**Zoom classes as a replacement for in-person learning:**
Student opinion survey exploring online education attitudes and experiences during the
Covid pandemic

Abstract

As the COVID-19 pandemic hit the United States in Spring 2020, many universities moved their course work to remote learning, i.e., online. To better understand students' opinions about remote learning and satisfaction with Zoom classes, we surveyed undergraduate students at Boston University (N = 127) in the late spring of 2022. Our survey revealed that more than half of the students preferred traditional classroom settings to remote learning. Among the struggles that students identified arising from Zoom classes were isolation, decreased motivation and focus, difficulty communicating with peers and instructors, and technical issues. However, students appreciated the convenience that Zoom provided for their education, such as being able to record lectures and virtually attend classes from different parts of the world. Our results also revealed a difference in opinions between students from China and the US, with American students being less accepting of new technologies in education than their Chinese peers.

We conducted the survey through an online questionnaire, administrated via survey platform Qualtrics from 27th April to May 4th, 2022. Students surveyed sample (N = 127) consisted of 87% females (n = 111) and 11% males (n = 15); 53% were from the US (n = 68), and 33% from China (n = 42); majority of students were from communication college (n = 100).

Figure 1
Which learning modality do you prefer? (entire sample)
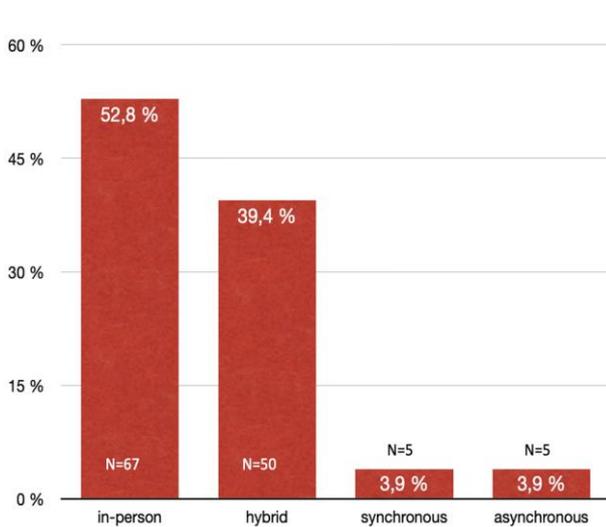
About half of the respondents (52%) answered that they preferred in-person classes, while 40% favor hybrid classes. 8% of students chose online learning with 3.9% students preferring synchronous virtual learning and another 3.9% -- asynchronous (Figure 1). 65% of students said they would like to have an option of choosing when to attend class in person or participate via Zoom.

Looking for the potential predictors for class mode preferences, we used the chi-square goodness-of-fit test. Results showed that there was significant relationship between satisfaction with how Zoom facilitates interaction (x^2 (3, N=126) = 22,35, $p <. 001$, $V = .42$), convenience of the plat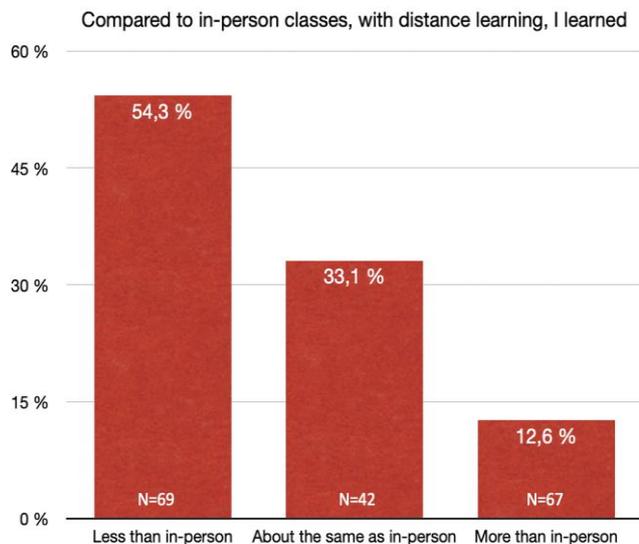form (x^2 (3, N=127) = 30,45, $p <. 001$, $V = .49$) and the choice of the learning mode. In other words, the more students were content with communication during Zoom classes and found Zoom convenient for learning, the more they preferred the online mode. Additionally, chi-square test showed that feeling isolated during Zoom classes predicted preference for more in-person classes (x^2 (3, N=126) = 18,13, $p <. 001$, $V = .37$).

Figure 2
Which learning modality do you prefer?
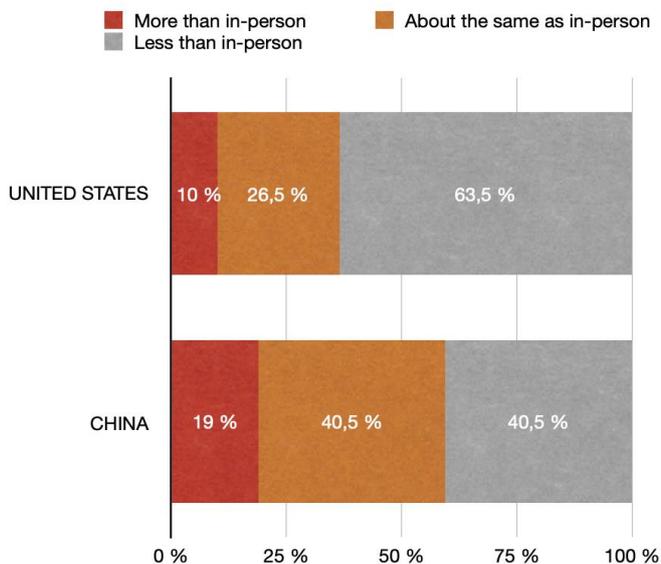(Chinese and American students sample)
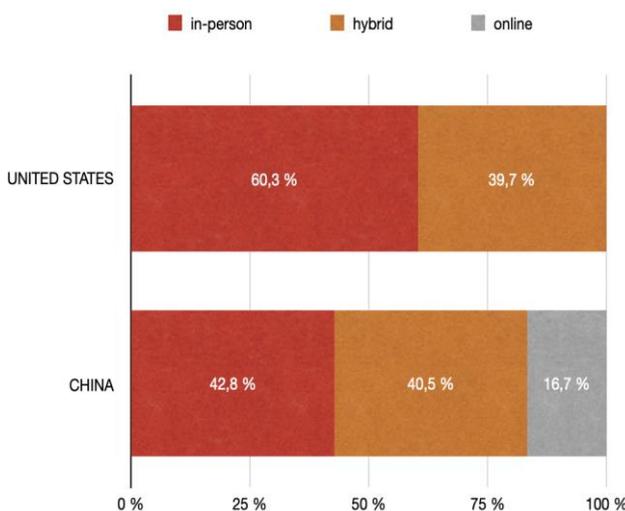
Our survey showed a notable difference in preferences among Chinese and American students: Chinese students almost equally preferred in-person and hybrid classes (n=18 and 17, respectively), while the number of the US students who preferred in-person classes (n=41) almost doubles the number of students who preferred hybrid learning (n=27). No American student would like to have either synchronous or asynchronous learning, while 1 Chinese student would prefer online classes (Figure 2).

Figure 3
Compared to in-person classes,
with distance learning, I learned (entire sample)

Compared to in-person classes, with distance learning, I learned

54,3 % N=69 — Less than in-person
33,1 % N=42 — About the same as in-person
12,6 % N=67 — More than in-person

There is public skepticism about the effectiveness of online learning and whether it is an effective way for students to acquire knowledge. In our sample, 54% of students said that they learned less during remote learning compared to in-person classes; another 33% said they learned about the same and 12% said they learned more (Figure 3). Along these lines, the majority of students (63%) did not see Zoom as a more efficient way of learning compared to in-person classes. 74% said that they felt less motivated when taking Zoom classes, and 85% said they had difficulty paying attention in an online class.

Figure 4
Compared to in-person classes, with distance learning, I learned
(Chinese and American students sample)

More than in-person — About the same as in-person
Less than in-person

UNITED STATES: 10 % | 26,5 % | 63,5 %
CHINA: 19 % | 40,5 % | 40,5 %

Questions regarding learning outcomes also showed a significant difference in answers between Chinese and American students. While responses from Chinese students were equally split — 40% learned less than in-person and 40% learned about the same, the majority of American students (63%) said that with remote learning, they learned less than in-person. Also, 19% of students from China said they learned more than in-person, while only 10% of students from the US shared the same opinion (Figure 4).

The challenge of maintaining focus and not getting distracted was reflected in an open-ended question about what could be improved in Zoom learning. Several students mentioned that having "some kind of restriction of what students can be doing on their laptops" during lectures would be beneficial. Some students reported that they were inclined to do other things during Zoom classes and had a hard time "focus and truly learn."

One of the critical functions of the Zoom platform for online education is interactivity. Compared to asynchronous online learning using MOOC platforms, Zoom classes imitate classroom settings, where students can interact with an instructor and their peers. However, 60% of the students in our sample said it was harder to communicate with instructors using Zoom, and 59% said the same about communication with their classmates. More than half of the respondents (54%) indicated that it was hard to participate in discussion during Zoom classes (Figure 5).
Figure 5

Communication during Zoom classes
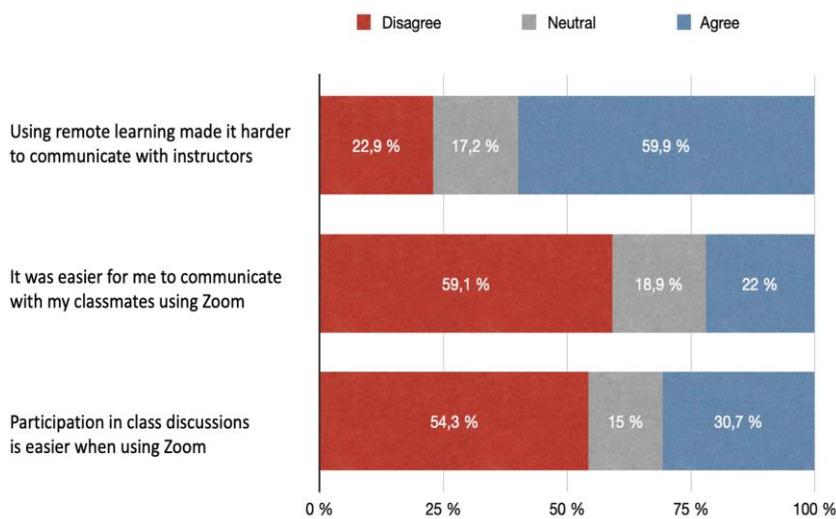
In the open-ended question about how would you improve Zoom for learning, a lot of students expressed their dissatisfaction with the communicative aspect of Zoom classes. They mentioned that the Zoom classroom was not interactive, and communication could not happen simultaneously: "only one person can talk at a time." Some students pointed out that, while Zoom made learning more accessible, classes were "less personable" and prevented students from building meaningful connections with peers and instructors. One person reported feeling self-conscious during Zoom interactions:

"Zoom is not bad, but I do find myself feeling more self-conscious when speaking on Zoom. People always seem to want to leave zoom meetings early too, so I think people feel less inclined to ask further questions or make small convo which helps build relationships."

Figure 6
Social isolation during Zoom classes
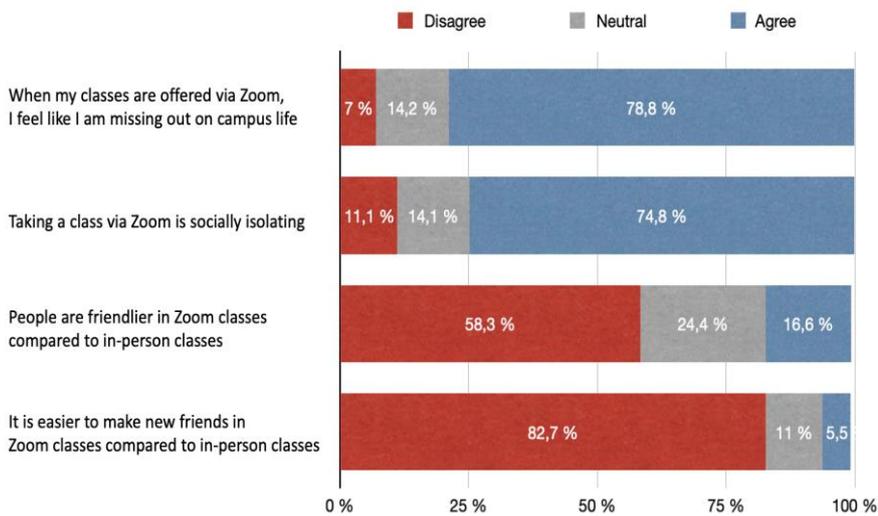
The lack of social interaction during Zoom classes was one of the biggest challenges for students. 79% said they felt like missing out on campus life, and 75% said taking Zoom classes was socially isolating. 58% of students felt that people were less friendly in Zoom classes, and 83% confirmed it was hard to make friends during remote learning (Figure 6).

The aspect of social isolation during Zoom classes was also reflected in the students' comments about their general liking of Zoom. Several students said it was hard to socialize as Zoom created a "weird work environment." One person noted that Zoom should focus on developing better "social presence options -- finding ways for people to feel like they are there."

Figure 7
Zoom platform convenience
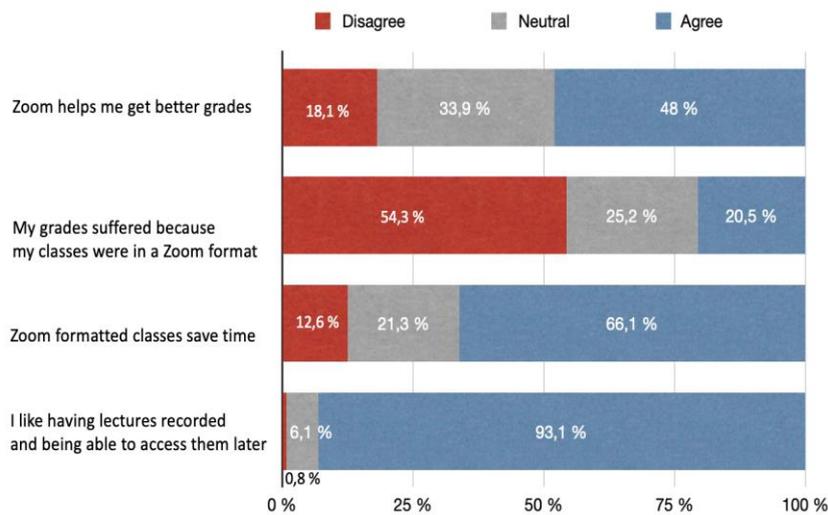
While students expressed challenges during remote learning, 48% said that Zoom helped them to get better grades. Similarly, 54% said their grades did not suffer from Zoom format. Students also appreciated the convenience of the platform: 66% agreed that Zoom classes save time, and 93% liked having lectures recorded and being able to access them later (Figure 7).

The feature of recorded lectures was frequently mentioned in the open-ended question about Zoom learning. One of the students summed up her experience with recorded classes on Zoom:

"Recording lectures on Zoom has been the best part of remote learning and should be a regular part of every college course, even if the course is taught in person. Recorded lectures are more accessible and allow students to stay home if they are feeling ill."

Technical difficulties during Zoom classes were something that we did not ask about, but a lot of students mentioned them in their comments. Students reported frequent platform lagging, cutting of voice or video, no help options if Wi-Fi was unstable, and other technical issues that they faced.

Figure 8
Zoom privacy concerns
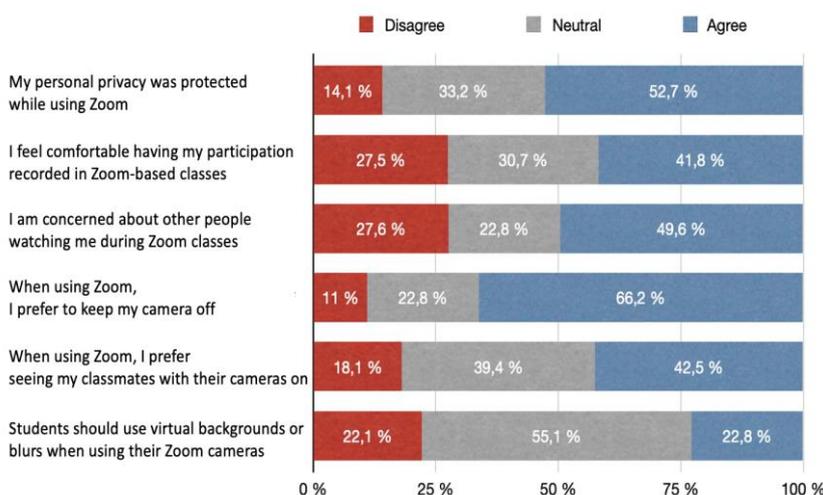
One of the issues that have been widely discussed along with the proliferation of online learning is privacy protection. In our sample, 53% of students felt that their privacy was protected while using Zoom and 42% felt comfortable that their participation was recorded. Yet, 50% of respondents were concerned about being watched by others during Zoom classes. We also asked students questions about Zoom features such as turning on and off the cameras and blurred or virtual image backgrounds. 66% of students said they preferred not to turn their cameras on, yet 43% preferred to see their classmates with cameras on. Generally, students felt neutral about classmates' backgrounds: 55% neither agreed nor disagreed that students should blur or change their backgrounds (Figure 8).

To determine whether remote learning experience has changed students' attitudes toward some aspects of their academic program, we asked respondents about how they feel about taking tests online and virtual exam proctoring, the use of digital materials, and preference for having more digital resources in courses. Our results showed that after taking Zoom classes, 35% of students felt more optimistic about these aspects of the academic program, 25% indicated no changes in attitude, and 39% became more pessimistic. 41% of students also said that they would like to have more technology in the classroom, with 23% disagreed and 35% being neutral about it.

Figure 9
I would like to see more learning technology introduced into the classroom
(Chinese and American students sample)
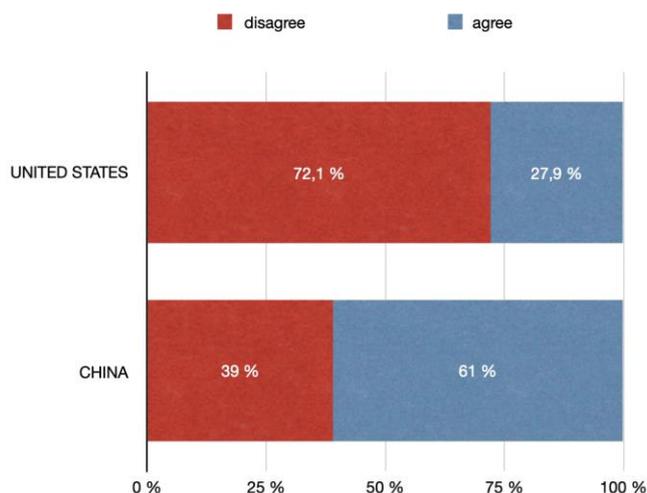
Notably, Chinese and American students had almost opposite views about technology in the classroom: The majority of students from the US (72,1%) disagreed to have more technology, while 61% of Chinese students were in favor of having more technology in the classroom (Figure 9).

In the open-ended question "Would you like to have more innovative educational technologies in your classes? Feel free to use your imagination about what these might be", students opinion split into those who preferred more new technologies and those who were against that. For more innovative technologies in the classroom, students mentioned the use of AR, new sharing technology for class notes and lectures, digital whiteboards, VR glasses, robot teaching assistants, games, and substitution for traditional PowerPoint presentations. Those who were not in favor of new technologies mentioned that it was yet another distraction from learning and they were not sure professors would be confident in using new digital tools for teaching. One student expressed concerns that learners and instructors might not want to use new technology that could be enforced on them:

"Students, as well as teachers, get frustrated when their learning is cluttered up with some new idea that someone had that really doesn't add much to the actual learning environment. Teachers know what they're doing and forcing new technology on them isn't helping, it only makes them have to work around this new thing that they didn't want in the first place."

Another student made a point about focusing on learning rather than on development of new technologies:

"I feel like we really don't need anything new. If it helps, that's great, but I'd really rather just focus on making sure students are in an enriching environment and learning/enjoying their studies than fancy new technology."

Overall, our survey showed that students enjoyed the benefits of accessibility of online learning and the convenience of some Zoom features, however, a lot of students held an opinion that remote learning should not be the primary mode of education. Students reported struggling with paying attention and staying motivated during Zoom classes, as well as feeling socially isolated and unable to connect with peers and instructors. Generally, students found Zoom being a useful tool for short meetings or project discussions but having several hours of online lectures was not the best way to learn new information.