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Addressing the Needs of Students with Disabilities during the COVID Pandemic

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Introduction

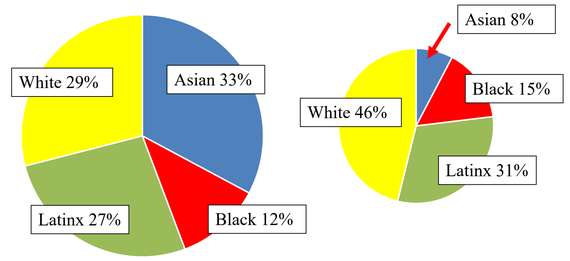
According to a Center for Disease Control and Prevention report 61 million adults (26% of the population) live with some form of disability (Okoro, 2018). The National Center for Education Statistics reports that 19.4% of undergraduate students have a disability, yet they make up only 15% of students pursuing an undergraduate degree in the Physical Sciences (U.S. Department of Education, 2021a).

Evidence suggests that engineering is one of the least diverse STEM disciplines with regard to disabilities. According to the National Science Foundation (2017) only 0.47% of undergraduates in an engineering program reported a disability. The reasons for this vary, but it is commonly suggested that factors such as student self-efficacy, lack of accommodations, and inability to fully integrate into the academic environment deter students looking to enter engineering programs (Jensen et al., 2004; Hawley et al., 2013; Pearson Weatherton et al., 2017). Other factors include lack of role models, limited awareness of career options for people with disabilities, and preconceived ideas of what engineers do (Martin et al., 2011, Pearson Weatherton et al., 2011).

Like many colleges across the nation, the impact of the pandemic on the City University of New York (CUNY) was significant. New York City was at the epicenter when COVID surfaced in the United States. In response, on March 19, 2020 the CUNY made the unprecedented decision to go fully online after a very brief period of "retooling" (Camera, 2020). The University went from offering predominantly face-to-face instruction to being completely online. This action particularly affected the approximately 40,000 students with disabilities at CUNY. One reason, according to a Pew Foundation study is that disabled students are less likely to be comfortable with technology and using the internet (Schaeffer, 2020). Here we report on data collected at CUNY about how the shift to online learning during the COVID pandemic affected students with disabilities.

Survey Data

Data come from student surveys collect at the beginning of 2022 to assess the effect that the pandemic and going virtual. The survey asked Engineering and Technology students about the impact the pandemic had on their education, as well as how responsive their instructors were to their needs as a result of the pandemic and the switch to online. The survey also asked the students about the extent of their disability. Approximately 500 invitations to take the survey were sent and 131 alumni or current CUNY students responded. The demographics of the respondents are shown in Fig. 1. Additional data came from student and faculty descriptions of the impact of going virtual that were collected during the fist six months of the pandemic



All students
(N = 131)
83.9% Male (17.1% Female

Students with Disabilities
(N = 13)
92.3% Male (7.7% Female)

Figure 1. Demographics of Survey Respondents

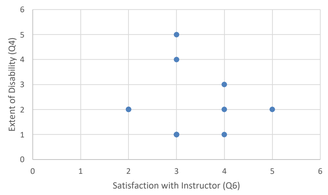


Figure 2. Extent of Disability vs. Satisfaction with Instructor

Results

Overall students confirmed that the COVID pandemic and the ensuing shift to online education significantly affected their education. On average students with disabilities felt that the pandemic had affected their education more than those without disabilities (Question 5). Additionally, students with disabilities felt that their instructor was not as responsive to their needs as a result of the pandemic (Question 6). However, there was no meaningful correlation between the extent of the disability and satisfaction with instructor responsiveness Figure 2. The quotes suggest during the initial phase of the pandemic some lessons learned for teaching students with disabilities.

Question 5: Affect of Pandemic on ones education

On a scale of 1 to 5 (1 being the not much and 5 being alot) how has the COVID pandemic affected your education?

Response to Q5		
	AVG	STD
Disability	4.8	0.4
no Disability	4.1	1.0

Question 6: Responsiveness of instructor

On a scale of 1 to 5 (1 being the least and 5 being the most) how much do you agree with this statement? "My instructor was responsive to my needs as a result of the pandemic and the switch to online instruction?"

Response to Q6		
	AVG	STD
Disability	2.08	1.26
No Disability	3.66	0.88

Some Quotes

A the start of the pandemic faculty and students were asked to reflect on potential lessons learned from these experiences

Faculty

"I learned more about how to make materials accessible to students with a disability."

Students

"Meeting virtually and offering lectures online increases attendance and is helpful for disability accommodations. This should have been in place years ago."

Conclusions

The COVID pandemic and the resulting shift to online education could have been an opportunity to better serve students with disabilities. Online education increases accessibility, especially for students with mobility difficulties. However, many students with disabilities felt that their instructors were not responsive to their needs compared to students without disabilities.

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