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**Pedagogical Adaptions in Undergraduate Health Sciences Courses During the COVID-19 Pandemic**

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## Abstract

The pandemic beginning in early 2020 impacted every aspect of life, including higher education. Faculty had to unexpectedly adapt their courses to virtual learning while they and students coped with the stress induced by the lockdown and social isolation of the pandemic. In undergraduate health sciences courses at a four-year Hispanic Serving Institution in Southern California, there was a notable change in both student attendance (95% versus 65%) and the number of students submitting assignments on time (91% versus 69%) between the beginning of the Spring 2020 semester and within two weeks of transitioning to virtual instruction as a result of dealing with the realities of the pandemic. Only 65% of students maintained the same letter grade during this time. This study focused on simple primary pedagogical interventions implemented in the Fall 2020 semester to address these noted changes in student behavior and performance: accountability groups, individual outreach, extensive feedback provided in a timely fashion, and alignment of course content schedule with assignment due dates. Secondary interventions included using a learner intake survey to identify student concerns, building a sense of community, and being flexible but firm with revised assignment due dates. Improvements were noted in class attendance and the number of students submitting assignments on time. Other benefits were observed, such as students creating their own support networks to navigate the stress of the pandemic, a strong sense of community that helped with social isolation, and a noted increase in the number of students attending faculty office hours.

**Keywords:** higher education, virtual learning, pedagogy, COVID-19, pandemic

In December, 2019, the World Health Organization (WHO) became aware of a “viral pneumonia” in Wuhan, People’s Republic of China (WHO, 2020). Outside of Wuhan and the WHO, the rest of the world was only vaguely aware of the “mysterious coronavirus” into the first couple of months of 2020, until March, when the WHO declared a pandemic, President Trump declared a national emergency, and travel bans went into effect around the world (American Journal of Managed Care [AJMC], 2020). The then identified coronavirus disease 2019 (COVID-19) would have impacts on economies, social interactions, and educational systems throughout the global community (CDC, 2020).

The worldwide situation quickly changed from that little-known virus to a global pandemic; international health organizations first acknowledged the potential for COVID-19 to be characterized as a pandemic on March 11, 2020 (WHO, 2020). The Trump administration issued a travel ban on March 13, 2020, for any non-American who had visited a list of over two dozen European countries. Within a week of that, the administration requested emergency funding from Congress for an economic stimulus package. California became the first state in the United States to issue a stay-at-home lockdown order on March 19, 2020 (AJMC, 2020). The lockdowns issued by city, county, and state governments triggered a response from higher education institutions throughout the country (Davidson College, 2020; National Conference on State Legislators [NCSL], 2020).

By mid-March, 2020, nearly all colleges and universities in the United States had cancelled or were in the stages of cancelling in-person classes, converting to fully online instruction, and requiring many students living on campus to relocate (Davidson College, 2020; NCSL, 2020). Although some students were already enrolled in online programs or courses, this response resulted in a significant change in the educational experience for the approximately 26,000,000 college students in the United States alone (U.S. Department of Education, 2019).

Likewise, faculty across the nation were thrust into a teaching environment that many were not prepared for and had potentially never experienced before. In my role as a facilitator for a faculty development course to help aid faculty with the transition to virtual learning, several faculty in the social sciences, humanities, and life sciences shared that they had never taught an online course prior to the sudden shift. Although the campus does not track what percentage of faculty have online teaching experience, in the two semesters prior to the COVID-19 pandemic, 11% of the total sections of scheduled courses were fully online, and approximately 3% were blended with an online component. Thus, it is reasonable to assume many of the instructors had limited, or even no, online teaching experience. With very little time to prepare and transition, they suddenly had to familiarize themselves with the pedagogical methods and technological requirements of online learning. Given the short notice, although faculty at my university were given an extra week of non-instructional time to prepare, and support staff was made more available, no formal training was offered until the summer of 2020 when the university offered an optional faculty development course to better prepare faculty for the Fall 2020 semester.

The university at the focus of this current investigation is comprised of 58% first-generation students. It is a designated Hispanic Serving Institution (HSI) with 81% of the students receiving financial aid. Campus wide, female students comprise 65% of the enrolled population, but within the health sciences program, the selected major of the students in the classes used for this research, 82% are female.

The main purpose of this pre-post natural experimental design was to investigate the impact of the pandemic and pedagogical interventions on undergraduate health sciences students at a public four-year university. Specific interventions were implemented after the sudden change to remote learning to address the concerns observed in class attendance, students submitting assignments on time, and students maintaining course performance. This research sought to answer the following questions:

1. What was the effect of the pandemic on student attendance, on-time assignment submission, and class grade?
2. How did students respond to interventions aimed at improving class attendance, increasing the number of students submitting assignments on time, and maintaining a consistent student performance throughout the term?

## **Literature Review**

### **Mental Health & the Pandemic**

The sudden change to remote learning due to the pandemic, and some faculty inexperienced at virtual instruction, were significant challenges on their own. However, the challenges of the switch to online learning were compounded with the unprecedented mental health issues that have come with the isolation, lockdowns, and other restrictions of the pandemic response (Cullen et al., 2020; Pfefferbaum, 2020). Students and faculty alike had to overcome many unique obstacles to successfully complete the Spring 2020 terms at colleges and universities across the globe.

In a survey of chemistry students, Petillion and McNeil (2020) discovered nearly all students experienced increased stress, fear, and anxiety with the transition to online learning from the pandemic. In most cases, the reported emotional responses related to a lack of familiarity with remote learning. Students also expressed concerns about losing dedicated study spaces on campus, increased family responsibilities with returning home, and the inability to adequately prepare for the transition with the suddenness of it. More concerning, though, were reports from students who experienced issues with engagement with their classes and course content; 69% reported a decrease in engagement and 64% stated their performance in their class was impacted by the pandemic and the unexpected requirement to shift to remote learning. From their findings, these researchers recommended college instructors design courses during the pandemic with opportunities for active learner participation and interaction, clear and regular feedback and communication, and flexibility with assignments (Petillion & McNeil, 2020).

Allan et al. (2016) found that first-generation college students often come from lower socioeconomic backgrounds and experience academic challenges from limited resources to acquire the needed materials to be successful in different courses. Further, these students had lower levels of perceived life and academic satisfaction. Similar research established a relationship between financial strain, mental health, and academic engagement among first-generation college students (Adams et al., 2016). Prior research has also shown that first-generation students are more likely to have family obligations than other college students, such as taking care of a sibling or providing physical care for an older family member; these outside obligations were generally greater for females (Covarrubias et al., 2019). Knowing the economic consequences of the pandemic and that lower socioeconomic families, people of color, and women were more adversely affected, it is reasonable to assume first-generation college students were under even more extreme stress during the pandemic (Fairlie, 2020).

## **Virtual Instruction**

There are some concerns with online learning, even with the best of circumstances. Xu and Jaggars (2014) determined that a performance gap exists between traditional and online courses. The gap widened for younger, male, Black, or lower performing students. It was also more significant in the social sciences, business, law, and nursing disciplines. Additionally, research has confirmed that a digital divide exists for many students. Approximately 20% of students, particularly students of color or those from lower socioeconomic groups, were unable to maintain access to technology needed for virtual learning. Students had damaged or broken hardware, data plans with insufficient limits, and other such problems accessing the internet (Chulkov & VanAlstine, 2013; Gonzales et al., 2018).

Although there are innate weaknesses to online learning, and the COVID-19 pandemic exacerbated them, they can be overcome with appropriate pedagogical approaches. Dumford and Miller (2018) stressed the importance of student engagement, which they defined as “student involvement in educationally purposeful activities” (p. 454). Collaboration with peers and student-faculty interactions are important components of student engagement, which can be particularly challenging in the online environment. The specific challenge, though, given the pandemic, was maintaining this engagement while students were struggling with extraordinary and unanticipated stressors (Cullen et al., 2020; Petillion & McNeil, 2020; Pfefferbaum, 2020). Theodosiou and Corbin (2020) reported both a student preference for and improved academic performance with online courses that provide opportunities to create connections, or build a sense of community, and promote engagement. These opportunities for connection included interaction with peers and instructors, time for discussion of personal non-class related items in synchronous sessions, and opportunities to connect outside of scheduled class time.

## **Assignment Feedback & Stress**

Students can have emotional reactions to feedback provided on assignments, and they prefer feedback that is clear and motivational. Some students prefer to have written feedback that is accompanied by direct interaction and explanation from the instructor (Pitt & Norton, 2017). Researchers identified the most common reactions to assignment feedback in college courses are annoyance and frustration; these emotional reactions can limit the effectiveness of the feedback as it is not interpreted objectively (Wass et al., 2020). This research also indicated the emotional response and limited effectiveness of the feedback can be aggravated by stressful conditions. Given the conditions of the pandemic and the unexpected forced remote learning, it could be reasonably predicted that students would have exceptional challenges to processing instructor feedback, particularly feedback that was indicative of poor performance (Cullen et al., 2020; Petillion & McNeil, 2020; Pfefferbaum, 2020; Pitt & Norton, 2017; Wass et al., 2020).

## **Student Reactions to Pandemic**

Three undergraduate classes in each of the Spring 2020 and Fall 2020 semesters were examined for this research. The classes were undergraduate health sciences courses at a public four-year institution in Southern California with just under 7,000 students, nearly all undergraduate. The university is a designated HSI. The student body is 53% Latino, 27% White, 6% Asian, 4% mixed race, 2% Black, and all other reported ethnicities were under 1%. The majority of students at the university receive financial aid (81%). In the health sciences major, 81% of the students are female.

In the Spring 2020 semester, the classes were being taught in-person and transitioned to virtual instruction with synchronous meetings along with the entire university. The comparison classes, in the Fall 2020 semester, were taught virtually with synchronous meetings the entire semester, with specific interventions implemented to address the issues observed during the Spring semester.

### Students

Most of the students enrolled in the classes were under the age of 25. Many had employment outside of their student responsibilities. There was a blend of students made up of those who attended the university straight from high school, and who transferred from a community college. In the Fall semester, due to the pandemic, some of the newly enrolled students had never physically been on campus as they were unable to tour the campus or attend in-person orientation. One class in each semester was a lower division course, primarily made up of students who were new to the university, whether incoming freshman or transfer students. The other two courses were upper division courses made up entirely of students with junior or senior standing.

### Student Reactions to Pandemic & Virtual Learning

With the transition to virtual instruction in March, 2020, there was an immediate change in student engagement. Attendance at synchronous Zoom meetings was 69% of what the pre-virtual instruction average had been. There was a marked change in the number of students submitting assignments on time or at all (Table 1). Even prior to the formal announcement from university leadership, in-person student class attendance started to drop off with increasing fears and concerns regarding COVID-19. Over one-third of the students finished the course with a lower grade than they had earned prior to the transition to virtual instruction; two of the three classes had at least one student who was active prior to the transition but completely disengaged and unsuccessfully completed the course afterward.

Table 1. Change in student engagement and performance before and after transition to virtual instruction in Spring 2020 semester (n=74)

	<b>Pre-Transition</b>	<b>Post-Transition</b>	<b>Change</b>
Attendance	70 (95%)	48 (65%)	22 (31%)
Submitting assignments on time	67 (91%)	51 (69%)	16 (24%)
Submitting assignments at all	73 (99%)	70 (95%)	3 (4%)
Receiving passing grade	73 (99%)	70 (95%)	3 (4%)
Maintained same or better grade	n/a	48 (65%)	26 (35%)

Many of these changes in performance are explained by the stress, economic, and emotional factors of the pandemic, as reflected in student communications and responses to the end of course surveys (Cullen et al., 2020; Fairlie, 2020; Pfefferbaum, 2020). When students missed class or failed to submit an assignment in a timely fashion, they communicated to the instructor such issues as being:

- too tired to attend class after virtually working from home all day;
- distracted due caring for younger siblings as parent(s) is/are essential workers and student returned home after campus closure;
- unable to concentrate after using digital devices to complete all school work through virtual instruction;
- stressed about contracting COVID;

- stressed about economic issues (family member or student losing employment);
- concerned about the state of the country or world in general;
- restless while stuck in their home all day given public health lockdown orders.

### **Ethical Considerations**

Protecting student confidentiality was the greatest ethical concern for this research. In order to protect student confidentiality, specific course or student information was not analyzed. Only composite averages for all classes were reported. Specific comments from students that were shared were done so in a way to remove any identifiable information. Program administration and the Institutional Review Board at California State University Channel Islands approved the use of the student performance data and subjective comments for this analysis (study #IO5555).

### **Pedagogical Interventions**

The change in student engagement and performance in the Spring 2020 semester indicated that something needed to be done differently, from a pedagogical perspective, in subsequent virtual semesters. Although the COVID-19 pandemic has lasted longer than many had predicted, students' lives, including educational and career goals, are still moving forward; they deserve the same high-quality education despite the unique challenges they and faculty are presented with. From the observed engagement and performance issues, and student communications, the identified priorities were: (a) improving class attendance; (b) increasing the number of students submitting assignments on time; and (c) maintaining a consistent student performance throughout the term.

After completing a summer faculty development course and enrolling in on-going faculty development for the Fall 2020 semester, both specifically designed to help with virtual instruction during the pandemic, I implemented a variety of methods in the Fall semester. Primary and secondary interventions were designed to address the identified priorities. The primary interventions were intended as the main strategies to address the priorities, while the secondary interventions were intended to support the main strategies, but not, in and of themselves, to address the priorities directly.

#### **Primary Intervention**

**Accountability groups.** At the first class meeting of the semester, groups of four to five students were randomly created. Students were given ten minutes in breakout rooms to introduce themselves, get to know one another, and exchange contact information. At the beginning of each class session throughout the term, students were given approximately 30 seconds to one minute to peruse the participant list logged into the virtual session. Group members were asked to reach out to any other members who were not in attendance. If a student communicated to me in advance of a class meeting that they would be absent, they were encouraged to also communicate that to their accountability group. These same groups were used for any group work done throughout the semester in breakout rooms.

The goal of these accountability groups was to increase class attendance by students holding their classmates accountable for attending class. This was explicitly communicated to the students. The challenging emotional and stressful times of the pandemic were acknowledged, and the benefit of a support system to encourage one another was discussed by me, when the accountability groups were initially introduced to the class. The idea that the accountability groups' intentions were to support each other was reinforced at each class session group check-in time.

### **Primary Intervention**

**Individual outreach.** Students who performed below 80% on any individual assignment or examination received an individual communication from me via course email. The email identified specific university resources (e.g., the university writing center) that the student should consider utilizing with relevant links to schedule an appointment or access services. Students were also requested to attend virtual office hours with me to discuss the assignment or examination. If a student did not attend the next available office hour or reply to the communication within 48 hours, one additional email communication was sent; however, additional email communications were sent if the criteria were met by the same student on a subsequent assignment regardless of whether they engaged previously.

The primary goals of the individual outreach were to ensure that students (a) understood the course content; (b) read, understood, and knew how to apply feedback; (c) knew how to access applicable campus resources; and (d) felt engaged and valued by me, as their instructor, despite poor performance. These goals were particularly important without the face-to-face time the students would have normally had prior to the transition to virtual instruction. Additionally, the stress and other mitigating factors from the COVID pandemic made it even more important that students felt engaged, valued, and knew how to utilize the campus resources in the virtual environment.

### **Primary Intervention**

**Feedback quality & turnaround time.** Each assignment received extensive feedback in a timely fashion. Feedback was provided within the learning management system (LMS) in three different areas for written assignments: (a) detailed comments focused on content and writing embedded within the students' submitted documents; (b) comments in the grading rubric on all criteria if less than full points were awarded; and (c) in the general assignment feedback area summarizing the overall feedback, directing students where to find the more detailed feedback, and, if warranted, suggesting university resources or an individual meeting, with me, to review the assignment together.

Prior to the commencement of the semester, I blocked out sufficient time in my schedule to evaluate each assignment in every course within 48 hours of its due date. This also required careful planning of course syllabi so that assignments in different courses were appropriately spaced to not have this be an overwhelming process. Additionally, prior to the due date of the first assignment during one of our synchronous class meetings, I reviewed the LMS notification settings with the class and asked that they change their settings from the default to receiving notifications whenever an assignment is graded or an instructor comment is added to a submission.

The goal of this quality and extensive feedback was to help students master the course content despite the unique challenges, given the current pandemic. Students always need clear and thorough feedback on their assignments, but it was particularly important during the pandemic, so that deciphering their course performance was not another source of distress. The intent to provide feedback so timely was to keep students engaged with the content soon after they completed their assignments, and to keep their minds focused on the course material rather than distracted by the stressors of the pandemic. This also provided the opportunity to interact with them directly and individually for those who needed additional support. The LMS settings reviewed in class and request to modify them was to address previous observations of students



not receiving notifications of feedback; they, at some point, noticed a grade for a given assignment but did not always notice the instructor feedback.

**Content schedule & assignment due date alignment.** The scheduling of course content and assignments was closely reviewed and considered when planning the course and syllabus. The different assignments throughout the semester were closely timed to align with the completion of the relevant content. Due dates for assignments, while reasonable in turnaround time, were close to when content finished so that students immediately put into practice the material that was covered in their reading, lectures, and other course material. There was also a reasonable amount of time in between due dates before another assignment was due.

The realities of the pandemic came with a lot of distractions and stressors. The goal of aligning the content schedule and assignment due dates so closely was to prevent students from being distracted from these realities before solidifying the course concepts in their minds. With immediate application of the course concepts, the intent was to keep their minds focused on the course material and its application before stress of the pandemic kept them from doing so. The goal of spacing out the different assignments, though, was to allow students appropriate downtime to relax and refresh before another assignment was due.

### **Secondary Interventions**

**Learner intake survey.** During the first week of class, students were asked to complete a brief survey containing three questions:

- What is one goal you have for this course?
- In one word, how are you feeling about this course?
- Is there anything I need to know that may impact your success in this course? This information will remain confidential between you and me.

All student responses were acknowledged through the LMS. Students who provided any responses that indicated a need for academic or social support received acknowledgement through the learning management system and a direct email providing specific campus resources relevant to any issues they indicated. If a concern was noted that was worthy of ongoing support (e.g., extreme anxiety regarding the pandemic), a flag was indicated in the LMS gradebook to function as a reminder that the student needed follow-up throughout the semester.

**Sense of community.** Two different techniques were implemented to create a sense of community with the students: a slide presentation to share personal information about one another and creating a welcoming environment in each class session with music playing. In the first week of the semester, students were asked to add a slide onto a class Google slides file sharing their name, where they are from, something interesting about themselves, and at least one photo of themselves or something they were passionate about. I prepared a slide prior to the start of the semester as an example that included a summary of my professional background, academic interests, and love of travel, with pictures of different countries I have been to. After the due date to complete this, I shared it in a synchronous class session together so that everyone could learn about their classmates.

Ten minutes prior to each synchronous class session, I logged into the Zoom session and started a preselected playlist of current music. The music was selected from current popular hits that would appeal to the young age of the students; it was intentionally played at a high volume to

create a fun atmosphere. This music was played while the screen shared a recent humorous meme relevant to either the pandemic or the course content; given that these were health sciences courses, it was generally easy to find appropriate memes. As the class progressed, I solicited requests from the students to add songs to the playlist so that it consisted of songs of interest to them.

The goal of sharing this personal information presentation and pre-class music and humorous meme was two-fold. First, it was intended to provide social connections and stress relief despite the issues presented by the pandemic. Additionally, though, it was to recreate some of the atmosphere that students would have experienced if classes had been in-person on campus: the interaction, opportunities, and spontaneity that occurs while students and faculty are arriving to a classroom prior to the class time. Rather than students logging into a Zoom session and simply waiting after already having been using their digital devices for every other aspect of their lives during the pandemic, this allowed them to listen to some upbeat, current music, while enjoying a quick laugh from the meme, before resuming their virtual lives with the class meeting.

**Flexibility with firm expectations.** The reality of the pandemic was that it was stressful for many. In the Spring 2020 semester, after the transition to virtual learning, there was a marked increase in the number of students who submitted assignments late; this was anticipated to continue in the Fall 2020 semester. Students were given flexibility to submit assignments late without any penalty but, in agreement with me, a new due date was established, and the student was held to that due date. Students were given wide latitude to determine the new due date; however, this flexibility was not explicitly offered to students without them first coming to me with an expressed need.

The goal of this flexibility with firm expectations was to acknowledge the stress the lockdown environment and other stressors of the pandemic created while still establishing reasonable expectations for students to meet. This policy recognized the unique situations the pandemic created without giving student *carte blanche* to turn assignments in without any regard to scheduling.

## Results

### Identified Priorities

**Class attendance.** There was a considerable increase in class attendance between the post-transition semester in the Spring and the Fall semester with the interventions in place (Table 2). An increase from 65% of students attending class post-transition to 88% attending after the interventions was observed. Students commented in their course evaluations that their accountability groups helped motivate them to attend class even when they felt down and stressed from the realities of the pandemic.

**Submitting assignments.** Table 2 also shows an improvement in the number of students who were submitting assignments on time, with an increase from 69% in the Spring semester to 86% in the Fall semester. There was minimal change in the number of students who submitted any assignment at all (on time or late) from 95% to 96%.

**Maintaining performance.** Student performance did not drastically change at any point during the Fall semester as it did during the Spring semester. However, there was not a meaningful difference in the number of students who passed the courses in the two semesters

with a change from 95% to 96% (Table 2). In the course evaluations, several students did comment that they appreciated the timing of the assignments to the content and that “it helped reinforce the course material well.”

Table 2. Comparison of student engagement and performance after transition to virtual instruction in Spring 2020 semester (n=74) versus after interventions implemented in Fall 2020 semester (n=83)

	Spring Semester	Fall Semester	Difference
Attendance	65%	88%	23
Submitting assignments on time	69%	86%	17
Submitting assignments at all	95%	96%	1
Received passing grade	95%	96%	1

### Other Observations

**Accountability groups – extra benefits.** Although the intention of the accountability groups was to increase class attendance, other benefits were noted as well. One student who performed poorly on an assignment emailed me, stating “I was upset about my grade but when I talked to my accountability group about it, I realized that I did it wrong and failed to meet expectations. They reminded me about the resources you provided regarding this and I will be reviewing them.” Some of the students turned the accountability groups into more than just holding one another accountable for showing up to class. Additionally, at the beginning of classes, students would often update me if a member of their accountability group was going to be absent or was ill. There was clearly regular communication between the group members and a support network created.

**Individual outreach & office hours.** Although the number of students attending office hours was not specifically tracked in either semester, the number attending the virtual office hours was markedly higher than the number attending in previous semesters in-person. Historically, there would be many weeks with no students attending office hours at all and, at most, one or two students attended. With the virtual office hours in the Fall semester, approximately 30% (around 25 different students) attended office hours at least once. This increase is likely because of the individual outreach efforts indicating to students that they needed to follow-up with me to discuss their performance. This is also, likely, partially due to the ease and flexibility of attending virtual office hours versus in-person office hours, particularly given that our campus is primarily a commuter campus with most students living off-campus.

**Feedback quality & turnaround time.** Students made comments, both in email communication to me and in the course evaluations, that they appreciated the thorough feedback and how timely it was provided. Several students commented along the lines of “the thorough feedback on the earlier assignments helped me perform better on later assignments.” Another student stated that the most helpful part of the class for them was the “honest, thorough, clear, and timely feedback, even though Dr. C is dealing with the pandemic too.”

**Learner intake survey.** Due to the promised confidentiality of the learner intake survey, I am not providing details of what the students shared. However, there were between one and three students in each course that were dealing with very stressful events directly related to the pandemic. Utilizing this survey and using the flagging tool in the LMS allowed me to be

aware of the students who were dealing with unusually stressful events and make appropriate accommodations.

**Sense of community.** Students seemed to enjoy the environment created with the music before each class session. When students were asked to submit suggestions for songs to add to the playlist, quite a few students from each class took the time to make suggestions. In the end of course evaluations, several students commented about “the fun music before class” that put them in a good mood.

### **Challenges**

I would be remiss if I did not point out the time commitment these interventions required. The workload during the Fall semester was considerable. While many of these tasks, are routine for university faculty, such as providing extensive feedback on assignments, individually reaching out to students, following up with those who do not respond, and setting up one-on-one meetings, takes a considerable amount of time. For example, there was one day that I had back-to-back individual virtual meetings with students from 10:00 a.m. to 4:30 p.m. while trying to complete other work in between. However, I justified this with my own work-life balance since I had no commuting time nor wasted time finding a parking space on campus. Nonetheless, given the time demands on, and assigned workloads to many faculty, some of these interventions may simply not be practical. Administrative policy changes are necessary to reduce workload assignments and other obligations faculty must meet in order to focus more on students and provide this individualized attention.

There were also challenges in that there simply were some students, despite my best efforts, who disengaged. Some students still failed to attend class regularly and several did fail their respective classes. Others, though passing, could have done better with higher levels of engagement.

### **Discussion**

Students responded, generally, in an undesirable way in terms of attendance, on-time assignment submission, and maintain their class grade. The decreases in attendance and on-time assignment submission were more dramatic. Two of the three identified priorities were achieved through the interventions implemented: improving class attendance and increasing the number of students submitting assignments on time. While no drastic change in student performance was observed during the semester, it was harder to note consistent student performance throughout the term. However, even in the Spring term, with the inherent challenges and lack of preparation time, the far majority of students still received a passing grade; observing a significant change in this area was unlikely.

Bawa (2016) concluded that both social exclusion and family commitments are reasons students withdraw from online courses or are unsuccessful in them. These obligations are also more commonly demanded of female and first-generation students, who were the focus of this project (Covarrubias et al., 2019). It is likely these factors are heightened, given the stress and isolation of the pandemic (Cullen et al., 2020; Pfefferbaum, 2020). Several of the methods implemented in this research directly addressed these two concerns: accountability groups, learner intake surveys, and building a sense of community. The success of these interventions was demonstrated by the improved class attendance and increase in students submitting work on time.

First-generation students and students of color are often under additional emotional and economic challenges that were worsened by the pandemic (Adams et al, 2016; Allan et al., 2016; Fairlie, 2020). The improved attendance and on-time assignment submission, along with the higher number of students coming to office hours and the positive student comments, indicate that the interventions applied during the Fall 2020 semester to help students adjust to the pandemic were effective in mitigating these additional stressful factors.

There is an emotional reaction to assignment feedback, particularly when the feedback is associated with a lower grade (Pitt & Norton, 2017). Students' emotional responses to feedback are often negative and include annoyance, frustration, and disappointment; these are all exacerbated when experiencing other stressful life events (Wass et al., 2020). With the heightened stress everyone has been experiencing during the pandemic, this made the interventions of individual outreach, feedback quality and turnaround time, and flexibility with firm expectations that much more important (Cullen et al., 2020; Pfefferbaum, 2020). The individual outreach to students afforded me the opportunity to not only facilitate their understanding of the provided feedback, but to also reduce the emotional reactions to it by including the personal element of a one-on-one meeting with the student, which they craved and needed given the social isolation brought on by the pandemic and exacerbated by the forced virtual instruction (Bawa, 2016).

Though time-consuming, the interventions used in the Fall 2020 semester were ones that can easily be implemented by faculty at any institution. It is also important to not overlook the increased strain placed on faculty who had to cope with the same unique challenges the pandemic presented (Cullen et al., 2020; Pfefferbaum, 2020). These techniques and strategies do not require any special skills or complicated technology, though, but a dedication to students and teaching. Faculty interest and commitment to teaching is a key indicator of student success (Roksa et al., 2016). Implementing these strategies is a simple way to demonstrate that commitment and help students succeed.

### **Recommendations**

To obtain equity in education among first-generation students, students who qualify for financial aid, and students attending a designated HSI during the pandemic and non-pandemic times, the interventions described in this study are critical. It does take additional time to meet the needs of students, and this should be acknowledged by reducing faculty teaching loads or reducing class sizes so that faculty have time to reach out individually to students and provide unique, individualized feedback about assignments. Students need and deserve the individualized attention that these interventions provide, but not all faculty have the time and availability to provide them with current workloads.

### **Conclusions**

The interventions were successful, and they improved student performance. The interventions were time-consuming but had a positive result on the students, despite the challenges brought on by the pandemic that has affected the globe. The students also recognized these efforts and acknowledged them in their comments and feedback. These are simple strategies that require additional time but can be easily implemented by faculty to help students. Faculty looking to address concerns from non-engaged or low-performing students during the pandemic should consider implementing these tools of intervention: accountability groups, individual outreach, extensive and timely feedback, and working to build a sense of community despite the added

challenges of virtual instruction. University administrators should review faculty workloads to be appropriate for faculty to provide the necessary individualized attention students need.

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