how often times people would conflate asking about sexual orientation with asking about sexual practices.

“Feeling like asking about sexual orientation was asking about sexual practices, which is to me, as a gay man, that is a common misconception that I encounter. … It’s just this surface understanding of what it means when you ask somebody their significant other, there’s this like jump to sexual behavior which I can see how someone would make that leap and not see the broader implications of what it means to be a gay man.”

One interviewee discussed how a common point of discussion about SOGI data collection was the impact it may have on people who donate to the institution.

“They’re also very worried, probably the same as with other schools that, like, their [...] donors are going to get wind of this and not give money.”

2. There exists uncertainty about how to protect LGBTQ+ individuals in the process of collecting, storing, and accessing SOGI data.

Participants extensively described concerns about privacy and ways to ensure the safety of LGBTQ+ people should they volunteer information on their sexual orientation and/or gender identity.

“This is essentially somebody coming out to you, the same goes if somebody is divulging their ethnicity or some other unseen or seen difference that people may not perceive. So, I’d hope the proper care to make sure it was collected in an encrypted database was properly taken.”

“I have some discomfort with storing sexual orientation [data], which to me is very personal, ongoing, changing information in a database in the same way that you store some of this other information, because it is this invisible identity.”

Similarly, some interviewees expressed concern that SOGI data may be used maliciously against those divulging their identities if a data breach occurred, or that someone with access to the data may use the information to cause harm. Some noted that asking for SOGI data may cause harm, even if there was no malicious intent.

“…there are gonna be some people when they’re asked that question, who are going to very correctly be afraid of how that information is going to be used. You know, so if you’re applying to graduate school and you’re asked questions about your sexual orientation and your gender identity, and you’re afraid that the committee is gonna use that in a way that would raise suspicions about you that should not be relevant for your participation in their graduate program, that’s gonna be super stressful, right?”

“I would worry if a faculty member who wasn’t familiar with the LGBTQ community just started asking those questions of students because they’re certainly dangerous ways to ask them—ways in which you could make somebody feel less included.”

3. Infrastructure to facilitate the collection of SOGI data is inadequate or lacking.

Participants described how data collection infrastructure, both internal to their respective institutions and external, lacked sophistication to collect SOGI data. In some cases, deficiencies in external reporting systems inhibited the collection of SOGI.

“And I think it’s also challenging when we’re dealing with institutional stuff and also outside definitions that we really want to be really consistent with, because we don’t want to be, you know, importing entirely different things internally than we are externally because that’s not good. But that means that we then get a little bit driven by the status quo in terms of what people are asking for externally. And you can’t define our own things internally, because we’re driven by the external thing. So it’s just, like, a bit messy.”

The logistical challenges of collecting SOGI data, even within a single institution, may be compounded by the size and complexity of the institution.

“The other thing that I also think is that within the [engineering school] there’s just so much difference between the departments. The departments, the different undergraduates, graduate, majors, or programs. There can be huge tremendous variation across them so I think that you have to have something that is more consistent and routine.”

4. Reasons to collect SOGI data are not compelling or not understood.

Standardizing the collection of SOGI data within an institution often requires extensive discussion and the convincing of stakeholders why the change is needed. Participants noted several difficulties of this process.

Driving the change to collect SOGI data requires a collective effort. One participant noted difficulty in garnering support for the cause.

“...we have a really small number of traditionally, traditionally out faculty. So, the numbers aren’t really there to push as much as with some other schools.”

Multiple participants discussed how they needed to refer to an external established example to demonstrate why collecting SOGI data is necessary. In some cases, participants found that these external examples are difficult to come by.

“And I think part of what’s interesting to me in terms of thinking about particularly sexual orientation and different gender identities is that I feel like that is a place where there is not always as much sort of external things that I can point to to get the backup.”

“And in particular when you’re talking to engineers it is great to have data, it is great to have a confidence interval and to say that we are suffering this loss because of a lack of inclusivity and to be able to point to some concrete measure of it. So yeah, that’s a huge help.”

One participant noted that conversations about SOGI data often required educating others about its value in ways that promoted inclusion.

“So, one of the biggest barriers was not shaming folks who didn’t know, but doing education in a way that they felt they were part of the movement. So that was a huge hurdle, and still is a huge hurdle. A huge, huge hurdle.”

Motivations

The motivations that compel individuals to contribute to or lead efforts to make the collection of SOGI a standardized practice centered on a single theme: SOGI data can be used to understand and improve the experiences of LGBTQ+ individuals.

Multiple participants noted that they were motivated by their desire to better understand the population of students they serve.

“And I want—I need to be able to understand who our students are so...we can make sure that the things we’re doing are effective and that they’re not effective for some people but not for other people.”

“...I kinda see my responsibility to get a feel for the incoming first year students—who they are where they come from, have our outreach efforts been effective, are we retaining them, do we have problems retaining certain students. So that is the reason why I ask the demographic questions that I do.”

Multiple participants also noted that SOGI questions are important because they could be used to assess and improve training outcomes for LGBTQ+ people in their programs.

“And I would say where I’m coming from, is that I am involved in a lot of things that are trying to improve some of the graduate training experiences.”

“...it’s just to make sure that internally we know that we’re doing our jobs and if we got a deficiency, we can address it.”

One participant noted that simply asking LGBTQ+ students about their sexual orientation and gender identity through demographic surveys is an act of support.

“...if the question is asked then ... at least it tells [LGBTQ students] that we anticipate that there are LGBTQ people in the room, and I think that’s an important message.”

Comprehensive demographic data has the potential to shed light on inequities. One interviewee noted that:

“...when we don’t collect data or information about something like that [sexual orientation and gender identity], we let the impacts of it be invisible, and they’re not invisible in people’s lives.”

However, the same interviewee provided a word of caution about potential overinterpretation of demographic data, saying:

“...one thing that happens with student data or looking at students in particular is administrative data becomes a substitute for actual student opinion.”

It is important to remember that demographic data is one facet of understanding the lived experience of the population under study. Further efforts to understand the marginalization of groups of people may benefit from combined efforts to study the feelings and individual experiences of the humans behind the numbers.

Discussion and Conclusion

Our survey results showed that progress in SOGI data collection varies widely across institutions. In particular, our survey results highlight that academic institutions may choose to collect SOGI data using different sets of categories, which may not be consistent across institutions. This inconsistency can create

additional logistical issues, especially with regard to the submission of this demographic data to national databases and federal agencies. Organizations that aggregate demographic data across multiple institutions must then account for variation in terminology and types of demographic data.

Some organizations already allow for the submission of SOGI data to their databases at the national level. For example, ASEE recently created an “Expanded Gender Excel Spreadsheet” for their collection of demographic data to the *Profiles of Engineering and Engineering Technology*. This optional spreadsheet contains gender identity options of “Male”, “Female”, “Non-binary Gender”, and “Another Gender or Unknown”, which allows academic institutions to submit such data if they already collect them. While organizations like ASEE are making progress to include LGBTQ+ identities among the types of demographic data they routinely collect, others have yet to begin collecting SOGI data. For example, the National Science Foundation (NSF) has delayed the practice of collecting SOGI data for multiple years, citing the need for more research on how to incorporate SOGI questions [5]. This delay has put the NSF out of sync with other federal agencies that collect SOGI data such as the Department of Labor and Department of Education [6].

While some may find the reasons to collect SOGI data compelling, the barrier themes explored in this study underscore an important need. These themes must be addressed to garner a wide range of support. Advocates for SOGI data collection may use the barrier themes described here to anticipate concerns from their communities, and, in turn, provide effective institutional strategies to address them. Likewise, concerns about how to collect SOGI data may benefit from other established literature, such as the 2016 Federal Interagency Working Group report on SOGI survey practices [7] or the United States Census Bureau assessment of the feasibility of asking SOGI questions in surveys [8].

This study offers a unique perspective about the SOGI data collection process by academic institutions. Our survey results confirm that collecting SOGI data remains an uncommon practice. While all surveyed institutions collect some type of gender identity information, the vast majority only collect data for male and female identities. Additionally, the themes that emerged from the interview transcripts provide background and context to the experience of advocates for SOGI data collection within an academic institution. Although the relatively small sample size of the interviewee pool poses limitations, the insights generated may aid further efforts for the collection of LGBTQ+ demographic data.

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