

June 29, 2020

Ms. Suzanne H. Plimpton
Reports Clearance Officer
National Science Foundation
2415 Eisenhower Ave., Suite W18200
Alexandria, VA 22314
Via regulations.gov and email

RE: National Science Foundation (NSF); Notice of Intent to Seek Approval to Extend an Information Collection for Three Years; 2021 National Survey of College Graduates
(Federal Register Doc. 2020-09000)

Dear Ms. Plimpton:

We are writing to comment on NSF's proposed information collection request related to the 2021 National Survey of College Graduates (NSCG). *See* 85 Fed. Reg. 23537 (April 28, 2020). This public comment is in line with our previous comment regarding the 2019 NSCG that was submitted to the Federal Register on August 13, 2018 and is appended below. Our previous comment was cosigned by 17 scientific organizations and authorities in higher education research, including the American Association for the Advancement of Science and the American Educational Research Association, and 244 scientists, engineers, and legal and policy scholars, including 17 members of the National Academies.

Following our previous comment, we were grateful to have had the opportunity to meet with the leadership of NSF's National Center for Science & Engineering Statistics (NCSES) to discuss the inclusion of sexual orientation and gender identity (SOGI) measures in NCSES surveys, most notably the NSCG, Survey of Doctorate Recipients (SDR), and Survey of Earned Doctorates (SED). We were pleased to learn in October 2018 that NCSES was planning to conduct internal methodological piloting of SOGI measures for NCSES surveys, which was expected to begin with the NSCG and produce preliminary results by early 2019. We hope that the piloting was a success and that SOGI measures will be added to the 2021 NSCG and other future NCSES surveys. We write now to reaffirm the importance, feasibility, and precedent of including SOGI measures in NCSES surveys.

As you know, NSF is responsible for broadening the participation of underrepresented groups in STEM as it is "in the national interest to promote the full use of human resources in science and engineering" (42 U.S.C. § 1885). Although NSF has not tracked the STEM participation of LGBTQ people, also called sexual and gender minorities, via NCSES surveys, evidence for LGBTQ disparities in STEM is now substantial. Studies estimate that LGBTQ people are 17-21% less represented in the STEM workforce than statistically expected.¹ In the U.S., LGBTQ people currently comprise 4.5% of the population, and this number rises to 8.2%

¹ As cited in Freeman, J.B. (2018). LGBTQ scientists are still left out. *Nature*, 559, 27-28

for those 18-37 years of age.² Thus, early-career age LGBTQ people have a higher prevalence in the U.S. than several other groups whose disparities have long been carefully tracked via NCSES surveys, including Black women (7.0%), Asians (5.9%), and Native Americans (1.3%).³ Indeed, LGBTQ people are “one of the largest, but least studied, minority groups in the workforce”.⁴ With a U.S. STEM workforce size of 7 million people,⁵ these findings suggest that the U.S. may have lost approximately 54,000 to 121,000 LGBTQ people who would currently otherwise be in STEM.⁶ Adding SOGI measures to NCSES surveys is critically needed to track LGBTQ people from U.S. undergraduate and graduate programs through to the STEM workforce, and to understand and address the challenges they face along the way.

Indeed, the challenges for LGBTQ individuals begin early in the STEM pipeline. A 2016 study of 87,996 undergraduates across 18 research universities found that LGBTQ students were significantly less likely to major in STEM fields than their non-LGBTQ peers.⁷ Among undergraduates at 78 universities who declared a STEM major in their freshman year, sexual minority students (i.e., lesbian, gay, bisexual, and queer) were more likely than their heterosexual peers to leave STEM for a non-STEM major by their senior year. This was true despite the fact that sexual minority students showed greater engagement in STEM (e.g., lab participation) than their heterosexual peers, suggesting that they left STEM due to non-supportive STEM environments.⁸ Data from the 2009-2018 American Community Survey (ACS) and 2013-2018 National Health Interview Survey (NHIS) showed that sexual minorities were less likely to earn a bachelor’s degree in STEM and to hold a STEM occupation, relative to their heterosexual counterparts.⁹ The sexual orientation gap for STEM degrees was smaller than the gender gap (i.e., less STEM degrees for women than men) but larger than the race gap (i.e., less STEM degrees for Black people than White people).

Non-supportive STEM environments and harmful biases and stereotypes appear to be partly responsible for these disparities. LGBTQ people report more negative workplace experiences in STEM fields than do non-LGBTQ people in those same fields, or than do LGBTQ people in non-STEM industries.¹ Among sexual minority STEM faculty members who are out at work, 70% report feeling uncomfortable in their academic department.¹⁰ Some STEM fields have

² Gallup (2018). In U.S., Estimate of LGBT Population Rises to 4.5%.

<https://news.gallup.com/poll/234863/estimate-lgbt-population-rises.aspx>

³ U.S. Census Bureau. (2020). National Population by Characteristics: 2010-2019.

<https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-detail.html>

⁴ Ragins, B.R. (2004). Sexual orientation in the workplace: The unique work and career experiences of gay, lesbian and bisexual workers. In J. Martocchio (Ed.), *Research in personnel and human resources management*, 23, 35–129.

⁵ National Science Board (2020). The State of U.S. Science & Engineering. <https://ncses.nsf.gov/pubs/nsb20201>

⁶ Freeman, J.B. (2020). Measuring and Resolving LGBTQ disparities in STEM. *Policy Insights in the Behavioral & Brain Sciences*.

⁷ Greathouse M. et al. (2018). Queer-spectrum and trans-spectrum student experiences in American higher education: The analyses of national survey findings. <https://rucore.libraries.rutgers.edu/rutgers-lib/60802/PDF/1/>

⁸ Hughes, B.E., 2018. Coming out in STEM: Factors affecting retention of sexual minority STEM students. *Science advances*, 4(3), p.eaa06373.

⁹ Sansone, D., & Carpenter, C.S. (2020). Turing's Children: Representation of Sexual Minorities in STEM. arXiv, <https://arxiv.org/abs/2005.06664>. For the ACS, sexual orientation was inferred via those in a same-sex couple.

¹⁰ Patridge, E.V., Barthelemy, R.S. and Rankin, S.R. (2014). Factors impacting the academic climate for LGBQ STEM faculty. *Journal of Women and Minorities in Science and Engineering*, 20.

conducted internal surveys that included SOGI questions. In U.S. physics, more than 20% of LGBTQ people reported being excluded, intimidated, or harassed at work due to their LGBTQ identity, and 15-30% reported feeling uncomfortable at work, and these negative experiences predicted a desire to leave the field.¹¹

In assessing the feasibility of asking SOGI questions on surveys, NCSES may be concerned that SOGI measures are too sensitive to include. However, government surveys on the U.S. population have already successfully collected SOGI data for years, including federal surveys with smaller sample sizes than NCSES surveys (e.g., the NHIS, which as mentioned earlier has already been used to provide evidence for LGBTQ disparities in STEM). The Federal Interagency Working Group on Improving Measurement of SOGI in Federal Surveys has warned that federal agencies may perceive SOGI questions as overly sensitive, which hinders them from adopting SOGI measures even when “inclusion of these measures would support agency mission and data needs” and even though that perception is inconsistent with past survey experience.¹² For instance, SOGI questions in federal surveys do not cause issues such as survey break-off or high non-response rates, and they are voluntary.¹² Options such as “I don’t wish to respond” are always available; and for those who do wish to respond, federal law protects the confidentiality of individually identifiable data. Thus, SOGI questions cannot expose respondents to potential discrimination, nor do they impact the statistical robustness of the data collected.

Adding SOGI measures has value for other important efforts at NCSES. The National Academies’ 2018 report on *Measuring the 21st Century Science and Engineering Workforce Population: Evolving Needs* recommended that NCSES develop a sexual harassment and discrimination module for its surveys,¹³ and NSF’s Broad Agency Announcement (BAA) on March 6, 2020 indicates that NCSES is seeking new measures on the incidence and experience of sexual harassment and discrimination.¹⁴ Clearly, SOGI measures – which have already been vetted by the Federal Interagency Working Group – are a necessary component to any measurement of sexual harassment, as respondents’ sexual harassment experiences can only be correctly interpreted in the context of their sexual orientation and gender identity.¹⁵ Indeed, NSF’s BAA defines sexual harassment as “not only related to sex but gender identity”,¹⁴ and under federal law sexual harassment and discrimination of employees includes adverse behavior “because of gender identity, including transgender status, or because of sexual orientation”.¹⁶ Existing federal surveys that include sexual harassment modules, such as the Merit Principles Survey (MPS), also regularly include SOGI questions.¹⁷ Thus, adding well-studied SOGI

¹¹ American Physical Society (2016). LGBT Climate in Physics.

<https://www.aps.org/programs/lgbt/upload/LGBTClimateinPhysicsReport.pdf>

¹² FCSM (2016). Evaluations of Sexual Orientation and Gender Identity Survey Measures: What Have We Learned?

https://nces.ed.gov/FCSM/pdf/Evaluations_of_SOGI_Questions_20160923.pdf

¹³ NASEM (2018), *Measuring the 21st Century Science and Engineering Workforce Population: Evolving Needs*.

www.nap.edu/catalog/24968/measuring-the-21st-century-science-and-engineering-workforce-population-evolving

¹⁴ National Science Foundation, Broad Agency Announcement for National Center for Science & Engineering Statistics (March 6, 2020). <https://beta.sam.gov/opp/4265001c1dc242b38f718bc61aebf7a0/view>

¹⁵ NASEM (2018), *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. <https://www.ncbi.nlm.nih.gov/books/NBK519455/>

¹⁶ U.S. Equal Employment Opportunity Commission (2020). <https://www.eeoc.gov/sex-based-discrimination>

¹⁷ U.S. Merit Systems Protection Board. 2016 Merit Principles Survey. <https://www.mspb.gov/foia/SurveyData.htm>

demographic measures now to the 2021 NSCG and other NCSES surveys would be a necessary change to ensure high-quality assessment of sexual harassment and discrimination in the future.

In short, we cannot reduce disparities if we do not measure them. It has become clear that LGBTQ people – who comprise an estimated 4.5% of the U.S. population (and 8.2% among early-career age individuals) – are facing educational and career barriers in STEM fields. However, the lack of SOGI measures in NCSES surveys is hindering our ability to understand and address these barriers. Including SOGI measures in the 2021 NSCG and future NCSES surveys is paramount to resolving the challenges faced by the U.S. STEM workforce, while also highly feasible and with clear precedent in other federal agencies.

Thank you for your consideration. We look forward to opportunities to discuss with you further. Please direct any correspondence to jon.freeman@nyu.edu.

Respectfully Submitted,



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