



COVID-19's Impacts on Learning Environments and Educational Performance of Low-Income, First-Generation College Students

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Abstract

This project explores COVID-19's impact on first-generation, low-income students' learning environments at home, educational performance, and experience accessing school resources.

We conducted 21 interviews with marginalized students at UC Berkeley during the university's remote learning semester in March and April 2021. Marginalized students expressed they experienced difficulties with remote learning that negatively affected their academic success. Marginalized students experienced barriers like insufficient technology, inadequate learning environments, and a lack of connection with their professors and classmates. As a result, students experienced negative impacts on their academic performance and detriments to their mental and physical health.

This report was produced by the NavCal Undergraduate Research Apprenticeship Program (URAP) cohort at IRLE.

Key Findings

- Students could not afford technological equipment, such as laptops, ipads, quality internet, etc., to complete remote learning successfully.
- Students experienced a lack of connection with their professors and their classmates which caused stress during assignments and decreased academic motivation.
- Students lived in environments that were not conducive to learning. They experienced the inability to concentrate due to loud and shared environments and the frustration of sitting in one place for an extended period of time.
- Students reported deterioration of their mental health, i.e., sleep disorders, demotivation, isolation, academic rigor and financial stress, and aggravated pre-existing conditions, i.e., ADHD, and PTSD.
- Students sought after other financial measures such as loans, scholarships, credit cards, and cost of attendance adjustments.

- Based on our findings, our recommendations include: simplifying the financial aid bureaucratic processes, prioritizing low-income and first-generation students by speeding up the process of receiving funding, connecting students to additional resources, and offering the necessary technology to low-income students at little to no cost.

Introduction

Marginalized students, defined as low-income and first-generation students, experience disparities in regards to educational attainment when compared to their peers. Marginalized students experience lower graduation rates and are more likely to leave higher education. The current COVID-19 pandemic has created difficulties for all students, exacerbating the obstacles marginalized students experience. There is a scarcity of literature about marginalized student's educational experiences with COVID-19 and research about online learning neglects to mention the importance of physical arrangements and learning spaces. This research is necessary to identify marginalized students' needs so institutions can better support students from low-income and first-generation communities and address the educational inequities in society.

Background

Marginalized students are four times more likely to leave higher education than students who are low-income or first-generation (Pell Institute, 2008). Of those who attended two-year colleges, advantaged students (students who are not low-income or first-generation) obtain bachelor's degrees at five times the rate of marginalized students (Pell Institute, 2008). These disparities in educational success can come from multiple causes, such as coming from an ethnic or racial minority group with low college participation or being an older student with obligations outside of school (Pell Institute, 2008).

The current COVID-19 pandemic created the challenge of emergency remote learning. Although studying remotely was perhaps not the best option, it was the only option to cope with school closures. Since transitioning to remote learning, students reported increased stress and anxiety, difficulty concentrating, and

increased concerns about their academic performance (Son, 2020). Remote learning in education is a must when acknowledging a global disaster, but more can be done effectively to help students get through the difficulty.

Marginalized students already face barriers to educational success, which could be exacerbated by the additional obstacles of being a student within a global pandemic. A barrier that comes with the COVID-19 pandemic is online learning. Online learning presents its challenges for both parties: institutions have difficulty delivering online programs that provide as rich of a learning experience as in-person classes, and students have difficulty studying and engaging (Croft, Dalton, and Grant, 2010). For students, learning alone requires a heightened motivation that students cannot produce if they do not engage meaningfully with professors, tutors, and classmates. Furthermore, students struggle to access spaces conducive to learning and studying, materials usually available on campus, social and financial resources, and community that in-person interactions provide.

A study conducted before the COVID-19 pandemic did not show a significant difference in performance between online students and in-person students (Allen and Wilson, 2009). Nevertheless, in regards to low-income students, there is no evidence to show that online courses are either beneficial or not (Jaggars and Bailey, 2010). Online learning might be valuable for prepared students but may lower the chances of academic success for low-income students (Jaggars, 2011). For instance, course completion rates were much lower amongst community college students who were low-income and academically unprepared when taking online classes instead of in-person. Further, low-income students were less likely to continue enrolling in courses after taking a class online, contributing to lower academic success rates (Jaggars, 2011).

Evidence suggests low-income students encounter significant barriers to enrolling and completing online classes because of the lack of financial and technological resources such as internet access at home (Jaggars and Bailey, 2010). While taking courses online can mitigate access restrictions like scheduling and transportation, it does not reduce tuition costs (Chao, DeRocco, & Flynn, 2007). Further, low-income and underprepared students

might lack the necessary social and psychological skills to succeed in online classes, such as seeking help and self-discipline (Jaggars and Bailey, 2010). As of 2014, graduation rates among marginalized students were declining; they are far less likely to earn a bachelor's degree than those with higher income levels (US Department of Education, 2014). These students enter college with less academic preparation and limited information about college due to a lack of financial, academic, and social resources and are thus at a higher risk for dropping out.

COVID-19 has created difficulties for students that could potentially create long-lasting impacts on society as a whole. With the United States being unprepared for the shutdown of campuses, disparities will worsen between marginalized and advantaged students (McKinsey & Company., 2020). Their unpreparedness for online learning, combined with their lack of participation in higher education threatens their futures.

Methodology

This qualitative study was conducted remotely with University of California, Berkeley undergraduate students in the Spring 2021 semester. To investigate the experiences of marginalized students in the COVID-19 pandemic, we conducted semi-structured interviews with students over Zoom. The COVID-19 pandemic presented unprecedented challenges with online learning, thus, we hypothesized that students would express they experienced barriers with remote learning and negative impacts on their academic success. This study was approved by the University of California, Berkeley Institutional Review Board.

Data

The research team conducted 21 interviews in the months of March and April of 2021. Semi-structured interviews were conducted to promote in-depth conversations about marginalized student's opinions about and experiences in the remote learning semester.

The research team consisted of 5 undergraduate students at UC Berkeley who identify as first-generation and/or low-income students, so this allowed the research team to validate the usability of the interview guide.

Interviewees were recruited via organizations that support low-income and first-generation students at UC Berkeley. These organizations include the Educational Opportunity Program (EOP), Disabled Students Program (DSP), and Navigating Cal (NavCal). To take part in the study, students needed to be a first-generation college student, defined as being a part of the first-generation in their family to attend college in the United States or whose parents did not complete college. Secondly, students were required to be low-income students, defined as students who were granted the Federal Pell Grant and/or had an estimated family income less than 80,000 dollars per year.

Members of EOP, DSP, and NavCal were sent an email describing the project and a link to where they could answer questions about whether they were first-generation and low-income college students. Members submitted their availability to conduct an online interview. There were 26 total respondents to our recruitment email; 2 were deemed ineligible and 3 were unresponsive to further contact from the research team.

Researchers minimized risk or discomfort in interviews by asking general questions about their educational experience and allowing research participants to opt out of answering questions at any point. Interviews were conducted over Zoom with one of the research team members after students provided written consent to participate in the interview. The interview guide asked questions regarding learning environments at home, changes in academic performance or study habits, and their ability to access resources for their academic success. The research team recorded the audio of the Zoom meetings and utilized Zoom's transcription software. Individual team members who conducted the interview corrected their interview transcripts and provided participants with a pseudonym to maintain anonymity.

Analysis

Prior to analysis, the research team anticipated the themes of living conditions, technology, academic conditions, and mental health would occur in the interviews. This deductive approach to identify themes was corroborated by the research team's personal experiences as marginalized students in the remote learning environment.

Next, each researcher coded four interview transcripts to identify themes. The team inductively identified an additional theme of finances based on its repetition in student's respondents in interviews.

Thus, our final five themes were finances, living conditions, technology, academic conditions, and mental health. Interviews were coded by the entire research team. Each team member coded passages and quotes that fit into the themes from the interviews they conducted themselves. Lastly, team members each analyzed one theme and obtained findings. Findings and conclusions were identified based on repetition and emphasis in interviews. Furthermore, some unique cases of experiences in the remote learning semesters were included in the findings to illustrate the difficulties of the pandemic that students experienced.

Findings

This section focuses on the themes identified within our research which include finances, living conditions, technology, academic conditions, and mental health. These themes were chosen based on what students mentioned they struggled with during the COVID-19 pandemic. First, we begin with the theme of finances, in which we found that due to loss of income, students sought other financial resources such as loans, scholarships, credit cards, and the cost of attendance adjustments. Then we follow the theme of living conditions. Within living conditions, we found that students experienced the inability to concentrate due to loud and shared environments and the frustration of sitting in one place for an extended period of time. Next, with technology, we found that students could not afford technological equipment, such as laptops, ipads, quality internet, to complete remote learning successfully. After technology, we discussed academic conditions where we found that students experienced a lack of connection with their professors and classmates, which caused stress during assignments and decreased academic motivation. Finally, students reported deterioration of their mental health and the aggravation of pre-existing conditions.

1. Finances

Basic Needs

The COVID-19 pandemic has changed the priorities of students by making them realize that the current survival of them and their loved ones now has a higher priority than the long-term investment in their education. At least 15 students experienced difficulties concentrating on schoolwork during the pandemic due to the uncertainty of meeting their and their families' basic needs. Zoe explains the impossible task of completing her essay when she is hungry:

School is important because it helps with the goals but it's not like life-sustaining work. [...] like if people are out of work, or housing insecurities, food insecurity, it's very hard to be like 'yeah I gotta buckle down and write this essay'. You're like 'no, fuck that essay', [...] I got to figure out how I'm going to feed me. I have to see if my mom is okay. All these other life situations become so much more apparently important during times like that.

The COVID-19 pandemic has forced low-income students to face the difficult task of prioritizing basic needs which have resulted in school being second. Before the COVID-19 pandemic, students had access to campus resources such as the Food Pantry and cultural resource centers that would provide access to basic needs such as food and even work-study jobs. However, during the COVID-19 pandemic, students lost access not only to income through their work-study jobs but to basic needs centers that served their needs. Zoe, a student, was faced with the task of figuring out food expenses and the well-being of her mother over writing an essay that highlights the inequitable experience among low-income Cal students. This student needs to figure out her basic survival needs before she can write an essay. Students cannot function on an empty stomach which is why school is becoming an afterthought. It is not that this student is neglecting her duties to school purposefully, but is struggling to solely provide for herself. Low-income students have always had to worry about meeting basic needs, but now more than ever due to loss of income, school housing, and resources.

Family Responsibilities

In addition to providing for themselves during the

COVID-19 crisis, students have had to put money towards family expenses, which have been an additional financial burden for students at Cal. Carl explains how he has spent money to help his mother and sister:

My mother...she's a housekeeper and plus with COVID... She works at Hilton and she's out of a job right now so I've been trying to help a lot [...] I had to buy her a laptop for her to do all that [responsibilities, bills] online. It's another expense I had, but it was to help her with that you know, trying to get the cheapest laptop. Even though my sister is older, I started to help her a lot, like I sent her some money yesterday so she could get an uber home or for food sometimes.

When living at home, Carl identified himself as the “man of the house,” which to him meant taking a big part in paying bills and supporting his family. So, ever since his mother had lost her job, this student not only supported his mother financially but spent time teaching his mother how to pay bills online. He explains that he bought his mother the cheapest laptop for said bills and to search for available jobs. Supporting his family required this student to spend a lot of time and money to take care of his family from his dorm. Without Carl, his mother and sister would be facing further financial adversity. Carl stated that he took out loans to buy the technological equipment needed for school.

Unlike Carl, student-parents like Lulo have no choice but to support their families by any means necessary. She explains:

We rely completely on me, I have an adult son who's autistic and not able to find employment. And I'm trying to help him through life and then, I have a young daughter who's in elementary school and so all the financial [responsibilities] — How we put food on the table, how we keep the car running, how we keep our cell phones on all of that falls on my shoulders.

Since schools closed down due to the COVID-19 pandemic, Lulo, a single parent, no longer had access to free childcare services. Therefore, as a student, she did not have the finances to hire a childcare provider. In addition, being at home with her kids increased the expenses for basic needs such as food, toiletry, and other expenses like technological equipment. Lulo, a single parent, explains the difficult financial responsibilities of her two children who are completely reliant on her. She

also highlights how this pandemic has pressured her ability to keep her family afloat. Also considering that her older son cannot help her due to his disability, this requires Lulo to rely on financial aid and veteran's aid provided by the state to support herself and her two children.

Housing Affordability

A challenge that students encountered financially during the COVID-19 pandemic was sacrificing their study space in exchange for financial affordability. The COVID-19 pandemic forced many students to work from home and required a bigger space to work since study spaces on campus were no longer available. In Gamora's case, she did not have the financial means to afford a bigger space adequate for studying. After losing her job due to the pandemic, she was forced to move back with her parents because she could no longer afford to live on campus. Gamora had to sacrifice a study space. Gamora says:

I was dorming the university and then I had to go back home and then make, and then I had to find housing for the next year and make sure it was affordable do I want to go back to Berkeley and I personally I'm back in my hometown or with my family, I can't have that academic space, you know I had so much more responsibilities.

Gamora shares that she did not have the financial means to continue to live at the dorms. And when she went back home for financial reasons, she lost her study space. In addition to sacrificing her study space, she had to deal with family responsibilities since she was the oldest child. This negatively impacted her academic performance, as she did not have the proper learning environment available and had to dedicate more time to her family.

Emergency Funds

Since COVID-19 has seriously impacted students' financial situations, it is especially harmful when students face family emergencies that not only drain their finances but occupy their mental and emotional capacity to complete their schoolwork. Students shared that they put money towards family emergencies during the COVID-19 pandemic that brought financial setbacks. For example, Marc shared that their foster care parent

was diagnosed with cancer and needed to put money towards care and later funeral expenses, which hindered his education financially and emotionally. Due to the pandemic and its travel restrictions, commonly known as the quarantine, Marc was isolated in this difficult time and could not be with his family which hindered his ability to focus on school. Leslie mentioned that her parents lost their jobs due to the pandemic. And her family faced eviction the summer before starting at Cal. Aside from her family losing their home, she could not even afford the necessary technology to be successful. She explains:

My family, my family got evicted...experienced eviction over the summer...I think facing eviction is really hard just because my parents are both undocumented and then my sister and I are both undocumented...so just navigating the whole process was probably the hardest...the hardest thing I've experienced in this COVID.

These are unforeseen emergencies that happen in life that people cannot prepare for, which makes it especially daunting. This student did not have the proper financial nor mental capacity to function in school.



Financial Aid

Despite financial burdens, many students expressed the necessity and support of receiving financial aid as vital to completing remote learning semesters. Students often stated that the necessary technological equipment bought was solely due to financial aid. Monty explains:

The expectations that you're supposed to work with certain things like the Chromebook you know and it's like the reality is I'm a bit, I'm barely feeling like we're breathing and that's with, you know? Like because of financial aid, like if I didn't have financial aid, I would not be able to buy any of these things.

Monty argued that his computers ran slower and at a lower capacity due to the excessive amount of time spent online. So, buying a new laptop during the remote semester allowed him to keep up with the intense tasks of joining zoom meetings, completing assignments, and reading. Another student, Leslie, explained that without the help of financial aid, she would have continued to

share a desktop computer with her siblings which would have hindered her ability to complete her assignments:

I needed to have access to a laptop so yeah, I was just on a desktop. I was sharing it with like my siblings but eventually with like financial aid and all that I bought myself a laptop.

Financial aid helped Leslie buy the most important expense required for remote learning, which she shared was a relief for her during the semester. According to the Department of Financial Aid and Scholarships at the University of California, more than 65% of Berkeley Undergraduate students receive aid. However, despite the benefit of this financial aid, there were issues with the expenses changing during the middle of the semester unreflected in the current aid package and therefore requiring readjustment.

Cost of Attendance Adjustment (COAA)

Research participants shared that they filed for the Cost of Attendance Adjustment (COAA) through the financial aid office in order to receive more funding to buy the needed technology for remote learning. The cost of attendance (COAA) is a student budget that is the estimated average and “reasonable” cost of completing an academic year at UC Berkeley. This budget, along with the student’s household income, is used to determine students’ financial needs and the amount of aid that is offered through scholarships, grants, or loans. The standard COAA is based on a budget that is the same for all students. In other words, low-income, reentry students (student 25 or older), formerly incarcerated students, student parents, undocumented students, transfer students etc. are all assigned the same averaged budget as students who are not low-income or that do not experience additional barriers to being a student. Students oftentimes have to adjust their COAA for their budget to accurately reflect their finances and any additional needs that are not considered in the COAA. One of the budget items included in the COAA is dedicated to additional funding for a “computer purchase” but can be used to also purchase other needed technology such as a printer or tablet.

Our research participants expressed some frustration regarding the process of filing for their cost of attendance adjustment (COAA) and getting approved to receive funding for technology. One of the complaints was about the fact that COAA's took a long time to get approved and that as a result, the funding took a long time to be received. One student shared not receiving the funding until the mid-spring semester when they had applied in the fall. Another problem that came up in our interviews regarding the COAA was that students could only be approved for technology funding once every three years. This rule disregarded the unprecedented circumstances of having to study remotely during the pandemic. Students expressed feeling frustrated by that rule because they felt that the more they needed to use their electronic devices, the more likely their devices would experience wear and tear and that additionally, more accidents were likely to happen. These technological challenges impacted low-income students because they oftentimes could not afford to buy the technology they needed without the additional help from the school. As a result, not having the right technology impacted their ability to show up to class, learn, and perform.



It's really difficult to be present in your family life or your home life and be a student at the same time.

2. Living Conditions

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and bestowed an unprecedented challenge to college students' living conditions. The economic and social disturbances caused by the pandemic are destructive, and low-income and first-generation students are at risk of withdrawing from their studies. Students studying from home are experiencing challenging circumstances such as not having a study space, difficulty concentrating, and distractions due to household responsibilities. As one participant stated, it has simply been a roller coaster the past year. The pandemic has affected students' living conditions making it more difficult to study, focus, and feel more motivated. As Natasha mentioned:

I think I got lazier—I procrastinate a lot more just because it is so easy to because I do not have the proper space, whereas, at school, I would go to like coffee shops, or the library, and to have space.

College students struggled to adjust to new social routines—from deciding to skip in-person gatherings to consistently wearing masks in public. In one particular area of distance learning a student parent, Lulo remarks:

I have a living room, I cannot work, I cannot study, and an open room and I think that is just my trauma and PTSD. I need a place where I can close the door, and it is just me. So not having that means that this room is just filled with stress. There is no break.

Another student, Luke, who went home for the pandemic, stated that:

When you are online, you're still a student. They [family] still think you're just home. So, it's really difficult to be present in your family life or your home life and be a student at the same time.

With the living conditions during COVID-19, it is essential to encourage students to take personal responsibility to protect themselves and their loved ones. The onset of the COVID-19 pandemic created a definite deterioration in living standards. Natasha explained:

It has been very difficult...we always have a kid here, I have either my niece here, and my mom babysits a lot. Thus, she is a handful and can often be loud and distracting.

Luke stated:

I'd probably say a good five hours average of [responsibilities] because you know there's cleaning, then feeding the animals and pets, and then there's cooking and all that.

Zoe also mentioned that:

I really start my day and end my day with household responsibilities...so maybe like four hours a day I spend really cleaning. And that's not including walking the dog or going to the grocery store or you know doing anything like that. That's not even cooking.

We have seen both benefits and disadvantages of being cooped up with family for long periods throughout the pandemic. Moreover, there has undoubtedly been added

stress for students and families who have had to deal with remote learning situations.

3. Technology

Technological needs for low-income first-generation UCB students were magnified by the COVID-19 pandemic. The sudden switch to remote learning forced students to adjust to studying from home and to create a workspace supportive of their needs. Thus, many had to acquire all kinds of new technology such as laptops, computer monitors, reliable internet, keyboards, mice, desks, chairs, printers, and tablets in order to continue their academic careers. However, the high cost of technology, the unreliability of the technology offered by the school, and the bureaucratic barriers that came with applying for additional financial aid made it especially difficult for low-income first-generation students to adjust and function as students.

Technology Needed: An Extra Screen

One of the main technological devices participants expressed needing was another screen such as a monitor or tablet to help them focus and better engage with the material presented in class. Interviewees mentioned the challenge of working on one screen and having to go back and forth from the lecture window to their notes. They shared that having an extra screen helped them better understand lectures because they could take notes without having to switch up screens and they could directly annotate the slides or worksheets often provided by professors.

Technology Needed: Internet

The internet is needed to succeed as a student during remote learning but is not always reliable or accessible for low-income students. Many students reported having unreliable WI-FI and often getting kicked out of their Zoom meetings and classes. Some interviewees explained that WI-FI issues mainly surfaced while they were connected at the same time as other people in

their home. A participant explained having to share their internet with their sister, a middle school student, and that one of them almost always got kicked out of class when their class time overlapped. Another student shared oftentimes being asked to get off the internet by their family members:

There's a lot of us in and out of that house, so we did have internet, but like my schooling was not the priority in that house. Like if there were too many devices on the internet, they would ask me to get off.

Some students also experienced lack of access to internet options. One participant shared not being able to upgrade or change their internet because the area they lived in only had one internet provider. They shared:

Where I live, it's like an old phone line. And the WI-FI is really slow. So I just have to endure it and kind of just hope it will suffice for my Zoom and meet the demand.

Internet access during the pandemic and remote learning highlights the inequity in education. Low-income students often live with many other individuals, whether that be family members or roommates, and are not always able to afford internet, let alone reliable fast internet. As a result, many low-income students are not always able to attend classes or engage in their coursework. As one student best put it:

You start to see systems of oppression because no one ever thought about technology as a human right in its essence, but it has become one you know, the Internet, computers, all this stuff has become a human necessity that's no longer a privilege, it's like you need this to survive. And so it's been very interesting to see that uptake and just everybody's access to things like it changes the conversation around it about social justice. Like I'm sure some of the better co-ops and stuff, have like excellent internet and then I feel like when you go down to like Rochdale [low-cost co-op housing], I feel like all the people that are there are like 'yeah my hotspot never works' or everyone is on the same hotspot for class time, and it never works...

Technology Needed Specific to Majors and Courses

Some participants shared technological challenges specific to their major. For some STEM majors, not having a tablet came up as being an especially difficult challenge, especially to work on problems and receive help from faculty. A mechanical engineer student reported feeling very frustrated at the technological inequity in STEM majors. They explained having to write their mathematical problems on a paper which took longer to show their professors or GSIs on Zoom than if they had an iPad or tablet. This student also shared his observation of how professors expected students to have certain technology. He shared:

I know a lot of people, a lot of my friends, they all have iPads and pencils and like professors kind of expect that now. They're all like 'do it on your iPad, open up your iPad' and some of us don't have it, so I have to go print out the paper at FedEx or wherever.

This student had to work harder to submit their work and engage in the classroom due to their lack of a tablet. Additionally, professors expecting students in their class to have a specific type of technology further highlights the importance of having that technology in order to compete with other students who have the means to buy the technology they need, engage in the classroom and coursework, and overall succeed as a student at UC Berkeley.

Certain courses required technological equipment that could have, in non-remote times, been borrowed from the school. For instance, Natasha, a student taking a film course, explained having to find her own way around getting the proper equipment required for her class. She shared:

I borrowed technology from my own family, like [the] mic is from my brother-in-law... and then my mom had a camera. But I do know that in person for this film class my professor said, like, it's a lot better in person, because we can get a lot of equipment from Berkeley, but we weren't able to get that. So that kind of sucks... I had to figure out where to get this equipment and also because I didn't want to spend money on it... but there was other stuff I could have gotten.

This example highlights how being away from campus

during the pandemic made it even more challenging for low-income, first-generation students to access resources necessary to succeed in their classes.

Impact of Not Having the Right Technology on Physical Health

Research participants shared needing new technology in order to continue participating in their coursework in a way that was physically comfortable and conducive to learning. Many interviewees explained that not having certain technology or being on a small laptop screen all day really took a toll on their body and impacted their ability to engage with their coursework. Esperanza, a comparative literature student, explained how reading on a small screen for long periods of time impacted her eyesight and as a result made it difficult to understand the material she was reading. Esperanza communicated her wish for more funding so she could buy a monitor, a larger desk, and a printer to be able to switch up screens, read on paper instead of on a screen, have better posture while studying, and ease her eyesight pain. Zoe, a history student, reported having to buy a new monitor, chair, and webcam in order to go to class without having neck pain. She explained:

I got a pinched nerve in my neck because I'm staring at a small laptop screen so then I had to get a different chair, and now, the laptop is attached to a monitor... I had to change my whole desk system to be comfortable and go to class.

Not having the right technology impacts students' physical health and as a result, can have some serious repercussions in their ability to show up to class and engage with the material.

STEP

To address some of the technological challenges that students experience, UC Berkeley has in place programs to help students borrow electronic devices or receive extra funding to buy technology. One such program is the Student Technology Equity Program (STEP). STEP loans hardware and internet access devices to students in need. Students are able to apply to borrow laptops, webcams, headphones, mics, etc., as well as internet hotspots. Eligibility is based on various factors such as

financial need and previously received support. Many of our research participants applied to STEP and received devices from the program.

Although many of the interviewees expressed feeling grateful for the material they were sent, they recognized that the technology sent to them was limited and not always reliable. One student shared needing a new laptop once the pandemic started because their computer was too old to handle the amount of use and time spent online. However, she shared that the Lenovo ThinkPad sent to her was not much better because it also took a long time to start and was “glitchy”. Regarding the internet hotspot that was sent, students felt that it did not provide reliable internet. One student shared:

The signal is just really bad, and the hotspot doesn't always charge. I always have to keep it plugged in because I'll never remember how to turn it on.

Another participant shared having to wait a long time to receive their hotspot and not being able to access their classes and coursework during that time.

4. Academic Conditions

The transition to online, remote learning created many difficulties for students. The online platform for learning created difficulties with connecting to other students and professors, accessing academic support, and utilizing campus resources.

As a result of the pandemic, students were unable to establish organic relationships with other students. One of our participants, Zoe, expressed how students are “paying money to go to Cal for the community, [and] the interactions.” For marginalized students, higher education is an investment, and unfortunately, enrollment during the pandemic provided little payoff. As Zoe describes, Zoom school made it “very hard to make connections with other students.” Another student, Ella, described that establishing connections during online learning felt unnatural and that it’s “weird to study online with a group of people, rather than being in a library together just talking.” One participant, Gamora, described how she feels “more intimidated” to make connections online because “sending a chat and connecting through social media ... could be awkward

sometimes.” Gamora felt that in person it was easier to establish connections because it was “so easy to talk to people, so easy to get to know people in your classes.”

With the remote environment, students often did not turn on their cameras in class and participated minimally. Carl, a STEM major, explains that:

It even feels weird to speak in the Zoom, when no one else is talking or has their camera off... feels like a bad thing to ask for help on Zoom.

Another participant, Mario, explained that even if you found study sessions, they were unhelpful because it was difficult to collaborate. Mario describes his experience: “It’s kind of hard to ... just sit behind the screen and do your work with other people.” Mario feels like study sessions “could be helpful,” but dealing with lack of motivation with online learning, it was easier for Mario just to “try to get it over with” on his own. This narrative was not uncommon, of our study participants; many expressed difficulty with asking for help with the online platform of school. Some study participants explained the lack of academic support consequently affected their grades and academic performance.

In the classroom, students also struggled to make connections with their professors or graduate student instructors (GSI). Students explained that online school felt more structured, so making connections with your professor online felt intimidating or inorganic. One participant, Sage, explained that she felt “scared to talk to the professors,” and she didn’t want to “bother them” so asking for help felt very “intimidating.” Office hours felt structured and technical, rather than feeling like casual conversations at school. Carl found that with the pandemic professors were “a lot more structured with the time,” so office hours often had a start and end time. As a result, students felt pressured to only go to office hours when they had something necessary to say. Ella explained that she only went to office hours if she had “a great update” to provide. Furthermore, students couldn’t accommodate a professor’s scheduled office hours, with one participant, Natasha, saying she wanted to go “but [she] couldn’t attend them because [she] either [had] to either work at those times or like babysit or just do other stuff.” In summary, students experienced barriers to seeking help and building rapport with course instructors with remote learning. As a result, students

struggled academically and many students experienced difficulty asking for letters of recommendation. As mentioned before, higher education is an investment, and remote learning robbed students of the connections, help, and academic resources they sought.

Furthermore, students experienced barriers with academic resources on campus. Firstly, in general, as Annie describes, there was a “lack of resources online versus in person.” Academic resources were not built for the online format, so resources were either unavailable or less accessible online. One participant found that websites for DSP or SLC services “are really hard to navigate,” making it difficult for students to seek the services they need in a timely manner.



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Despite the barriers to resources with the pandemic, there were some positive outcomes. Student-supported programs like NavCal directed students to campus resources and initiated those interactions. Natasha comments that she “[made] more of an effort to” seek campus resources “because [she had] the push from NavCal.” Furthermore, Mario explains that DSP accommodations were “a big resource,” and he could get necessary “extensions on assignments.” Ultimately, there were barriers to online learning, but students commented that they did feel that the school was “trying.”

5. Mental Health

Many marginalized students came to Berkeley at a deficit and were already less-equipped— financially, technologically, and housing-wise. Students in these marginalized communities come from a history of systemic neglect, and systemic oppression. At the onset of the pandemic, UC Berkeley’s low-income students not only scrambled along with non-marginalized communities to preserve their physical health, but unlike the other communities, some, like student parent, Monty, found increased mental stress as her community suffered higher rates of contracting COVID-19 :

Black and brown people continue to die at disproportionate rates that, like my skin color,

right like, that’s like that’s terrible. The fact you know that being low income will kill you faster right?

Thus, marginalized students also had to fight for their mental wellness— with limited resources and no break in learning in the academic rigor of attending UC Berkeley. Students cited depression, anxiety, demotivation, and death (the loss of loved ones) as they struggled to attend Cal remotely. Students also experienced an exacerbation of their pre-existing disabilities, such as ADHD and PTSD.

First, the idea of “getting through it” was all the means one student described their experience with remote learning. Zoe expressed:

I don’t want to get angry or feel negatively towards the situation because I’m still in school, so I still want to like you know, I’m trying to push it towards positive because it’s still something I signed up for to further my goals. And so I’m trying to look at it positively, but you know it’s very, very hard to not have negative connotations with it. So I’m kind of trying to stay neutral and be like just get through it.

However, the mere ability to concentrate made Zoe feel like she was demotivated and instead was side-tracked with household chores:

I feel like I have this internal monologue like you know, you should do this, you should do that and I feel so in the middle of everything! I’ll put on the audible book to read for class and then try to clean and I’m like ‘wait! What the hell did they just say?’ and then I’m like pausing and trying to go highlight and take notes or like write down the page, so I can go back later and reread...frustrating.

Ultimately, she said the intent of “just getting through it” was really a matter of remote learning to be “madness, like I’m operating chaos, and I just assumed everyone else was doing the same thing”

Another student, Alex, found her mental health deteriorating with all that she faced. Although a difficult decision, Alex withdrew from UC Berkeley altogether. When asked what remote learning was like, they

explained:

A struggle, I'll say. So, I'm not in school this semester, but I was last semester, and it was really hard. To disconnect, you know, to detach with school, home, and work, because I also work. I'm also a full-time worker [Company name redacted] I'm a [title redacted] technician. And that was just really hard to do, you know? And mostly hard because my partner is also a student at Cal, at the same time. So (it was) how were we going to do Zoom meetings? Even right now I can hear him in his meeting, and like it's so distracting. You know, like how, I don't know, it's really hard to do two different things at the same time, um but yeah, I think it was really hard and felt like it wasn't worth my time to do Cal that way.

Sage, in their second semester was diagnosed with major depression which caused them to sleep a lot. This led to the inability to get up on time and negatively affected their academics, as indicated:

But a negative besides my commitment or attention to my academics has been my mental health. I definitely got diagnosed with major depression and it's been hard um sometimes I don't even want to get up. I sleep a lot.

Moreover, Ella summed up her mental health prior to Covid-19:

So, freshman year, I was doing pretty good with grades. I would always be going to the library, and then I would just, I had like a better sense of time management.

Prior to remote learning and campus closure, Ella enjoyed the many campus facilities and found that she was healthier until it all fell apart:

I was also more fit, like at nighttime, I would go to like our RSF right after club meetings to and just like workout. I was very organized. Like even in the morning, I would wake up and then right when I woke up, I like have my morning routine, I would do my skincare and then I would just go to like crossroads and then eat breakfast. And then when it happened, everything kind of just like fell apart.

She described, “my mental health, just like deteriorated” when explaining her internal family struggles of having to take on additional maternal responsibilities like feeding, and cooking for her younger siblings. Today, she is taking

6 units rather than her usual 14 units to combat her mental health deterioration. She explained:

This semester what I'm doing, it's like I'm focusing on my mental health more, rather than just taking a lot of units, because I'm still on track to graduate. But I guess I used to be the type of person to always prioritize my school and I never focused on, like, what actually makes me happy.

Another student, Marc, who lives on campus felt COVID-19 and online learning exacerbated his pre-existing sleep disorder, he said:

I have a sleep disorder I can't work in my room, I mean that's bad sleep hygiene anyways for anybody, but particularly for me it's like very critical that I have a place to work that's not my room.

Marc also mentioned he found it distracting to focus in a zoom setting which exacerbated his ADHD “like you have a blender or something, so I gotta like focus while that’s going on in the background, right? I have ADHD.”

Lastly, the following student, Natasha explained the impact Covid-19 and zoom learning has on her:

So recently I lost my dad to COVID-19 a few weeks ago, in that I like stopped going to classes, I don't really do my homework. Until like last week I finally was like okay let's... , which is only like two weeks since that. So it didn't take too big of like an impact on my academics, but in a way it has.

Marginalized students suffered a self-described mental health deterioration impacted by the global pandemic, COVID-19, which hindered their ability to engage meaningfully in their online remote learning.

Discussion

This study examined the following research question: how has COVID-19 affected the learning environments and educational performance of college students in marginalized communities? We found that COVID-19 has placed marginalized students in a vulnerable financial position because they do not have the technology nor study environments to properly continue their studies, resulting in loss of academic motivation and mental health deterioration. As students who had already experienced one virtual semester in Spring 2020, we

had observed the remote learning challenges during the COVID-19 pandemic. As first-time student researchers, we decided to use our opportunity to research and give a voice to marginalized groups at the University of California, Berkeley. We felt it necessary to investigate the disparities experienced in the groups most affected—low-income and first-generation students.

Prior research shows that low-income and first-gen students were already four times more likely to leave higher education than those who had neither of those risk factors before the pandemic (Pell Institute, 2008). This motivates our investigation into how the COVID-19 pandemic might have further harmed the learning of minority students. We conducted 21 interviews with students who identified as first-generation and low-income regarding finances, living conditions, technology, academic conditions, and mental health.



Without appropriate living environments and having scarce financial resources, students experienced diminishing academic motivation and a deterioration in their mental health.

Key Findings

The COVID-19 pandemic further threatened the finances of marginalized students, which negatively impacted their ability to afford adequate technology and study environments. Students reported not having the ability to afford necessities such as food and shelter. Students sought different financial avenues to account for their school-related expenses such as financial aid loans, scholarships, credit cards, cost of attendance adjustments, and the Student Technology Equity Program (STEP). In addition to financial losses, students did not have adequate living spaces with study spaces, and they often shared difficulty concentrating and often invested time in fulfilling household responsibilities. Moreover, COVID-19 made it clear that technology has become a human necessity or right to function in this society. Students needed access to adequate internet, monitors, technology specific to their majors. Reliant on technology, grades quickly suffered if they did not have the proper technology to complete the remote learning semester.

Without appropriate living environments and having scarce financial resources, students experienced diminishing academic motivation and a deterioration in their mental health. Respondents reported that their interactions with professors and graduate student instructors were intimidating and inorganic,

which caused them to seek help only when necessary. Students chose to figure out assignment questions independently, which caused them to get lower grades. Interactions with classmates quickly felt disconnected and fragmented. Other classmates did not share their videos and stayed muted throughout the class, making

it difficult for them to connect. Students shared that they felt alone in virtual classes and in their personal spaces due to lockdowns and restrictions on seeing others during the COVID-19 pandemic. This led to the deterioration of their mental health due to existing

conditions such as sleeping disorders, ADHD, depression, and post-traumatic stress disorder. These psychological conditions were further aggravated by isolation, academic stress, and financial stress.

Limitations

This study has some limitations. Results may not be generalizable to all marginalized college students, since our sample only included University of California, Berkeley students. Furthermore, we relied on students in our sample to self-report on their status as first-generation and low-income college students. Our research team did not seek to further validate student's identities beyond self-reporting to maintain privacy and minimize risk. Lastly, while our call for research participants was distributed among multiple campus organizations serving the marginalized student community, all of our participants were members of the student organization NavCal. NavCal serves first-generation, low-income, and non-traditional students learning the hidden curriculum of higher education. Our research team members are also all current or former members of NavCal. We have no reason to believe that this created biases in our results, but wanted to be transparent about our study sample. If anything, we expect students who are not in NavCal to have experienced the problems more severely.

Future Research Needs

Literature about marginalized students' pedagogical experiences with COVID-19 is limited, and investigations about online learning overlook the value of physical arrangements and learning spaces. There is reason

to believe that inequalities in academic success are worsening. Future research is essential in order to identify marginalized students' needs, so that institutions can better support students from low-income and first-generation communities. Possible future research needs could be a more representative sample, similar studies at other colleges, and whether the pandemic effects persist even when classes go back to in-person.

Implications for University Practice and Policy

Our project revealed gaps in university practices and policies, and highlighted programs that have been helpful to low-income, first-generation students. In order for students to access the funding needed to succeed in their academic careers, the campus needs to simplify the financial aid bureaucratic processes and consistently look for new ways to fund low-income students. Given the fact that students are expected to have certain pieces of tech, it inherently places them at a disadvantage if they don't have access to these vital technological equipment. This could mean having financial aid staff reach out to students to file cost of attendance adjustments (COAA) or creating step-by-step workshops rather than letting students figure out complicated processes on their own. Further, the financial aid office needs to prioritize low-income, first-generation students by speeding up the process of receiving funding and connecting them to additional resources. Also, all students should have the infrastructure (internet, tablets, desks, etc.) needed for remote learning and beyond. The university should offer the necessary technology to low-income students at little to no cost. Programs such as STEP should keep evaluating the quality technology that they loan students and keep on improving it. Strategies that have helped low-income, first-generation students are programs such as NavCal which offers student-to-student mentorship, social support, and assistance going through financial aid including scholarship application support.

Additionally, the school needs to find ways to foster relationships between staff, faculty members, and students. During the pandemic many low-income, first-generation students experienced food and housing insecurity, bereavement, and mental health crisis and needed extra support to get through the academic year. However, the majority of our research participants expressed that it was more difficult to connect with faculty members and students during remote learning. Faculty and staff should be making a conscious effort to

connect with students. To help foster connections, staff and faculty members could be given tools for interacting with students during remote learning. Perhaps faculty and staff could be given examples of questions to check-in and/or a list of resources for students. In addition, professors' office hours should be encouraged and made more accessible. For instance, staff and faculty members could contact students who are struggling with their coursework to check-in, establish a plan of action, and connect them to counselors, mentors, and/or tutors.

Land Acknowledgment

We take a moment to recognize that Berkeley sits on the territory of xučyun (Huichin) (Hoo-Choon), the ancestral and unceded land of the Chochenyo (Cho-chen-yo) speaking Ohlone people, the successors of the historic and sovereign Verona Band of Alameda County. This land was and continues to be of great importance to the Muwekma (Muh-wek-muh) Ohlone Tribe and other familial descendants of the Verona Band.

We recognize that every member of the Berkeley community has benefited, and continues to benefit, from the use and occupation of this land since the institution's founding in 1868. Consistent with our values of community and diversity, we have a responsibility to acknowledge and make visible the university's relationship with Native peoples. By offering this Land Acknowledgement, we affirm Indigenous sovereignty and will work to hold the University of California, Berkeley more accountable to the needs of American Indian and Indigenous peoples.

In addition, we would like to add and recognize that this country would not exist if it was not for the uncompensated, enslaved labor of Black people. We honor the legacy of the African diaspora and Black life, knowledge, and skills stolen due to violence and white supremacy.

We thank the Black Recruitment and Retention Center and Native American Student Development at UC Berkeley for developing this acknowledgement.

Acknowledgments

We want to sincerely thank Dr. David Harding and PhD student Xavier Durham for their mentorship and support throughout this research project. Thank you for the opportunity to carry out this research and for believing in us.

Thank you to NavCal and all our research participants.

Thank you to our amazing UC Berkeley librarians, Ann Glusker and Susan Edwards for their guidance.

About IRLE

The Institute for Research on Labor and Employment is an interdisciplinary institute at the University of California, Berkeley that connects world-class research with policy to improve workers' lives, communities, and society. IRLE promotes better understanding of the conditions, policies, and institutions that affect the well-being of workers and their families and communities by informing public debate with hard evidence about inequality, the economy, and the nature of work.

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