






The shortfalls of online learning catalyzed by COVID-19: Pre-health students' perspective

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ABSTRACT

Due to the COVID-19 pandemic, the pivot to distance learning left many higher education institutions scrambling to find the resources to shift materials online and instructors making significant modifications to their courses to adapt. This study is the critical initial step in explaining any relationships between the responsive move to remote learning and academic performance and stress, anxiety, and depression. An eight-month longitudinal cohort study design with an action research methodology was conducted over four waves from June 2020 to January 2021. Participants had the option to be involved with semi-structured, in-depth interviews via Zoom. The qualitative results from the in-depth themes include: health & wellness, relationships & connectedness, transition home, classroom changes, learning & participation, extra-curriculars, COVID-19, virtual challenges, academic performance, and self-regulation. Thus, through thoughtful and intentional accommodations, instructors and students may create a new digital space for learning to improve upon motivational barriers and retaining content.

Keywords: higher education, COVID-19, distance learning, transition, mental health

INTRODUCTION

In December of 2019 a novel coronavirus began to spread across China and into several countries by early 2020. This virus, known as SARS-CoV-2, or COVID-19, would become a pandemic by March 11 2020 (WHO, 2020). With the first laboratory-confirmed case of COVID-19 on January 20 2020 in the United States, schools began required preparation for pivoting to an entirely online learning format (Harcourt et al., 2020). As community spread of the virus began to proliferate, by March 15th most major universities in the southeast transitioned to a fully online format for all programs. By April there were 185 schools and higher education institutions that closed, shifting to an online format or closing the semester early (UNESCO, 2020). COVID-19 catalyzed the rapid transition to new learning formats, including hybrid, fully online, and hyflex (student chooses to be online or face-to-face), rendering a new experience for students globally. This shift impacted students within higher education both academically (disrupted face-to-face experiential opportunities, limited communication channels between students and their instructors, and the obvious move to online learning for all courses) and socially (dorms closed, businesses closed, and many had to return to their parent or guardians). For students internationally, this brought new challenges, however, many of these academic-related challenges existed prior to COVID-19's digital transformation (Aristovnik et al., 2020).

The onset of the COVID-19 pandemic catalyzed a pivot to distance learning that left many higher education institutions scrambling to find the resources to shift materials online and instructors making significant modifications to their courses to adapt. In many cases, the previous use of learning management systems and other modern tools used for distance learning, such as Zoom, made the initial transition in March 2020 somewhat easier. However, given the sudden transition to online learning and uncertainty of the future, instructors had to engage students in meaningful ways while also taking into account students' sudden limitations (e.g., limited internet or privacy). Studies have shown that trauma, such as acute stress, can have detrimental effects on metacognitive processes with perceived anxiety and depression also being positively correlated (Panlilio et al., 2019; Spada et al., 2008). Consequently, between the unprecedented nature of the COVID-19 pandemic, the transition to online learning, and students having to adapt and transform their home-life setting for school, curriculum was no longer at center of student success.

This study is the critical initial step in capturing the experiences of pre-health students during their transition online within a higher education institution in the United States. The data from this project highlights challenges within online learning exacerbated by COVID-19, but demonstrates a relevance beyond an acute global crisis. Therefore, this paper aims to inform instructors and administrators about strategies within online learning that are effective at addressing the current needs of the students and cultivating student engagement as academia becomes more reliant upon online learning in the future. The goal of this paper is to capture student responses across semesters in 2020 when new COVID-19 restrictions were being added and/or

lifted, that specifically altered the teaching methods for instructors. The purpose of this study was to highlight areas of improvement and lessons learned within online instruction, while also emphasizing that many of these barriers and impediments in teaching online courses have been identified prior to COVID-19. We expect that findings from this study will serve as a springboard from which specific future academic instruction, research, response, or interventions will be developed. Higher education courses will ultimately need to be developed in flexible ways that make them pedagogically sound, student-centric to student population needs, and responsive enough to be able to move among and between varying levels of remote and face-to-face instruction without resulting in complete disruption. By responding to student-identified needs in online course design and instruction, these efforts will be more sustainable and have an increased educational impact.

LITERATURE REVIEW

Critiques of Online Learning

Students and instructors have shared their criticisms and worries concerning online learning long before COVID-19, especially regarding quality among student-teacher engagement (Edwards et al., 2000; Maeroff, 2004). Individuals express additional concerns around peer-to-peer interactions that improve a student's learning since evidence suggests these relationships are totally lost or minimized within online delivery (Astin, 1997; Tinto, 1987). While there are various ways to account for physical distance between instructors and students (e.g., group discussions, regular synchronous sessions, etc.), without regular interactions, instructors are less likely to create learning communities that generate active learning (Maeroff, 2004; Schwitzer & Lovell, 1999). Furthermore, when students are not autonomous learners, actively engaged within the learning process (Weimer, 2008), or familiar with technology used in online learning, they are less likely to participate within the course (Carini et al., 2006). Additionally, within higher education the traditional classroom pedagogical model has historically put the responsibility of learning on the instructor (Wiltsher et al., 2018), whereas with online learning, the instructor acts more as a facilitator rather than the transmitter of knowledge (Beaudin, 2019; Bernard et al., 2014).

With COVID-19, many of these drawbacks and areas of improvement within online learning were scaled to a global level and thus exacerbated the need for correction. As with concerns with online learning prior to COVID-19, quality in learning was among the main criticisms (Crawford et al., 2020). Without deliberate planning and preparation for online courses, instructional delivery will appear menial compared to face-to-face learning (Teng & Wu, 2021). The initial switch to remote, online learning left little time for instructors to redesign coursework to an appropriate online format, therefore not only affected instructors' ability to adapt to online teaching, but also students' ability to adjust to an online learning environment as well as collect the necessary resources to be successful (e.g. high speed internet access, a reasonable learning space, etc.). Additionally, with the introduction of hyflex courses, defined as a hybrid face-to-face and online classroom (Maloney & Kim, 2020), many instructors and students struggled to maintain engagement due to technological issues and engaging with both online and face-to-face students meaningfully (Lakhali et al., 2014). While many online and digital opportunities were historically designed to expand education across underrepresented minorities and vulnerable populations (Saba, 2011; Saykili, 2018), after COVID-19 caused a mass transition online, what was once an opportunity became a lack of social equity awareness among instructors (Castañeda & Selwyn, 2018; Migueliz Valcarlos et al., 2020). Online learning, both before and in the presence of COVID-19, has lacked a framework that accounts for social and economic backgrounds, leaving many with uneven and unequal educational achievements (Migueliz Valcarlos et al., 2020). The United States Office for Civil Rights (2021) has indicated that many students seeking postsecondary education struggled with continuing and/or completing their coursework; with clear disparities among students of color, students who serve as caregivers, and students with disabilities. Therefore, with the spotlight on online learning, now is the time to integrate anti-oppressive pedagogies that recognize and address students from diverse backgrounds.

Self-Regulated Learning Theory

Despite the potential for students having previous knowledge and experience with online tools, without direct supervision and instruction from their instructors, there became a need for assessing self-regulated learning (SRL). SRL, also referred to as autonomous learning, is the process in which a student is able to monitor their knowledge and behaviors to tailor an appropriate strategy for successful learning (Zimmerman, 2008). In several studies, the more developed SRL skills a student has, the more successful their academic performance in online and face-to-face learning (Bellhäuser et al., 2016; Broadbent, 2017; Richardson et al., 2012). SRL dictates that motivational beliefs, behaviors, and metacognitive activities guide the learning process and allow for adaptation to ensure personal goals are met (Schunk & Zimmerman, 2012). One construct of self-regulated learning is metacognition, where an individual is self-aware of their cognitive processes related to learning, and is specifically important within the self-monitoring of goals and progress academically (Flavell, 1979; Zimmerman, 2008). For students to be successful in a flipped classroom or in an online setting, they must self-reflect on how they learn online and adapt to meet those expectations (Harris et al., 2020). In the same vein, instructors may assist students with understanding the differences in needs within online learning, thus adapting the course appropriately (Rice & Carter, 2016).

This study used an action research methodology with a grounding in the self-regulated learning theory to address:

1. What are the experiences of pre-health student with fully online learning?
2. Does the prior level of flexible instructional design (e.g. courses already blended vs more traditional face-to-face lecture courses) predict future academic performance when rapid response is required?
 - a. Which types of interactions provide better bridges across the transactional distance and build a better sense of meeting student needs?

METHOD

Study Design & Participants

An eight-month longitudinal cohort study design with an action research methodology was conducted over four waves from June 2020 to January 2021 at a public university among pre-health undergraduate students. The cohort consisted of Bachelor of Public Health (BPH) and Bachelor of Health Science (BHS) students that were being tracked from the onset of the pandemic until January 2021 as a consequence of evolving methods and requirements for online and face-to-face instruction due to COVID-19. The action research methodology was chosen to address real-time issues within distance learning and student wellbeing as a result of the COVID-19 pandemic (Mills, 2000). The first wave of this study was conducted in June and July to retrospectively capture the rapid transition from March 2020 where students were eventually required to leave the university campus and return to their homes for the duration of the semester. The second wave measured the summer experience where students were still required to remain off campus and had fully online courses if they took any at all. Wave three was conducted in September through October to capture students' experiences while taking remote courses. During this time, students were permitted to be back on campus with the mandate to wear masks and maintain social distancing. Finally, a fourth wave was added when the university introduced hyflex courses being offered in the Spring 2021 semester, while still offering online courses as well.

Participants in this study consisted of third- and fourth-year students within the previously mentioned health-related majors. Students were chosen in their third and fourth years as a result of their coursework being part of a limited access program, where students do not have access to upper level coursework due to the restricted parameters of the program. Only students who identified as having majors in the BPH or BHS program and were enrolled in third or fourth year courses were eligible for this study. Recruitment for this study began in May 2020 using a flyer that was sent to approximately 400 eligible students through email listservs and linked students to an informed consent and contact information form for interviews.

Data Collection

The informed consent was obtained using a linked online questionnaire (Qualtrics) within the recruitment flyer, while semi-structured interviews were conducted using Zoom. Both Qualtrics and Zoom were specifically conducted through university accounts to ensure privacy and confidentiality. In addition to consent, there were two questions related to their university identification number and age; and at the end of the questionnaire, links were provided to university resources related to the COVID-19 pandemic, including mental health and financial services. The semi-structured in-depth interview script was tested prior to data collection to refine questions as well as to determine the length of time to complete.

Once students provided their consent and contact information through the questionnaire, the research team reached out to schedule interviews via Zoom. The semi-structured in-depth interviews (IDI) lasted between 15 to 60 minutes. Participants were notified when scheduling the interview that they did not have to have their camera on and were given directions on how to omit their name. They were also notified that researchers were recording audio, not video, for transcription purposes only. All IDIs were de-identified and aggregated by wave only. Questions within the IDIs were focused on the transition home for students, their previous experience with online learning, their perceived knowledge and susceptibility around COVID-19, and what instructional format they would prefer (ideally) moving forward. Participants were permitted to have more than one IDI as long as it was not within the same wave. All interviews were conducted by a researcher who was not an instructor of the participant at any time.

Data Analysis

Each wave of in-depth interviews was analyzed independently to explore the data for patterns and relationships. Researchers used Otter.AI technology to upload and de-identify the audio recordings for transcription with two researchers reviewing each transcript for quality assurance prior to data analysis. The same two researchers would review the transcripts a second time using a thematic analysis approach to create a codebook within NVivo software of salient themes and subthemes manifested iteratively (Braun & Clarke, 2012). The self-regulated learning theory formed the theoretical underpinnings of this analysis (Zimmerman, 2008), wherein themes were coded based on patterns inductively and deductively to permit flexibility between each participant and allow for different experiences to be captured within the data. Deductive coding procedures were grounded in the self-regulated learning theory, allowing researchers to highlight relevant theoretical constructs that were salient within the data. The two researchers would compare and negotiate codebooks to finally establish inter-rater reliability through a single set of themes through consensus. Several methods were used to establish trustworthiness of the data; such as employing multiple coders to establish inter-rater reliability (Syed & Nelson, 2015), conducting a sound and widely cited methodological analysis procedure (Braun & Clarke, 2012), utilizing a qualitative data analysis software system (Hilal & Alabri, 2013), and creating an audit trail of the data (Shenton, 2004). The researcher facilitating each interview also provided observational notes from the interviews to add any context needed for analysis.

Ethical Considerations

Researchers obtained approval from the university Institutional Review Board (IRB) on May 22, 2020 prior to participant recruitment. At the request of the IRB, the principal investigator was not permitted to have access to any identifiable information over the duration of this study to prevent potential coercion given her administrative role within the university. Consequently, she only had access to de-identified data.

Table 1. Taxonomy of themes and sub-themes which emerged during analysis

Themes	Sub-themes
Health & wellness	
Relationships & connectedness	Socializing Professional network Isolation
Transition home	Family difficulties Home distractions Home responsibilities
Classroom changes	Workload Faculty expectations & support Best practices
Learning & participation	Learning environment Challenges Blended learning
Extracurriculars	
COVID-19	University Perceived susceptibility Perceived severity Risks
Virtual challenges	Technology shifts
Academic performance	Grades Unmotivated exhaustion
Self-regulation	Self-motivation Time management

RESULTS

Eleven students participated in 15 interviews across the four different waves of this study. Four of the interviews were follow-up interviews at later waves. From this data, ten themes and several corresponding sub-themes were identified. The themes include: health & wellness, relationships & connectedness, transition home, classroom changes, learning & participation, extracurriculars, COVID-19, virtual challenges, academic performance, and self-regulation (**Table 1**).

Health & Wellness

Health and wellness includes all student accounts related to exercise, mental health, physical or emotional state, nutrition, sleep, or stress & anxiety. One participant stated:

“...learning how to study at home, finding motivation to do things outside of school or outside of like an assignment. So kind of just like, like mental health, like taking care of myself, like, I just like exercising, eating well, that’s been harder. Stuff that I’m not forced to do like is, it’s just been harder for me to feel like I haven’t been productive. And I get a lot of fulfillment from doing stuff, like helping people doing stuff outside of like, school and being at home. So not having that just kind of like, I feel like, I’m not contributing to anything in society.”

Relationships & Connectedness

Relationships and connectedness includes any mention of students’ family, friendly, romantic, and professional relationships and how interpersonal connections and interactions were impacted by COVID-19. Consistently students’ described the challenge of maintaining relationships during the pandemic as seen in this example:

“I made a lot of friends from my classes, especially public health because they’re smaller. So it did suck having to kind of end the likes, end those classes and not have that like, even though we text and talk on the phone, having that day to day like seeing them in person, community like talking to them catching up in person, it’s not the same online. And I’m not the type of person who’s good at maintaining relationships, like, via text or like calls, like, I kind of get lazy and just will not, like talk to someone. So I feel like I’ve only been able to maintain relationships with my close friends, like my close friend group that I’ve had for a while, but those friends that I made through classes, I wasn’t able to really like continuing, like developing that relationship with them. Um, which, yeah, I mean, again, it’s like, partially, like, I could say, it’s my fault. But it’s also just more difficult when everything’s online. And that in person, like, just forcing you to be together, like a few days a week is not there.”

There were three sub-themes that were derived from relationships and connectedness -- socializing, professional networking, and isolation. Socializing captured student accounts on how their social life went on within the new and different environments they found themselves in--being online, home, or in Gainesville. Then there were others who struggled to keep up with friends and felt the loss of in-person classes on a social level,

“So I feel like, I’ve only been able to maintain relationships with my close friends, like, my close friend group that I’ve had for a while, but those friends that I made through classes, I wasn’t able to really continue developing that relationship with them. Um, which, yeah, I mean, again, it’s like, partially, like, I could say, it’s my fault. But it’s also just more difficult when everything’s online. And that in person, like, just forcing you to be together, a few days a week is not there.”

The second sub-theme that emerged was professional networking which is defined as accounts of shifts in professional relationships with professors, mentors, and others as a result of COVID-19 as well as expressed concerns for the students’ futures. An example of this includes,

“I think it’s harder to connect with staff and faculty, online than in person, because from both sides, like students, I feel like I’m not as motivated to go and talk to my professors and ask, like, I’m less motivated to ask questions over zoom lectures than like in person lectures, unless it motivated to talk to them after or reach out to them after just because probably convenience sake, like, it’s easier to just walk up to your professor after class ask a question instead of drafting an email and sending it and so I think that definitely has an impact, like COVID. And transition online has impacted that kind of negatively.”

The last sub-theme was isolation which describes any accounts of feeling alone or disconnected from others. Many students expressed their desire for connecting with others and how the absence of that was difficult to endure, such as this student:

“I guess, the social life changes of it. Because I guess this is kind of hard, because like, the lab work and the social part are both very important to me. So I’m not 100% sure which one would be more important. But like, it is just hard not going to see my friends and doing the hobbies I like doing because that’s kind of how I would relax. And now I can’t.”

Transition Home

Transition home is a theme that focuses on students’ experiences in needing to move out of their college living arrangements and into their parent or guardian’s home because of the pandemic and the university transitioning online. This student’s statement captures the overall essence of the theme:

“When you’re in an environment that’s not very conducive to, you know, staying on top of things and staying diligent and staying professional.”

The first sub-theme, family difficulties, captures the challenges of family life, dynamics, or health that impacted students. One student explained the following:

“That was definitely a big disruption. Because home is where I go to relax. And for the time that I was there it was incredibly hard to be productive at home, especially because there was so much fear in my own household about the unknown about how COVID had impacted my family, my parents’ work, you know, our daily lives.”

The second sub-theme was home distractions. It included any interruptions, disturbances, or obstruction that impacted student productivity, engagement, or learning. The third sub-theme was home responsibilities which described the different household responsibilities or expectations related to chores or caretaking that are unique to being with family.

“Responsibilities are different when I’m back home, so when I’m on campus, I don’t cook. But when I’m back home, I cook for the family, because my mom works. And so I have to and my siblings don’t cook. So I just picked it up...but I cook for the family most of the time.”

Classroom Changes

Classroom changes describe the changes in teaching methods and classroom structures that instructors put in place as they switched to distance learning. A majority of students described their courses now assuming an online, synchronous format, which was associated with a positive connotation compared to asynchronous or strictly lecture-based courses. One student explained:

“I have two synchronous classes right now. One of them is synchronous, but she’s pretending it’s the hybrid and just putting all the lectures on media site and then we have our in class period just for activities and presentations that we have to do. And then the other one, he’s actually lecturing during the class time. That’s a really tough one. It’s just no bueno.”

Within this theme there are three sub-themes: workload, faculty expectations & support, and best practices. The workload sub-theme describes the level of difficulty and rigor within classes impacted by COVID-19. One student described their experience like this:

“I felt like, at the time, they made it harder, like tests harder than it should have been because we were not having that in person interaction. It was kind of difficult for us to transition. We were in situations and settings where we’re having trouble focusing and studying as well. And professors, I feel like, didn’t take that, some did. But some didn’t take that into consideration as much, especially for my class outside of public health. So I felt like that was something that I mean, not for fall, because I guess we’re all used to it now, but at the time, was kind of frustrating, we really are just trying to get used to this new system, and you’re still making this harder than it has to be.”

Faculty expectations & support discusses the expectations held by faculty and staff along with the support or lack thereof for students transitioning to distance learning. One student who serves as a caretaker for her grandparents describes her situation.

“I did talk to my instructors. And I was blown away by how supportive they were like it was so stressful. I didn’t have any documentation. I didn’t know what to do, like, take a picture of their positive COVID test or something. But I ended up just calling my professor directly. And she was like, okay, when do you think you’ll be done with this? Like, when do you think they’ll be better? Like, can I extend anything for you. So she ended up extending my exam deadline to after I left their home, which was super nice.”

Best practices describe any practices by faculty or staff that students recommended for future implementation. Within these sub-theme students expressed their opinions and recommendations based on their experiences, one student suggested:

“I definitely say make all of them live lectures, at least all of mine are. But I know a couple of my friends aren’t. So I think that part would help. And then I also think like, if we discuss something in person, it doesn’t need to be supplemented by a written assignment Because I feel like if the student takes the time and participates like this, that’s still just as engaging as having spent an hour writing a paper after. So I feel like just because there’s like, I don’t think you have to have both. If you can engage in a conversation. It doesn’t need to turn into a written assignment afterwards.”

Learning & Participation

Learning and participation covers anything related to student learning, engagement, and participation within and outside of the classroom. Many students described their virtual classroom experience related to their learning. In addition, students noted a change in participation over time. One student described it as:

“I think like, some of my classes, like the lectures are starting to like, I don’t want to say deteriorate, but they’re starting to become a little harder to like, follow with and like, I think like, people are just like losing interest at this point, kind of so I would say maybe that has changed a little bit.”

This theme had three sub-themes: learning environment, challenges, and blended learning. Learning environment focuses on the impact a changed learning environment had on students. Many students expressed this to be one of the bigger barriers to their learning and participation within the virtual classroom. For example,

“Even today I was trying to study and everyone’s talking and had to go to my room, but I can’t focus in my room. So it’s definitely hindered kind of by, like, I’m still doing good and everything, but like, it’s just harder and it takes more time. And I’m having difficulty like, kind of, I feel guilty if I’m not studying ‘cause if I’m at home, I feel like I have to be studying. So it’s just that weird balance between the two.”

Challenges, the second sub-theme, contains students’ experiences of difficulty in communicating with professors and staff within the virtual learning environment.

“I think it’s harder to connect with staff and faculty, online than in person, because from both sides, like students, I feel like I’m not as motivated to go and talk to my professors and ask, like, I’m less motivated to ask questions over zoom lectures than like in person lectures, unless it motivated to talk to them after or reach out to them after just because probably convenience sake, like, it’s easier to just walk up to your professor after class ask a question instead of drafting an email and sending it and so I think that definitely has an impact, like COVID. And transition online has impacted that kind of negatively.”

The final sub-theme, blended learning, depicts students’ preferences for or against blended or online learning. The majority of students described a preference for blended learning over a fully online virtual experience for reasons that spanned from wanting in-person interactions to wanting to follow COVID-19 safety measures without sacrificing their preferred learning environment. One student explained that:

“I would choose blended just because I do learn better obviously, when I’m in person and I’m able to discuss immediately with my peers and my professors. My math and chemistry classes like I would really need to be in person for those classes that have lots of details that are important to go over and reiterate, which we haven’t been able to do as much online because of time and technology issues. I think blended would be good, because that way everyone has a chance to kind of go into a class and also, maintain social distancing and wearing masks and things like that. But I don’t think a completely, like back to normal, like full scale, class would be smart.”

Extracurriculars

Extracurriculars theme captures any discussion of involvement with organizations on campus, volunteer work, research labs or studies, and employment. Students also discussed how their shifts in activities outside of school, a result of the pandemic, induced concern for their future. One quote that captures this sub-theme well was this student’s description:

“I was planning on kind of being involved in a research project to hopefully get published over summer. And I was also planning on taking a lab over summer, which I couldn’t take. So I had to shift my schedule a lot and I’m not as able to be involved with stuff and it might impact my resume.”

COVID-19

COVID-19 was a broad theme that includes all things directly related to the pandemic from the students’ perspective, experience, and concerns, for example:

“I thought it definitely made it more severe in my mind, especially coming from like a public health college. I thought, okay, if public health thinks it’s time to do this [shift to online learning], then it must be time to do this. Because out of all my friends, mine were like the last kind of transition online. So like, I was like, Okay, once the public health professors think it’s necessary, it’s probably really serious. So it did add like a layer of just uncertainty because no one has been through this before. So it’s kind of like how long will this last? I didn’t even think it would go into the fall when it all started. Like I thought, Okay, a couple more weeks of online learning. And then summer will be normal following normal. I just, yeah, it definitely picked it up a notch once everything went online.”

This theme was divided into four sub-themes: university, perceived susceptibility, perceived severity, and risks. As a sub-theme, university consisted of any measures (policy, rules, or regulations) taken by the university in response to COVID-19. It was explained by one student,

“In the beginning, it was really confusing, because they kept going back and forth. They were like, oh, like, if you have to stay, you can stay. But if you can leave just like leave. And so we didn’t know, like, what were the requirements? But then they clarified a little bit more than they were like, if you aren’t like an international student, and you have nowhere else to go. Those are like the only two reasons that you could stay in the dorms. So obviously, that wasn’t my case. So I had to go back home. The moving out process was a little weird too, because I had to pack up my room. And then I left and then I had to come back, because they didn’t tell me like when I was supposed to give them my keys and turn over all my material and stuff. And they would officially check me out. So I had to drive back from Tampa up to Gainesville, just to give them my keys and stuff back because they had no other time. So it was a little disorganized. But I mean, with the circumstances? It was the best they did.”

The second sub-theme was perceived susceptibility which contains any description of the understood propensity or lack thereof to contract COVID-19 from the students.

“I was a little concerned about myself at first. But it was, like I said more about family members who are more at risk, like, obviously, we’re all at risk like, we can all get it and all go through like the symptoms, but it’s like, from what we know now. Like, it’s not as bad as a young person who’s relatively healthy Versus I have, like older relatives in different parts of the world. And, like, even my family, like my dad’s a doctor, my mom’s a pharmacist, so they were kind of like always on the front lines throughout the whole thing. So it was a little bit like worrying just if anything happened, even though they’re pretty healthy. Like you never know, when we didn’t know that much. So it was more about like, worrying for them than for me because I was staying at home like, not really going anywhere. So I think that was probably what I was thinking.”

Perceived severity, the following sub-theme, includes the students’ reactions and understanding of COVID-19, for example:

“When I heard I was kind of like, skeptical, like, how are we going to do things? How is it going to be the same, but I wasn’t too worried? At first, I didn’t think that it was going to like drag on as long as it did.”

Risks, the final sub-theme, describes the expressed likelihood of self or others in behavior and safety measures to contract COVID-19. Thinking back to the spring one student said:

“At first, it was kind of like we all thought it was mostly like immunocompromised and elderly people. So I took precautions, but I didn’t really think it would affect me until things started getting like really bad a couple weeks later.”

Virtual Challenges

Virtual challenges encompass the expressed obstacles and barriers that online learning created for students. One student described their experience as:

“I definitely didn’t know Zoom Fatigue was a word. But I learned it. I definitely experienced it daily, just kind of sitting on my computer. Other than that, I feel like I’ve used them before, but not to this extent. So that’s really just the capacity of all the applications I’m using. So mostly just tired of zoom.”

Within virtual challenges, a sub-theme called technology shifts arose which includes the mention of different electronic programs, applications, or general technology that were used and, consequently, mastered or not. One participant stated:

“I’m kind of savvy with things like [online platforms]. So that definitely helped. I had friends online, I had to cut off so I wouldn’t be on my phone all day. I feel like now, while it’s definitely nice that I already have those established connections, it’s also like, it becomes too much at some point. I’ve definitely deleted some things, like, accounts and things just because

it just got too much sometimes. And just like, at some point, you it's definitely so nice. But now I'm less online social media, I've pretty much talked to like one person, which is my partner, but it's not even like a bad thing. It's not like I'm isolated; I just don't have the energy to really talk to anybody else."

Academic Performance

Academic performance includes accounts of student performance, shifts in study strategies, and overall coursework experience. Of the students interviewed, the majority managed to adjust well but consistently described how much more draining and difficult maintaining their grades was as a result of a perceived increase in workload. One student shared:

"Now I feel like everything is busy work. Like what once was a really engaging discussion in class that you kind of just got points for showing up is now writing a three paragraph discussion post on this concept. And I was like, I feel like now it's annoying to do versus being really interesting. And, something I was excited to talk about in class is now like another assignment. So I feel like the information is still presented to you in an engaging way. But, the next few layers of discussion and assignments, I feel like that is all busy work to me. So it's harder to feel excited about my classes when I feel not excited to do any of the assignments."

The grades sub-theme discusses how student grades were impacted and some of the ways they worked to maintain them, for example:

"I am just kind of annoyed that [instructors] were expecting us to perform the same. Not all of them, but they're calmed down a bit."

The next sub-theme, unmotivated exhaustion, includes accounts of tiredness and over exhaustion that impacted students' performance. One student described their experience as:

"I would say just my general sense of like; what anxiety means to me in terms of what it was before COVID. And what it is now has probably doubled. Just because I get anxious about zoom interactions, sometimes, especially the events that I'm planning. I get really anxious, because I'm like, 'I hope I did a good job, I hope people you know, like this.' But also, it's kind of awkward during some of those virtual spaces. So that definitely has taken a toll, and just kind of the general stress of just everything that's happening."

Self-Regulation

Self-regulation captures how students hold themselves accountable, organized, and disciplined during distance learning. Many students described an independent source of self-regulation and others used external factors like their roommates to hold themselves accountable. The following example demonstrates the latter:

"So, me and my roommates will try to do a little YouTube workout video at the end of the day. So, we promised each other, 'Okay, we're all going to get our work done. And then we're going to do this together.' So, things like that, or like if we're going to cook together, just little things where I'm like, 'Okay, I'm making this commitment. So I have to get my work done.'"

This theme includes two additional sub-themes: self-motivation and time management. Self-motivation describes the need and ways students had to keep themselves motivated and disciplined to perform academically. One student exclaimed:

"I don't know if it would make it easier, because it's not the most fun thing to sit at a desk and keep doing work, but, I don't know, I just try to set a goal for the day and make sure it gets done. And then, if I'm looking forward to something at night, I'm like, 'Okay, this is what I need to get done.' And I think it's more intrinsic than just like, oh, like I have to get it done."

The time management sub-theme included student strategies for organization and scheduling that facilitated or challenged their academic performance. Some students expressed a preference for the flexibility they experienced with virtual school; others described the difficulty of having to keep up with assignments.

"Having the self-discipline to like, keep checking back on like, what I need to do, since sometimes in person, like the professor will remind you like, Oh, this is due this week, and this is due next week. And they kind of do that in, like the online format. But you need to check when they do that."

DISCUSSION

This study revealed the many drivers of low student motivation and common stressors for students during the COVID-19 pandemic. The qualitative interviews explore how the course workload and various transitions (from school to childhood home, face-to-face to online, etc.) may have contributed to the ebb and flow of stress, anxiety and depression. The purpose of this study was to determine what the major obstacles to online learning were for students, in real-time, in order to inform policy and adjust teaching pedagogy as needed. This study was a springboard that provided evidence to the course modality students prefer, and consequently has led to the redesign of courses to accommodate this preference and learning style. Additionally, this study

reinforces many of the previously captured critiques of online learning (e.g. absent instructor, perception of too much materials, absence of social presence) (Bali & Liu, 2018; Gunawardena, 1995; Pellegrino & Hilton, 2013).

Several studies have supported findings related to evolving relationships with peers and instructors as a result of the pandemic, specifically how it affected their engagement within the course and understanding content (Neuwirth et al., 2020; Toquero, 2020; Zurlo et al., 2020). Neuwirth et al. (2020) specifically outline that a large number of students across disciplines and coursework had difficulty online and showed inattentive behaviors that were not seen in face-to-face formats. This lackadaisical attitude toward online learning may be due to being propelled into an online learning environment with little agency. This, among other major stressors during the COVID-19 pandemic, underscore the need to monitor students that do not have a penchant for help-seeking behaviors and require more resource management strategies within their self-regulation processes. Even with the United States Congress passing the Coronavirus Aid, Relief, and Economic Security (CARES) Act in March 2020, many students were still facing the upward battle of learning how to learn in an online environment, and in a space that they were not used to studying in. While students may be able to successfully engender cognition and metacognition during a rapid shift to online learning, based on these results and others, there is a range of how students adapt to resource management, such as time management or motivation (Biwer et al., 2021). Furthermore, the expectations of instructors and students in online, hybrid, or hyflex formats should be reassessed to offer equitable support and encourage pragmatic accommodations. In a recent study, only 43.4% of instructors were receiving any training for the new hardware/software being required and only 32.5% were found to be proficient in any sort of technology, making the transition for both instructors and students agitating to say the least (Schrenk et al., 2021). Without these considerations, instructors or administrators may notice a decline in mental health which may manifest in increased anxiety or stress, as supported by our qualitative findings (Aristovnik et al., 2020; Cao et al., 2020; Elmer et al., 2020).

Discipline and motivation were widely discussed across participants within the in-depth interviews (IDIs). While 3.86 million students were enrolled in at least one online course in 2019 (Statista, 2021), students were still unprepared for all online coursework. One of the main drawbacks to online learning that was captured through the interviews was the workload for students as compared to face-to-face courses. Internationally, students saw an increased workload from their courses after transitioning to an online format (Aristovnik et al., 2020). Retaining materials presented in online format was also presented within the qualitative data and buttressed by recent studies (Neuwirth et al., 2020). Students may perceive online lectures, discussion posts, and other forms of online pedagogy as busy work rather than meaningful dialogue. How students perceive an online course in regards to its instructional/course design and layout may influence their performance and student satisfaction (Clawson, 2007). Creating a cohesive course design for students in online settings improves the learning environment and is a reflection of the instructional strategies of the course (Gomez-Rey et al., 2018). Regardless, Cao (2020) suggests that students who are isolated at home may create an environment where they lack self-discipline unlike in dorms or school libraries. Moreover, students may show concern with privacy as a result of their physical surroundings or issues with their WiFi bandwidth (Crawford et al., 2020). One participant specifically discussed their worry of family members barging in during synchronous lectures or proctored exams, causing additional stress. This presents the need for faculty to consider equity and privilege when considering what to require within an online classroom (e.g., requiring the camera on).

While the COVID-19 pandemic may have been an anomaly within online learning, it has spearheaded broad literature around the new and old areas of improvement. In Ozfidan et al.'s (2021) study students identified self-motivation as a construct needed within online learning, as indicated by his findings. Similar to the cohort within this study, Ozfidan et al.'s (2021) students were also not given the choice of face-to-face which may inhibit those who do not perform well within the medium. However, one way this has been addressed is through increasing points of contact with the instructor through various mechanisms such as comprehensive feedback, communicating often and not only through written formats, and providing basic forms of motivation to recognize the hardship some students may be facing (Alemayehu & Chen, 2021; Cebi & Guyer, 2020; Ozfidan et al., 2021).

There were many strengths to this study informing best practices and pedagogy for online, distance learning courses and programs. However, while this study found many opportunities to improve upon online, hybrid, and hyflex courses in real-time, there were also limitations. It should also be considered that instructor feedback was not captured in this study which may impact the ability to implement curricular interventions.

CONCLUSION

There are various pedagogical approaches to addressing quality and engagement within online learning, however, balancing that with compassion and navigating new challenges with etiquette can be difficult for even the most skilled instructor. Through this study, we were able to gauge students' engagement and performance over a vicissitude of learning modalities (online, hybrid, hyflex) as well as their well-being outside an academic setting. As a result of this rapid transition, we have seen the obvious pitfalls within online learning and are better equipped to address them directly. The findings of this study are meant to re-envision how online learning can be delivered to address the concerns that have been expressed over several decades. Furthermore, through thoughtful and intentional accommodations, instructors and students may create a new digital space for learning to improve upon motivational barriers and retaining content.

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