

# Gender Disparities in Remote Learning during the COVID-19 Pandemic: A National Survey of STEM Faculty and Students

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## Key Findings

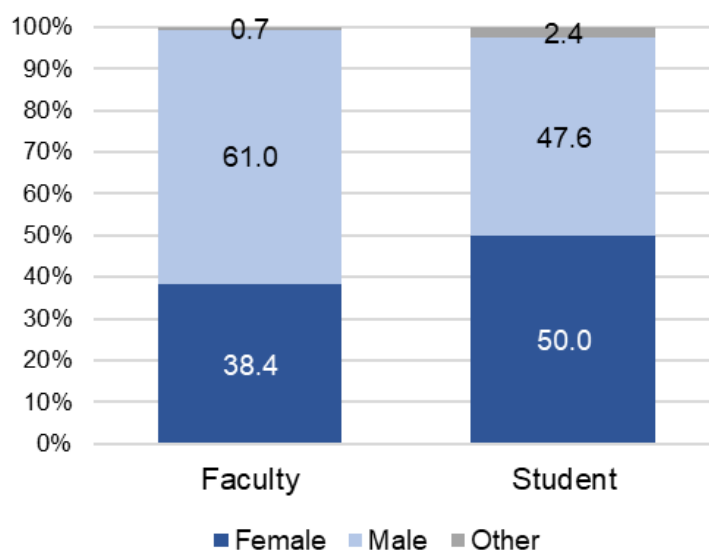
### Data from the National Study of STEM Faculty and Students (NSSFS), June 2020

- Compared with their male peers, female faculty and students in STEM generally reported more challenges in technological issues and adapting to remote learning.
- More than half of STEM faculty and students reported that their students and instructors, respectively, were uncomfortable with the required technologies for remote learning.
- One major challenge for more than half of STEM faculty and students was a lack of digital replacements for in-person collaboration tools.
- Both STEM faculty and students noticed each other struggling with adapting to remote learning. More than half of faculty reported that their students were struggling, whereas two in five students reported that their instructors were struggling.

Due to the coronavirus disease 2019 (COVID-19) pandemic, hundreds of colleges and universities in the United States suspended face-to-face classes and transitioned to remote learning. The COVID-19 outbreak has affected faculty teaching and student learning at many levels. Using data from the National Study of STEM Faculty and Students (NSSFS) collected in June 2020, this report describes gender disparities in the experiences of transitioning to remote teaching/learning among US STEM faculty ( $n = 1,087$ ) and students ( $n = 4,603$ ) in the spring semester of 2020.

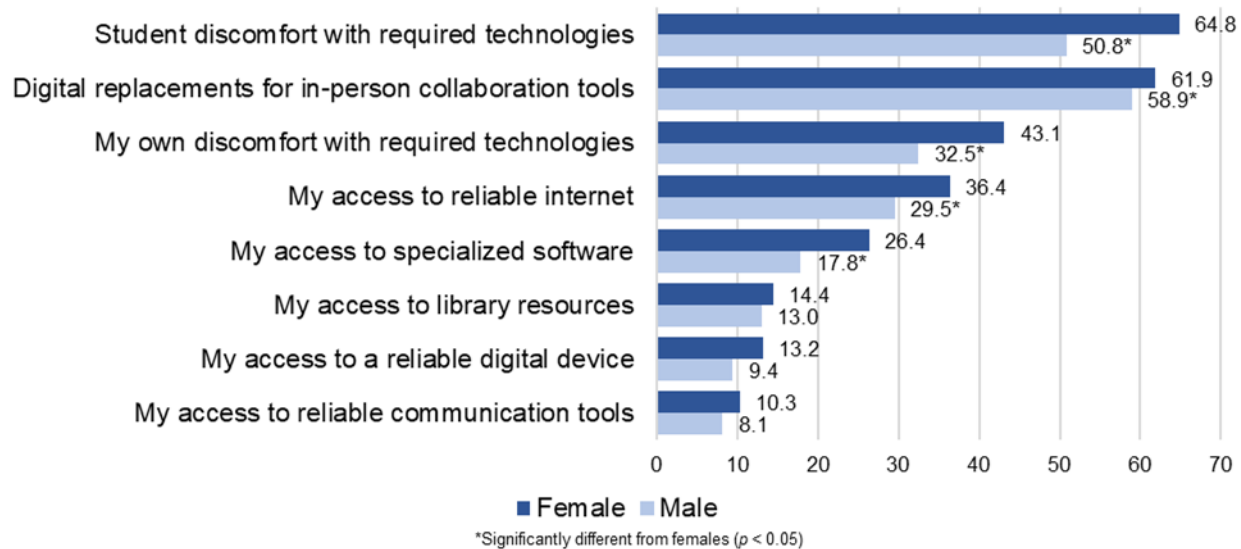
## 1. Sample Distribution of Gender Identity

- Among the faculty sample, 61.0% identified as male, 38.4% were female and 0.7% were other gender identities.
- Among the student sample, half identified as female, 47.6% were male and 2.4% were other gender identities.



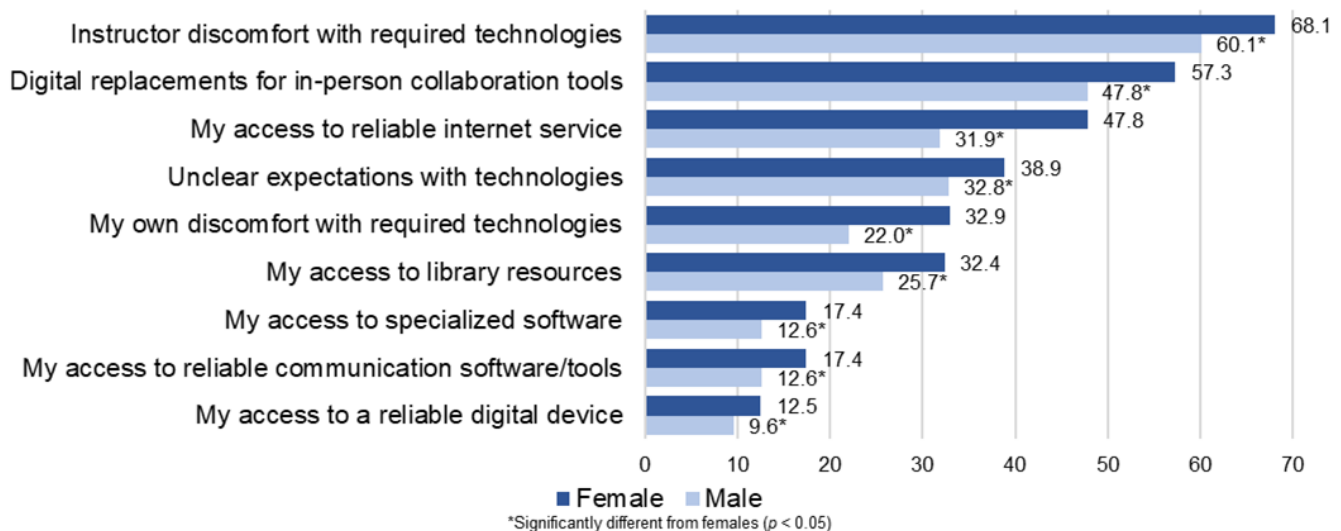
## 2. Faculty: Technological Challenges in Transitioning to Remote Learning

- Among faculty, the top two technological challenges were “student discomfort with required technologies” and “digital replacements for in-person collaboration tools.”
- Female faculty generally reported more technological challenges than their male counterparts (see Figure below for more details).



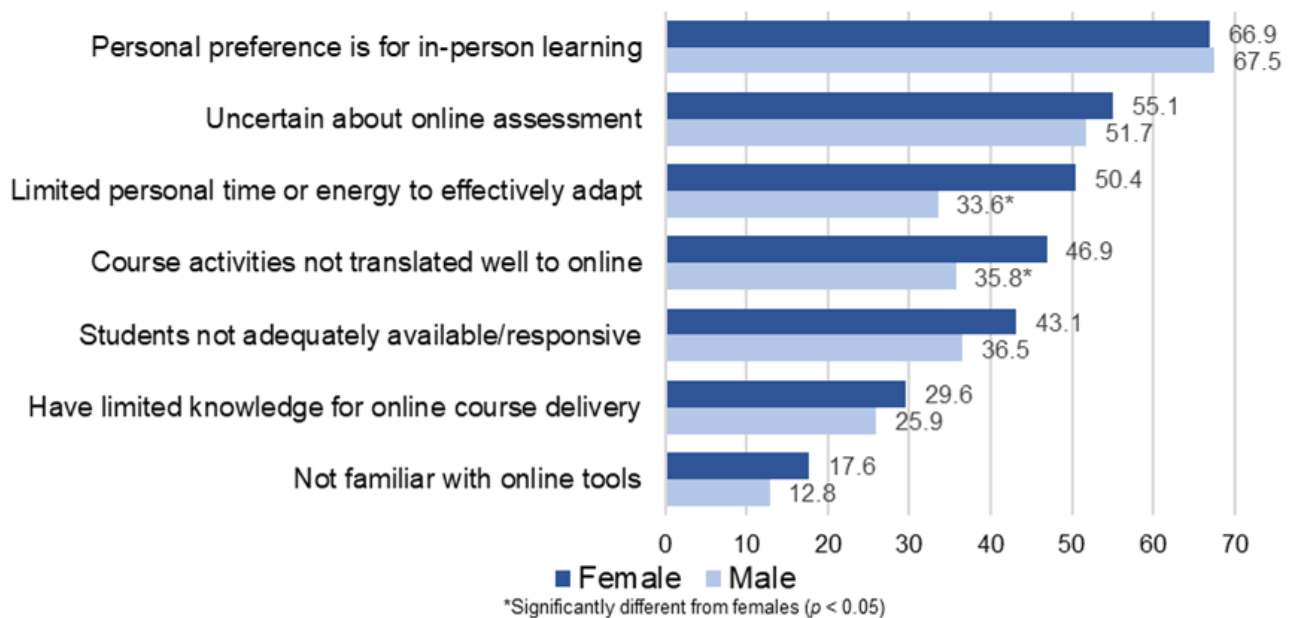
## 3. Students: Technological Challenges in Transitioning to Remote Learning

- Among students, the top two technological challenges were “instructor discomfort with required technologies” and “digital replacements for in-person collaboration tools.”
- Female students generally reported more technological challenges than their male peers (see Figure below for more details).



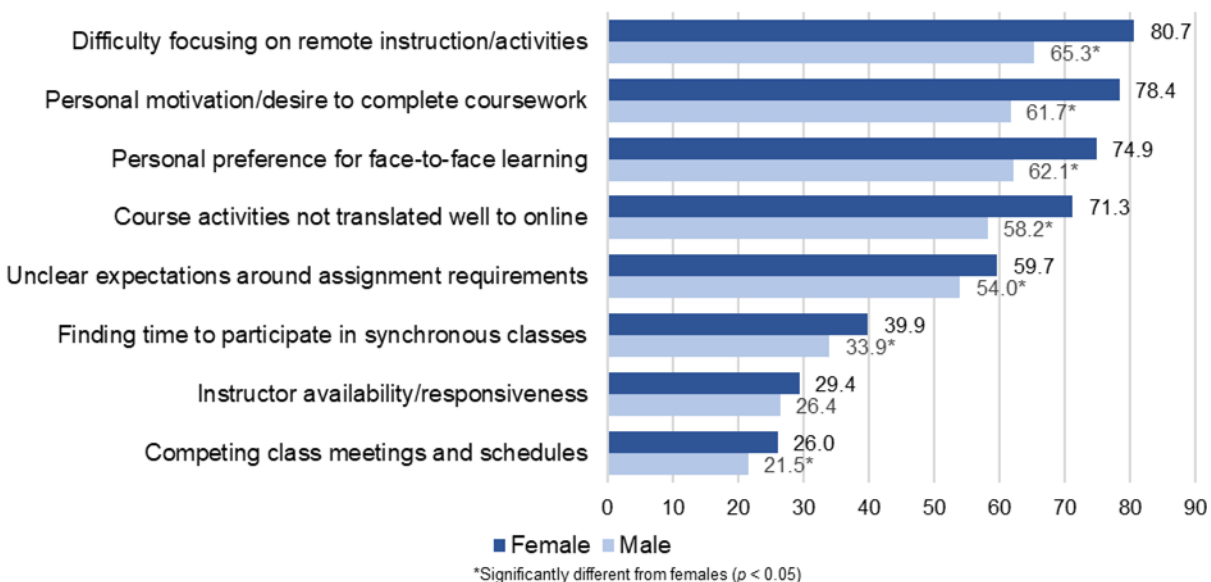
#### 4. Faculty: Challenges in Adapting Course Design to Remote Learning

- Among faculty, the top two challenges in adapting course design to remote learning were “personal preference is for in-person learning” and “uncertain about online assessment.”
- Compared with their male counterparts, female faculty generally reported more challenges in “having limited personal time to effectively adapt” and “course activities not translated well to online.”



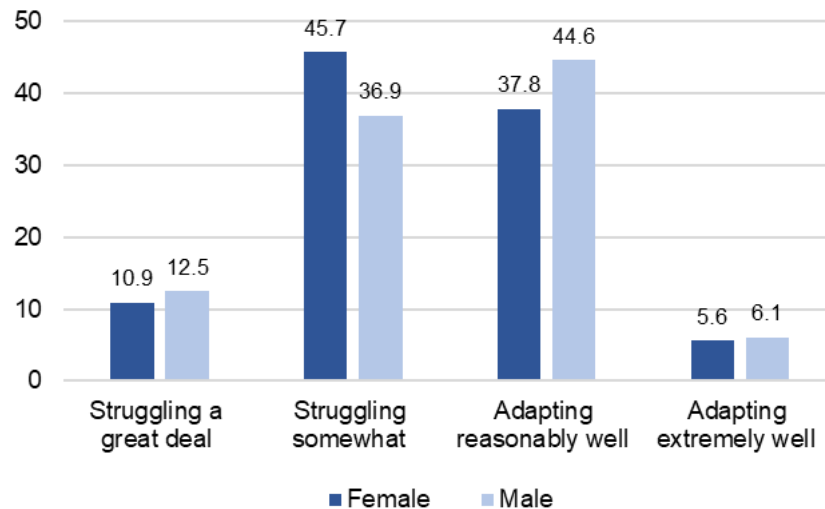
#### 5. Students: Learning Challenges Since the Transition to Remote Learning

- Among students, the top two learning challenges in transitioning to remote learning were “difficulty focusing on remote instruction/activities” and “personal motivation to complete coursework.”
- Compared with their male peers, female students generally reported more learning challenges in transitioning to remote learning (see Figure below for more details).



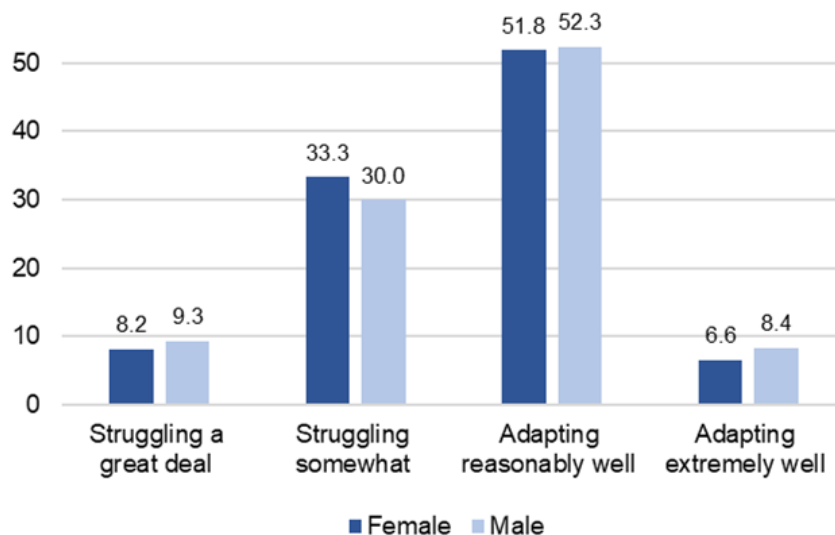
## 6. Faculty: Assessment of Student Adaptation to Remote Learning

- More than half of STEM faculty reported that their students seem to be struggling “somewhat” to “a great deal” with adapting to remote learning.
- There were no significant differences between female and male STEM faculty in their assessment of student adaptation to remote learning.



## 7. Student: Assessment of Instructor Adaptation to Remote Learning

- About two out of five STEM students reported that most of their instructors seem to be struggling “somewhat” to “a great deal” with adapting to remote learning.
- There were no significant differences between female and male students in their assessment of instructor adaptation to remote learning.



## Data, Sample, and Methods

Data used for this report were from the National Study of STEM Faculty and Students (NSSFS) during the COVID-19 Pandemic, funded by the National Science Foundation (NSF) RAPID grant (DGE-2031066; DGE-2031069), using funds from the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The study was administered through an online survey platform—Qualtrics—on June 3-22, 2020. Informed consents of participants were obtained electronically prior to gathering the survey data.

The final analytic sample for this report comprised 1,087 faculty and 4,603 students in STEM from 157 higher education institutions in 41 states. Of the total faculty sample, 26.3% were assistant professors, 25.7% were associate professors, 39.5% were full professors, and 8.6% were other academic ranks. With respect to race/ethnicity, 70.5% identified as non-Hispanic White, 13.8% were non-Hispanic Asian, 8.4% were Hispanic, 3.2% were non-Hispanic multirace, 1.7% were non-Hispanic Black, and 2.5% were non-Hispanic Native American or other race. Of the total student sample, 77.5% were undergraduate students, 13.4% were master's students, and 9.1% were doctoral students. 54.3% of the student sample identified as non-Hispanic White, 20.8% were non-Hispanic Asian, 14.7% were Hispanic, 5.0% were non-Hispanic multirace, 2.7% were non-Hispanic Black, and 2.5% were non-Hispanic Native American or other race. The mean ages of the faculty and student sample were 49.1 and 22.9, respectively.

Gender differences (for Figures 2-7) were examined using chi-squared tests at the  $p < 0.05$  significance level. The results in the figures presented in this report are bivariate associations that may be explained by other factors not controlled for. Statistical analyses were performed using R software (version 4.0.2).

## Suggested Citation

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## About the Authors

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