


Special Issue: Implications of COVID-19 on Higher Education

COVID-19 Induced Transition from Classroom to Online Mid Semester: Case Study on Faculty and Students' Preferences and Opinions


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Abstract

Objectives: The purpose of this study was to investigate faculty and students' reactions to the COVID-19 emergency move to online classes. The goal was to better inform instructional strategies to be used in similar circumstances and to inform best practices in online pedagogy.

Method: Online surveys were administered to students and faculty near the end of the semester to evaluate different aspects of the transition. Classes included in the study were scheduled as full-semester, on-campus classes but made an emergency switch to online post-spring break, after eight weeks.

Results: Students' and faculty's comfort levels at the time of the switch depended on the amount of prior experience they had in online teaching and learning. Individual students and faculty experienced varying degrees of ease of adjustment to the switch in format from in-class to online. Faculty had to adapt quickly to determine the best way to replicate the in-class experience. Many faculty would depend on familiarity with technology and creativity with its usage. To varying degrees, comfort level improved as the semester progressed for both faculty and students. Still, a majority of students expressed less interest than before in taking online classes.

Conclusions: The level of preparedness of faculty and students determined the outcome of this natural experiment. The adjustment was easier for those with prior experience with the online format and/or for those who felt comfortable with the format.

Implication for Practice: As faculty and students prepare to return to the classroom, consideration can be given to best practices in online pedagogy to support students and faculty. Our findings point to the need for institutional preparedness for unforeseen circumstances.

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Keywords: COVID-19; pedagogy; online learning, instructional design

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Introduction

In March 2020, higher education institutions across the United States were informed by a series of federal and state mandates, executive orders, or recommended best practices to convert the modality of instruction for all on-campus courses to a virtual or remote learning platform due to the COVID-19 worldwide pandemic. Since the closure of many schools came at the half-way point of the semester, the conditions created a natural experiment to study student and faculty reactions to this emergency situation and the quick conversion from the face-to-face classroom to the online classroom.

This research report is a case study. It was conducted in a small, liberal arts institution in the Midwestern United States. Most undergraduate courses are taught in the face-to-face format at this institution. In spring 2020, face-to-face courses represented over 92% of full-term, 16-week courses. During the first half of the semester, these courses met in face-to-face classrooms on campus. During the second half, courses met via a virtual format. The announcement that classes would resume in remote-only mode came during spring break with four days' lead-time until classes resumed. During these four days, individual faculty requested—and received—one-on-one support from the Department of Academic Technology to help with the transition. A repository of resources that the department already maintains was augmented with additional just-in-time information and training for faculty. On the student side, the department of student life conducted a call-and-text campaign to reach out to every undergraduate student and assess what kind of support she/he might need. This resulted, for example, in a support initiative to loan out laptops to students who needed them.

The courses included in this study had started out as 16-week on-campus courses, but switched to the remote format after 8 weeks. We surveyed students and faculty at the close of the semester and asked them to share their reactions to the switch in modality. The goal of the study was to gather data on the conversion to virtual learning in order to inform teaching and administrative practices and prepare for virtual learning and online courses in the future.

Literature Review

Background to Online Learning

Online learning is not a new modality. In fact, Simonson et al. (2019) traced distance education in the United States back to the late 1800s to a correspondence program offered at the University of Wisconsin. Fast forward from then to now, the possibilities for correspondence and online education grew due to advances in fiber optics, communication satellites, and internet protocol. By the 1990s, virtual schools or academies became more prevalent on college campuses as instructors and administrators experimented with growing options such as high-tech classrooms (Simonson et al., 2019).

Certainly, early correspondence and remote learning opportunities looked much different from the technology-driven online courses of today. Online options now include asynchronous and synchronous formats often delivered in learning management systems (LMS) specifically designed for education (Holmes & Prieto-Rodriguez, 2018). The asynchronous format is the act of delivering online learning via the web where

students have access to class at a time of their choosing, while synchronous learning is delivered in real-time and students and instructors are online at the same time (Ogbonna et al., 2019). An LMS is a software platform that aids in the development of online course material (Turnbull et al., 2020). Online learning has also exploded over recent years. Simonson et al. (2019) noted that in 2013, nearly 70% of educational institutions regarded online learning as important to their long-term strategic plans. That same year, Allen and Seaman (2013) published a report that indicated over 6.7 million students (32%) had taken at least one online course. In a report released in 2018, data indicate that distance education enrollments had increased for 14 straight years even while overall enrollments were declining; however, these enrollments were concentrated at only a few institutions (Seaman et al., 2018).

Best Practices in Online Learning

Many educators conducted online instruction for the first time during the COVID-19 pandemic. However, learning materials that are simply put online are not always helpful (Woods, 2014). Design options vary, and a well-developed online course takes into account the needs and types of learners (Hodges et al., 2020). Some institutions have adopted the Quality Matters (QM) online design model that provides a rubric and a peer review process to build an online course (QM, n.d.). Sadaf et al. (2019) conducted a study that asked students what the most important factors were from the list of QM standards. They rated course activities, learner interaction, and clear expectations as three of the most important factors in course design (Sadaf et al., 2019). Applying the QM rubric to a course helps the instructor look at the course through self-evaluation, and it is an opportunity to solicit student feedback (Woods, 2014).

In a recent report from the Online Learning Consortium, trends in online learning include adaptive learning, open educational resources, gaming, massive open online courses, mobile learning, design, and learning management interoperability (Joosten et al., 2020). There is an increasing amount of interest in improving the instruction in online learning through specific pedagogy around teaching practices. For example, educators have numerous ways to host asynchronous online discussions, including using text-based, video-based, or audio-based discussions in a learning management system (Covelli, 2017). In a mixed-methods study, Zydney et al. (2012) researched discussion boards and found instructor interaction to be an important element in the discussion board. Innovative online course models also exist. For example, Parlow and Rochter (2016) describe a dual-system e-learning program that takes advantage of an academic-industry partnership to learn theory and then apply it in the workplace. There is also interest in reviewing practices used in face-to-face instruction and methods to convert these tools to the synchronous online learning platform. McDaniels et al. (2016) indicated a high student satisfaction with conversion of face-to-face practices (such as introductions) into synchronous online practice.

Davey et al. (2019) discussed the pedagogical challenges in converting face-to-face courses to online. They describe a team-based approach that includes subject matter experts (SMEs), learning designers, and educational technologists that contribute to the development of materials and other individuals who guide the process of the conversion (Davey et al., 2019). The case study suggested that the process for developing an online course may be different from the process for developing a face-to-face course (Davey et al., 2019). Baim (2015) also discussed conversion of face-to-face material to the online learning environment; the paper proposed there are different ways to translate storytelling materials to online and that the conversion may be more complex than simply uploading text. A best practice may be the use of varied multimedia approaches (Baim, 2015).

While best practices are important, the timeline during the COVID-19 crisis did not provide an extensive period to assess, develop, and design online instruction. However, reviewing faculty and students' perceptions of what did occur during the emergency switch may provide insight into the types of teaching practices and tools that students and faculty desire in online learning.

Comparing Face-to-Face and Online Learning

The emergency also lent itself to conversations between faculty and administrators who seek to compare the face-to-face and online learning platforms to draw conclusions on which modality is better. The literature varies in comparing the effectiveness in the academic performance of students in the two modalities, and there is quite a bit of disagreement as to which modality outperforms the other specific to grade-based student performance (Cavanaugh & Jacquemin, 2015). Atchley et al. (2013) looked at online, blended, and face-to-face courses and found significant differences between the modalities specific to course completion and student academic performance. Means et al. (2010) also reported significant differences between face-to-face instruction and online learning in a large meta-analysis study. The researchers examined over a thousand research studies between 1996 and 2008 in the area of online learning. “The difference between student outcomes for online and face-to-face classes—measured as the difference between treatment and control means, divided by the pooled standard deviation—was larger in those studies contrasting conditions that blended elements of online and face-to-face instruction with conditions taught entirely face-to-face” (p. ix).

On the other side of the discussion, there is recent literature that suggests no significant differences in the modalities. Cavanaugh and Jacquemin (2015) conducted a research study comparing face-to-face courses with online courses with over 5,000 courses and 100 faculty members. They found very little difference between the students’ grade-based performance in both modalities. Stack (2015) compared two courses, one online and one face-to-face, and found no significant difference in student performance. The United States Department of Education (2010) conducted a meta-analysis of literature between 1996 and 2008 and found that students actually perform slightly better in the online environment. There may be other advantages to online learning. Vlachopoulos (2020) points out that in the COVID-19 crisis, learning was not interrupted largely due to the opportunity to transition to a remote platform. However, this may be an “overly optimistic” strategy in some parts of the world (p. 17).

Taking a data-driven approach to studying student and faculty responses to a switch in modality in the same term, we strove in this study to provide a better understanding of and inform practices in online learning and to help prepare for future semesters that may continue to be impacted by the pandemic.

Purpose of the Study

The purpose of this case study was to investigate faculty and student reactions to the COVID-19 initiated emergency move to online classes after spring break in 2020. Our goal was to gather data on the conversion to virtual learning in order to inform teaching and administrative practices and prepare for virtual learning and online courses in the future. We specifically sought to analyze the “emergency transition” experience in undergraduate courses that were originally scheduled as face-to-face classes for the entire semester but switched to the remote format for the second eight weeks of the semester.

Framework

Case studies are a social science qualitative research technique to describe a given situation in depth (Given, 2008). The switch to remote learning was a phenomenon not foreseen, and the conditions created by the natural experiment were favorable to viewing as a case study.

Since the switch to remote learning was triggered by an extrinsic factor, the study is, by design, exploratory. We sought to evaluate how smooth the transition was and what guidance the experience might offer for the future. If students and faculty alike were comfortable with the online format and well prepared at the starting point, the transition would be smooth. On the other hand, since the courses were quickly adapted to the remote learning format, the transition may have been challenging even for experienced faculty, and even more so for students. Similarly, if the data revealed that certain elements of teaching and learning were not being

used/implemented, this would point towards the need for more faculty training in preparation for an extended stretch of remote learning. If comfort level had improved over the period and students were more interested in taking more online courses in the future, a case for greater investment in online course development could be made.

Research Questions

The primary research questions analyzed in the study were:

1. How much prior experience did faculty and students have with online teaching and learning? How comfortable did they feel about the transition? Was comfort level correlated with prior experience? To determine this, we tested the following hypothesis: Comfort level at the time of the switch was correlated with amount of prior experience in online teaching.
2. How challenging was the transition for faculty and students to the fully online format? Was ease of transition correlated with comfort level? To examine the second question, we tested the following hypothesis: Ease of transition was correlated with comfort level with the fully online format for students and faculty.
3. What teaching tools were used in the remote learning format?
4. Did faculty and student comfort level improve as the semester progressed?
5. What was students' overall experience with the change in learning format? Did the seven-week experience with online learning generate greater interest in online learning in the future? To analyze this question, the following hypothesis was tested: Student interest in online learning in the future is correlated with the overall reported experience of the transition to emergency remote learning.

Methods

Setting/Context

The study took place at a small, liberal arts institution in the Midwestern United States that regularly offers undergraduate and graduate courses in various modalities including face-to-face, online, and blended. The institution utilizes the Canvas learning management system (LMS) as its primary mode of delivery of online instruction. The institution subscribes to many of the features available through Canvas such as Canvas Conferences and Canvas Studio. Many instructors had access to the free version of Zoom (<https://zoom.us/>), and a limited number of faculty had access to more robust features of Zoom and other technology platforms such as polling software or applications. The institution has a dedicated Department of Academic Technology staffed with instructional designers who are available to instructors as resources.

Population and Sample

The faculty survey was administered to 357 full-time and part-time faculty with an active course in the spring semester. Only those who transitioned to the online format for at least one course were asked to respond with respect to those courses; 107 responses were received. This represents approximately 30% of faculty who were teaching in the spring semester and invited to participate. Of those who responded, four indicated that their classes were scheduled as online at/since the beginning of the semester. Since they do not represent a transition to the new learning modality, these four responses were purged from the data. The findings reported in this paper include responses from 103 faculty members of whom 60 percent were full time and 40 percent adjunct.

The student survey was administered to 1,342 full-time and part-time undergraduate students with an active registration in the spring semester. A total of 362 students responded to the student survey. This is approximately 25% of students who had an active registration and were invited to participate. About 15% of respondents were graduating seniors (i.e., graduating in Spring 2020). The remainder comprised approximately 18% seniors, 32% juniors, 19% sophomores and the remaining 17% freshmen.

Procedures

Two online surveys were administered to students and faculty to evaluate different aspects of the transition including (1) preparedness at the time of the switch, (2) adaptation to the “new” learning format, (3) use of different tools in the online learning format, (4) level of comfort and interest in teaching online, and (5) overall student experience with the change in learning format. The faculty survey was administered during the final two weeks of the semester, and the student survey was administered during a two-week time window starting the weekend before final exams. The study was approved by the internal Institutional Review Board (IRB) with approvals #2019-20-0077 and #2019-20-0078.

Instrumentation

Surveys included a ten-question faculty survey (Appendix A) and a ten-question student survey (Appendix B). Both instruments included single/multiple-choice questions and free-response questions. The faculty survey was developed and reviewed by seven full-time faculty with extensive experience teaching in both face-to-face and online modalities. In addition, ten faculty members at other similar educational institutions were requested to complete the survey and provide suggestions if any. The student survey was developed by two full-time faculty with extensive experience teaching in both modalities and reviewed by personnel in the Offices of Student Services and Institutional Research.

Analysis

An aggregate analysis of each quantitative survey question was reviewed, and, where possible, the two sample sets (faculty and student) were compared. Cross-tabulations were reviewed in IBM’s Statistical Package for the Social Sciences (SPSS). For all statistical tests, responses were converted into an ordinal scale. All statistical tests were performed using SPSS. For all hypothesis tests, Kendall’s tau, a measure of correlation for ordinal variables, was used to assess statistical significance.

Results

The results are organized by findings related to each research question.

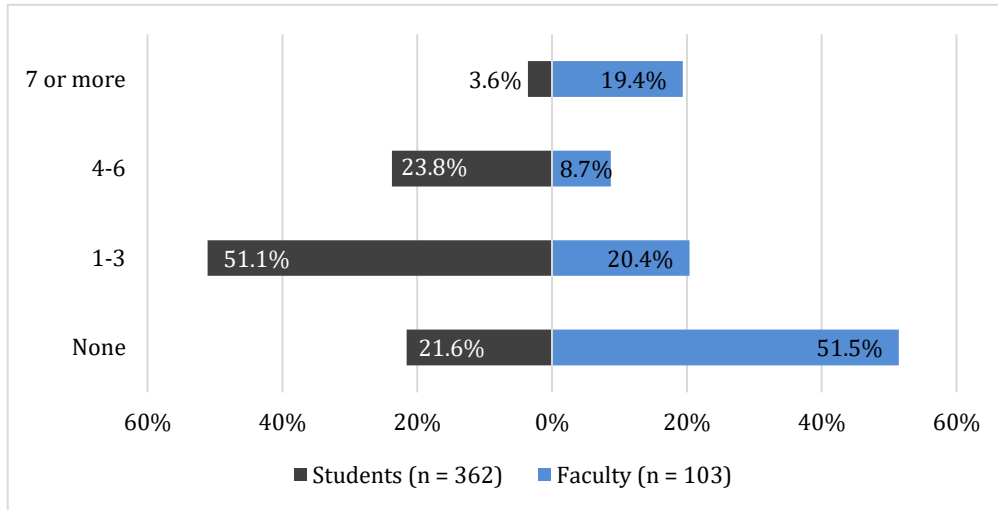
Research Question #1 and Hypothesis

How much prior experience did faculty and students have with online teaching and learning? How comfortable did they feel about the transition? Was comfort level correlated with prior experience? The following hypothesis was tested: Comfort level at the time of the switch was correlated with amount of prior experience in online teaching.

Two questions on the faculty and student surveys were designed to assess prior experience and comfort level. These were: (a) How many fully online classes had the faculty member taught (the student taken) prior to Spring 2020? and (b) when classes resumed in a fully online format post-spring-break, how comfortable was the faculty member (the student) with online teaching (learning)?

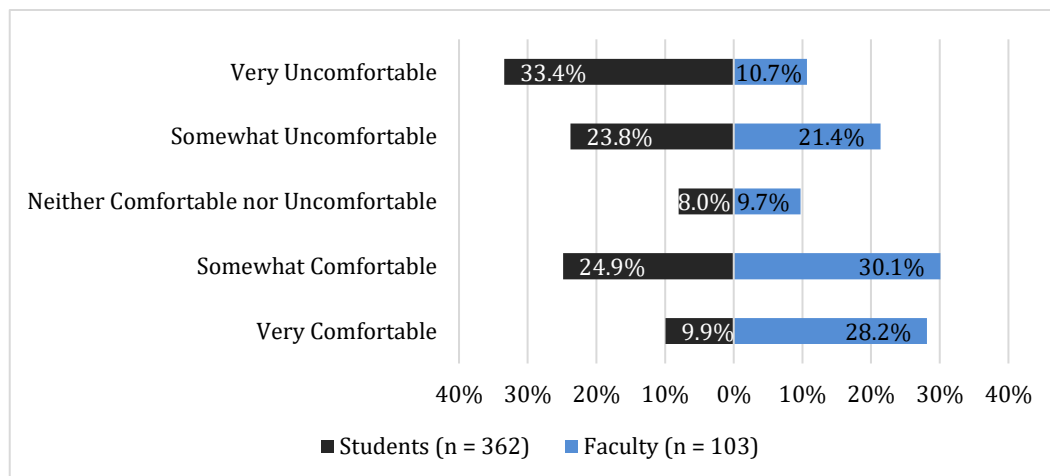
Fully online classes taught (taken) prior to Spring 2020. At the aggregate level, there is a difference between faculty and student prior experience with online teaching (learning). More than half (51.5%) of faculty had taught no online classes previously; about one-fifth (21.5%) of students had taken no online classes previously (Figure 1).

Figure 1: *Number of Online Classes Taken/Taught*



Comfort level with the transition to online learning. The difference in comfort level with online teaching versus learning is also notable. Over 58% of faculty felt either very or somewhat comfortable with online teaching, while only about 34% of students felt either very or somewhat comfortable with online learning (Figure 2). At the other end of the spectrum, over 57% of students felt either very or somewhat uncomfortable with online learning; only about 32% of faculty felt either very or somewhat uncomfortable with online teaching.

Figure 2: *Comfort with Online Learning/Teaching*



Relation between prior experience and comfort level. We tested the hypothesis that comfort level at the time of the switch was correlated with the amount of prior experience in online teaching. Kendall’s tau-b

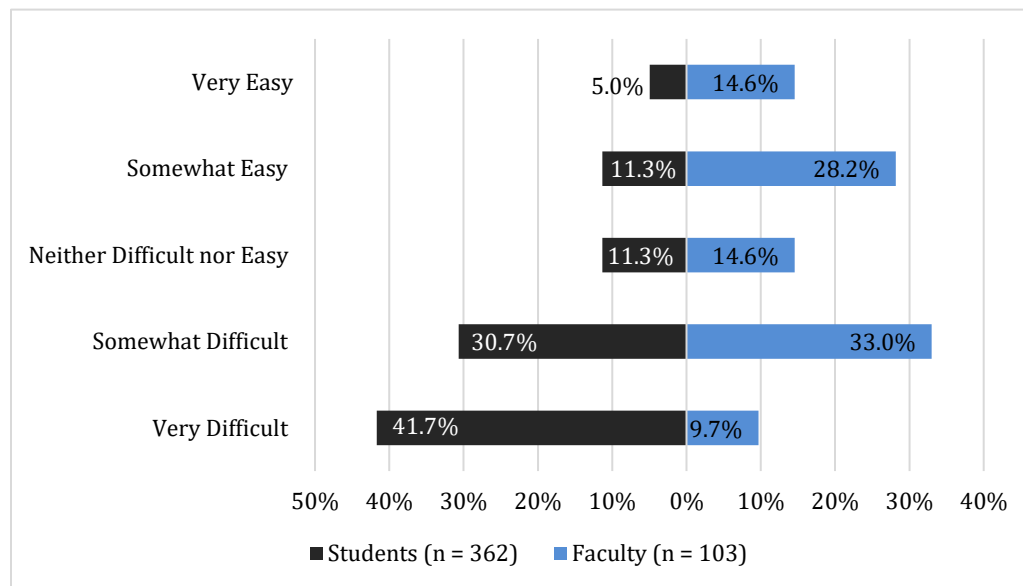
indicated a positive and significant correlation between the two variables, $\tau b = 0.536, p = .000$. The result for student data is qualitatively similar, with Kendall’s tau-*b* indicating a statistically significant correlation between experience with online learning and comfort level, $\tau b = 0.114, p = .012$.

Research Question #2

How challenging was the transition for faculty and students to the fully online format? Was ease of transition correlated with comfort level? The following hypothesis was tested: ease of transition was correlated with comfort level with the fully online format for students and faculty.

Respondents were asked to complete the sentence: “adjusting to the online teaching (learning) format was _____.” Five answer choices from “very easy for me” to “very difficult for me” were provided from which respondents made their selection (question 6 on the faculty survey, Appendix A; question 8 on the student survey, Appendix B). The data make it very evident that the transition was significantly easier for faculty than for students (Figure 3). Only 16% of students found the adjustment either somewhat or very easy; almost 43% of faculty did. At the other end of the spectrum, over 70% of students found adjusting to the online format either very or somewhat difficult; only 42% of faculty did.

Figure 3: *Adjusting to the Online Format*



Relation between pre-transition comfort level and ease of adjustment—faculty. The data reveal a clear correlation between comfort level of faculty at the time of the switch and their ease of adjustment. Over 80% of faculty who reported being either very or somewhat uncomfortable found the adjustment either very or somewhat difficult. At the other end, over 72% who were very comfortable and over 50% who were somewhat comfortable found the adjustment either somewhat or very easy. Kendall’s tau-*b* indicates a positive and statistically significant correlation between ease of transition and comfort level, $\tau b = 0.536, p = .000$.

Relation between pre-transition comfort level and ease of adjustment—students. Ease of adjustment is positively related to comfort level for students as well. Over 94% of students who reported being very uncomfortable, and over 88% who were somewhat uncomfortable, found the adjustment either very or somewhat difficult. Roughly 35% who were somewhat comfortable, and approximately 47% who were very

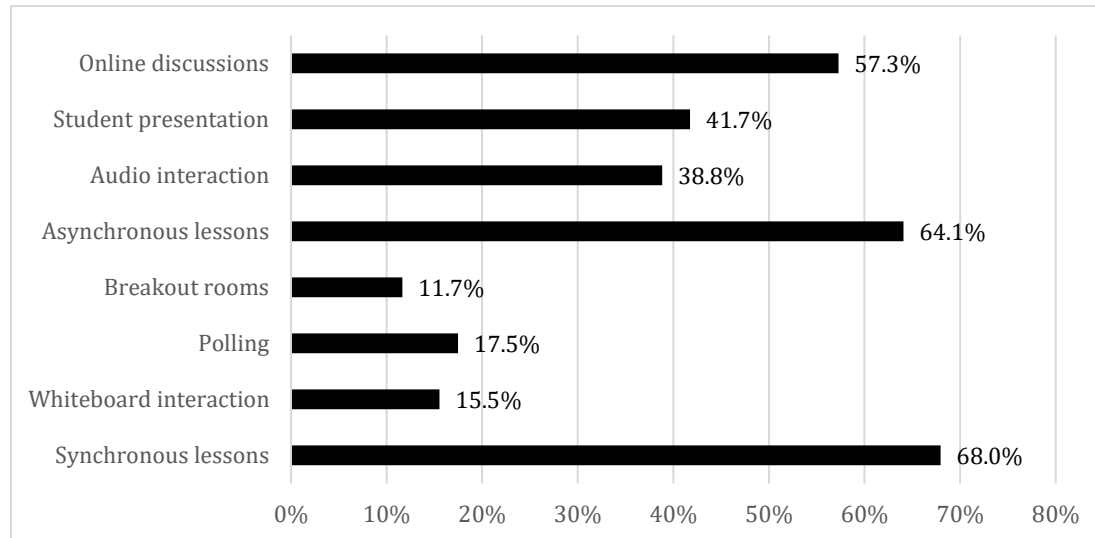
comfortable, found the adjustment either very or somewhat easy. Correlation between the two variables is positive and statistically significant, $\tau b = 0.536$, $p = .000$.

Research Question #3

What teaching tools were used in the remote learning format?

Faculty were asked what teaching tools they had used in their classes. Several choices were listed, along with an “other” option to capture tools not listed. Figure 4 provides a summary.

Figure 4: *Teaching Tools Used in Classes*



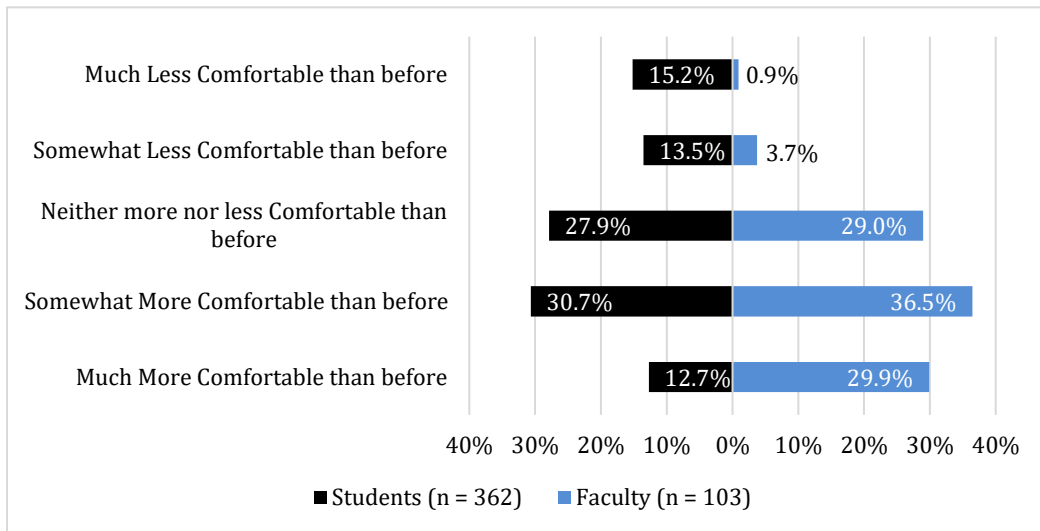
Over 60% of all faculty reported delivering lessons via synchronous sessions. Asynchronous lessons were also used by over 60% of faculty. Almost 36% reported using both. Use of both may indicate either that a faculty member (a) provided pre-recorded video lectures within the LMS but also held synchronous video sessions for the same course(s), or (b) used asynchronous lessons in some courses and synchronous in other(s). Since the surveys were at the faculty level and not at the course level, this cannot be parsed. Online discussions appear to have been a popular tool of choice for attaining interaction within the courses. Student presentations were frequently used. Polling, whiteboard, and breakout rooms—interaction tools for synchronous class sessions, were used far less frequently.

Research Question #4

Did faculty and student comfort level improve as the semester progressed?

We expected that comfort level would improve as the semester progressed. The survey was administered at the end of the seventh week of fully online classes (final exams were held in the eighth and final week). Respondents were asked, “Having experienced fully online learning (teaching) for seven weeks, how comfortable do you now feel about online learning (teaching)?” Five options were provided, ranging from “much more comfortable than before” to “much less comfortable than before.” Figure 5 summarizes the findings.

Figure 5: *Comfort Level with Online after Seven Weeks*



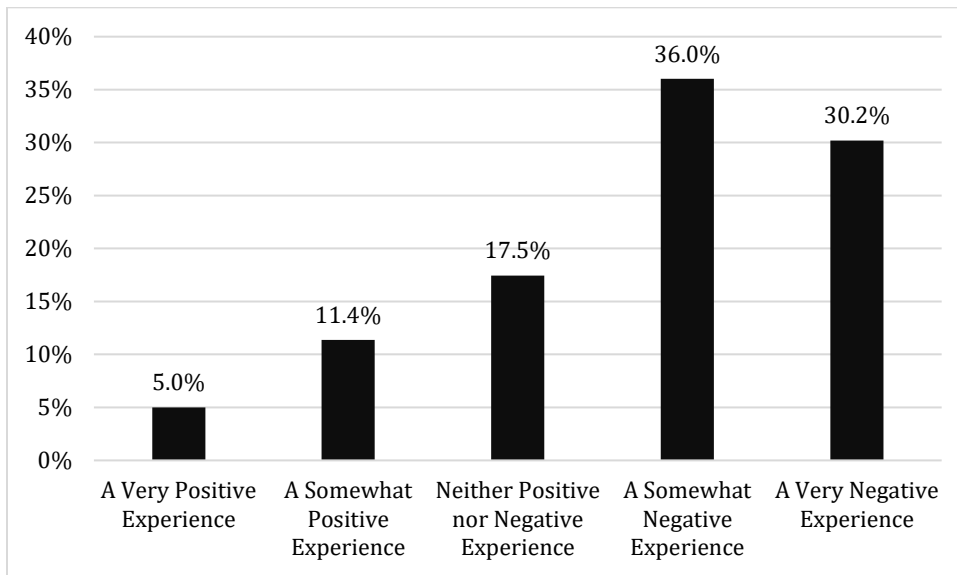
After seven weeks, comfort level with online learning and teaching had improved for 43.4% of students and 66.4% of faculty, respectively; an additional approximately 30% in both groups were neutral. This finding is as expected and reflective of adaptation to the transition. Somewhat concerning is the finding that almost 29% of students reported feeling either somewhat or less comfortable than before. A positive finding is that less than five percent of faculty placed themselves in these two categories.

Research Question #5:

What was students’ overall experience with the change in learning format? Did the seven-week experience with online learning generate greater interest in online learning in the future? The following hypothesis was tested: Student interest in online learning in the future is correlated with the overall reported experience of the transition to emergency remote learning.

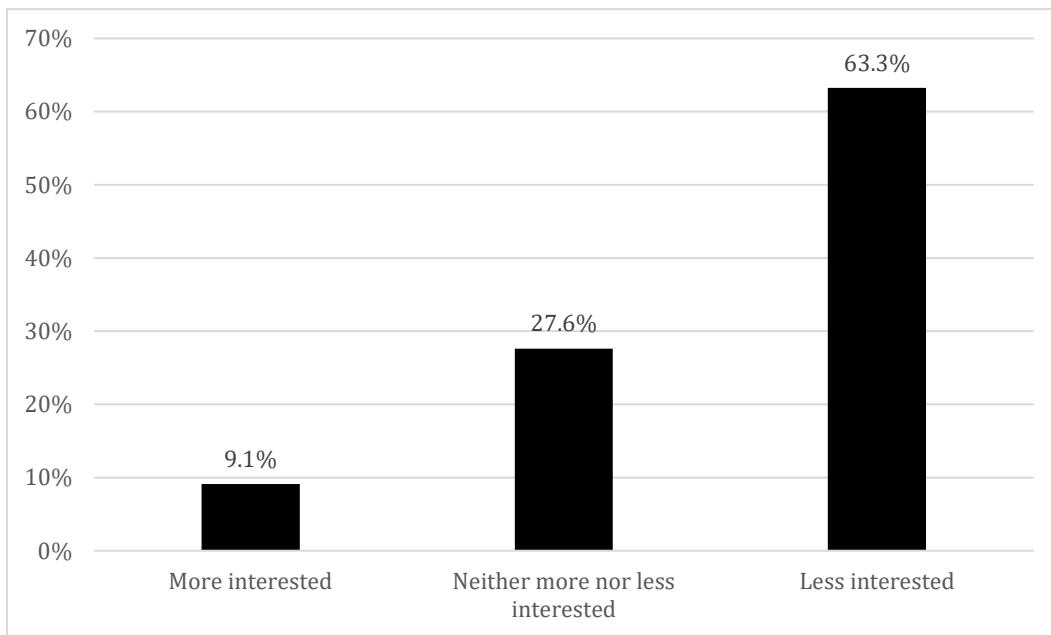
To gauge students’ overall experience, we asked them to compare their face-to-face classes pre-spring break to their online classes post-spring break and rate the change in learning format on a five-response scale from “a very negative experience” to “a very positive experience.” Approximately 66% of students rated their experience with the change as either a very negative or somewhat negative experience (Figure 6). Only five percent reported the change as a very positive experience.

Figure 6: *Change in Learning Format—Students’ Overall Experience*



Students were also asked, as a result of this seven-week online learning experience, how interested they would be in taking online courses in the future. Figure 7 summarizes the responses.

Figure 7: *Interest in Online Learning Post-Experience*



An overwhelming majority of students expressed less interest in taking online classes in the future. Only about 28% were neutral, and less than 10% expressed greater interest.

The correlation between overall experience with the change in learning format and interest in online classes in the future is positive and statistically significant, $\tau b = 0.452, p = .000$.

Discussion

The classes included in the study were scheduled as full-semester, on-campus classes. For these classes, the switch to the online format was sudden and swift and occurred over spring break. The data reviewed in these classes outline several themes.

First, the level of preparedness of faculty and students eventually determined the outcome of this natural experiment. One may argue that teaching one-to-three classes online does not constitute enough experience for an emergency switch to fully online as necessitated by the sudden closure. Albrahim (2020) explains faculty need numerous abilities to effectively teach online, including skills in the areas of pedagogy, content, design, and technology, among others. These skills are specific to teaching online courses in higher education (Albrahim, 2020), and the translation of skills from face-to-face teaching does not necessarily match online teaching. To that extent, the finding that over one-third of faculty felt comfortable with online teaching despite having taught no online classes previously is surprising. We offer two possible explanations: (a) faculty had only included their experience at this institution when answering the question, or (b) they had taught hybrid and/or blended courses and felt comfortable applying that experience towards their switched-modality courses.

Student participants, overall, were less comfortable about the switch in modality despite having more experience taking online classes. The discomfort could be attributable more to the change in modality from on-campus to online than to the remote format itself. Students were accustomed to the on-campus format of classes for the first eight weeks and may not have anticipated the change when spring break commenced. The abrupt switch may have generated anxiety about how this would impact course workload, their ability to learn, and consequently their academic performance. These are among several stress factors explored by Son et al. (2020) in their study of students' mental health, in response to COVID-19, at Texas A&M University. A College Pulse and Charles Koch Foundation (2020) survey of 5,000 full-time undergraduate students at 215 universities found that even among students who have experience in online learning, most say this is a less effective way to learn. It is quite plausible that concern about the impact on learning was heightened by the suddenness of the switch.

It must be noted here that neither of the two surveys defined "comfort." Respondents self-evaluated their own meaning of comfort when responding to the survey.

Second, individual students and faculty experienced varying degrees of ease of adjustment. The adjustment was easier for those who reported feeling comfortable with the format. Combined, 42% of faculty found the adjustment either somewhat or very easy, but less than one-fifth of students did. Strikingly, less than half (47%) of students who reported feeling comfortable about the switch found the adjustment easy. This may be partly attributable to the lifestyle adjustment necessitated by the lockdown. In the Son et al. (2020) study for instance, 89% of students indicated difficulty concentrating on their academic work because of various sources of distraction. Perhaps faculty found it easier to attain their "new" work-life balance than students did. In a study of 26 online programs, Lee et al. (2020) found that relational and technological factors separately and collectively predict student learning success. More specifically, the student-faculty relationship has the strongest impact on the level of success (Lee et al., 2020). In a smaller scale case study, Morgan (2018) provides experiential insight that faculty communication and the creation of a community of learners support positive outcomes in online learning. For a small institution such as the one studied here, the importance placed on these types of relationships could assist students in potential future online semesters. Faculty will have to find ways to help students adjust to—and thrive in—an unfamiliar learning environment.

Third, faculty had to adapt quickly to determine the best way to replicate the in-class experience pre-spring break to the online format post-spring break. Many depended on familiarity with technology as well as

creativity with its usage. Both synchronous and asynchronous modalities were used for content delivery. With respect to interaction, however, interaction tools for synchronous sessions were conspicuous by their infrequency of use. This is not surprising considering that the use of synchronous class sessions via video conferencing became widespread only during the lockdown. We expect that the use of interaction capabilities within these sessions will increase as faculty gain experience with this new modality of teaching. Indeed, “incorporating more tools for interaction” was among the more common responses to an open-ended question asking faculty what changes they would make if they had to teach classes online again for an extended period.

An early survey by Bay Analytics of over 800 faculty and administrators at over 600 institutions nationwide inferred that “experienced online instructors (were) less likely than their peers to use synchronous lectures or discussions” (Ralph, 2020). Discussions with faculty members at this institution suggest that the choice of synchronous versus asynchronous instruction was not strictly related to the level of online teaching experience. Rather, since this was a unique and unprecedented event, the use of synchronous video sessions was primarily driven by the intent to maintain the class routine (that students were used to in the first eight weeks of the semester) after the switch. Use of asynchronous sessions, on the other hand, was primarily driven by an intent to provide flexibility to students who may have found themselves juggling other responsibilities (example parental, caring for a parent, etc.) resulting from the imposition of a state-wide stay-at-home order.

Fourth, comfort level generally improved as the semester progressed, both for faculty and for students. Somewhat concerning, however, is the finding that almost 29% of students reported feeling either somewhat or less comfortable than before. Perhaps these students found it difficult to adjust to the change in learning experience in the two halves of the semester. The reported lack of comfort may also be attributable to their access to technology. Vlachopoulos (2020) points out that access to hardware, software, tools, and applications is not universal and may affect certain groups more than others. While faculty were likely issued equipment and technology support required to do their job and likely had resources to establish at-home working conditions to support their job, students may have had a disproportionate level of accessibility.

Fifth, almost one-third of students expressed less interest than before in taking online classes. This may be largely due to the lack of personal interaction that occurred over this time—both in academic classes and in other aspects of students’ lives due to the state of lockdown and quarantine. In the College Pulse and Charles Koch Foundation (2020) study, 89% of students said that online classes are less effective at developing social skills (p. 9). In Son et al. (2020), 86% of students indicated that the pandemic had increased their level of social isolation. If online and hybrid instruction continue for an extended period, faculty must address the social dimension of students’ learning experience. Specific to online learning, there is an entire body of literature dedicated to the exploration of building a sense of community in the virtual setting. The community of inquiry (CoI) framework is a guiding principle that describes how students seek connection to faculty and their peers in online learning through the use of teaching presence and social presence (Garrison et al., 2000; Fiock, 2020). Recent research by Fiock (2020), for example, continues to support the idea that building online community positively influences student learning, engagement, and motivation. It is possible that the emergency switch to online learning did not afford faculty members time to focus on community building and therefore students’ responses were not necessarily germane to the online modality.

Finally, interest in taking online classes in the future was directly related to students’ overall experience with the change in learning format. Recall that the majority rated their experience in a negative manner, with only five percent reporting the change as a very positive experience. The increased comfort with the online format thus appears to have been outweighed by other factors that contributed to overall experience. This finding is not isolated for this institution. The broader survey of 5,000 full-time undergraduate students at 215 universities by the College Pulse and Charles Koch Foundation (2020) found that, although online courses are widely offered, online learning is often viewed by students as substandard to in-person learning. The report

noted that the negative perception about online learning is partly attributable to lack of experience with the format; however, even among students who have experience in online learning, most say this is a less effective way to learn.

We argued at an earlier point that students' lack of interest in taking online classes in the future—indeed, their reported overall experience with the remote learning format may have been driven more by the loss of social interaction resulting from the abrupt change. In students' minds, "learning experience" includes the social aspect of campus life and they may well have responded in that larger context. In the College Pulse and Charles Koch Foundation (2020) survey, students had expressed concern that moving to online learning would disrupt extracurricular activities and make it difficult to develop close friendships with other students. Responses of student participants in this study may have been guided by similar concerns. As previously mentioned, working to create a sense of community in the online environment is a specific area of research that has shown and demonstrated positive impacts on students (Garrison et al., 2000; Fiock, 2020). Negative experiences may also be related to students' learning behaviors and the degree to which they have the skill set to be successful in online learning. Recent research from Yeh et al. (2019) suggests that certain learning strategies and behaviors may help some students achieve greater results in online learning.

We mentioned in the introduction that the announcement about classes resuming online came with a four-day lead-time. Responding to an open-ended question that asked respondents to describe the switch in one word or phrase, "difficult" and "stressful" were used by 12% and 10% of students, respectively, and by approximately seven percent of faculty. Six percent of faculty and three percent of students found the switch "challenging," and four percent of faculty and about one percent of students found it "chaotic." Six percent of students said they found it "overwhelming." On the other hand, four percent of faculty used the word "seamless"; about one percent of students used the terms "smooth" and "much better."

That the switch was rendered "difficult" and "stressful" more by its suddenness than due to lack of prior experience is exemplified in the following responses to a second open-ended question asking faculty what changes they would make if they had to teach classes online again for an extended period of time. One said, "starting online is easy, switching mid-semester is a challenge." Another said: "putting four classes online in four days was not enough prep time." A significant number of faculty responses to this question pointed to the inadequate transition time. Other responses indicated a desire to incorporate more tools for interaction, synchronous video conferencing, and setting up courses in an online format from the beginning.

Limitations of the Study

This study took place in a small, liberal arts institution during an emergency transition from face-to-face courses to online courses in a single semester. The study reviews one type of school that may or may not be representative of other colleges and universities. The response rate—about 25% of students and 30% of faculty—allows generalization of the findings to this institution. It may be argued, however, that our findings may not apply to the undergraduate student population in general because of (a) the small sample size, and (b) demographic characteristics that may or may not have been present in the sample, data for which was not gathered. Still, given the nationwide similarity in the experience of switching to remote/online classes, we expect reasonable generalizability. Certainly, if another emergency occurs, this study has identified data-supported areas to assist institutions in the future. As faculty and students prepare to return to the classroom, consideration can be given to best practices in online pedagogy and face-to-face instruction.

Implications to Practice

This study demonstrates differences in faculty's and students' reactions to the face-to-face versus online learning environments in response to an unforeseen emergency switch. In the review of literature, we explored best practices in online learning and briefly compared the two modalities. Perhaps, though,

comparing face-to-face instruction and online learning may not be the right approach to adding conversation to practice in the context of an unforeseen and abrupt switch with very little lead-time for preparation. Each modality has its strengths and students and faculty seem to have some preferences, based on the data reviewed in this study. Continuing to add best practices to both modalities will continue to strengthen both types of learning approaches. Recognizing the modalities as distinct and different may be the starting point to developing continued learning opportunities for students. Our findings point to the need for institutional preparedness for unforeseen circumstances. Emphasizing that faculty should be familiar with learning platforms and educational technology—indeed, encouraging minimal usage of educational technology in all courses irrespective of the primary modality of instruction may help institutions and faculty be better prepared in the future.

The use of teaching tools is an important area for practitioner-scholars seeking insight on how to best deliver curriculum and achieve student outcomes. This review shares that instructors used different types of teaching tools in the emergency online session including online discussions, audio interaction, polling, breakout rooms, and whiteboard interaction in synchronous and asynchronous formats. In practice, all of these tools are available and may have an impact as we explore how to best implement them in the online classroom.

The finding that students may have had a negative experience in their emergency online semester may also have implications for universities as they make decisions on practices for future semesters. For example, implementing professional development for faculty—specific to online teaching pedagogy and the use of digital tools—would likely benefit both faculty practice and student experience. An absence of training has been found to lead to negative opinions about online learning in both faculty and graduate students (Sheffield et al., 2015). In this emergency semester, the university had no time to immediately train or develop these skill sets. When considering future semesters of online teaching and learning, care should be taken to consider professional development related to online teaching to address the lack of skill sets that may or may not be present in the faculty pool. In addition, online orientation or training for students may assist in supporting students' comfort level and experience with online learning. We explored the various technology concerns that may have been prevalent for students. A survey of students' needs in this area, whether hardware, software, internet connectivity, or perhaps even training, would help mitigate future issues in this area.

Implications for Future Research

As the researchers prepared this research study, we were in the midst of the emergency switch and making adjustments quickly and with fluidity. As future research develops, it will be important to further define variables of study. For example, the first and fourth research questions asked faculty and students about comfort level but did not define comfort. It would be interesting to explore how comfort is related to the tools used in the class or the use of synchronous versus asynchronous platforms. It might also be important to explore how the type of learning management system impacts the respondents' reactions to comfort.

The first research question asked faculty and students about prior experience with online teaching/learning. Post pandemic, it would be assumed that continuing faculty and students now have some type of prior experience. Studying and measuring this experience as related to comfort and other variables may also demonstrate interesting insights to the literature.

Our study explored the challenges of the emergency transition. Future research might compare and contrast data from the emergency time to a semester that was planned as online. Also of interest is understanding whether the change in modalities impacted learning outcomes. Research on short-term and long-term effects, if any, would be an important area to explore in future research. Finally, it is not clear yet how the value proposition in higher education will impact institutions in the medium–long term. The lockdown has eased over time and on-campus instruction has resumed in many colleges and universities. It is widely acknowledged, however, that the experience gained during the lockdown has been transformative and that

higher education will find a “new normal.” The pandemic’s effect on the broader educational landscape will be an interesting area of research in the future.

Conclusion

The level of preparedness of faculty and students determined the outcome of this natural experiment. The adjustment was easier for those with prior experience with the online format and/or for those who felt comfortable with the format. Having experienced online teaching, many faculty members expressed more interest in teaching online classes in the future; most students, by contrast, were less interested in taking online classes in the future. As institutions prepare for future semesters online or a higher number of classes that may be taught online, emphasis might be placed on judicious use of teaching tools specific to creating online engagement and interaction, so students feel more comfortable with this modality. Undergraduate classes are primarily taught on campus at this institution; the sudden switch consequently came with challenges. Informed by the findings from this study, this institution offered peer-led faculty development sessions on educational technology and pedagogy over the summer to prepare faculty for an uncertain fall semester. Gathering information on the experience has enabled this institution to strengthen the remote teaching capabilities of its faculty should a switch be necessitated again in the future.

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Appendix A

Faculty Survey

1. How many fully online classes had you taught prior to Spring 2020?
 - a. None
 - b. 1-3
 - c. 4-6
 - d. 7 or more
2. All classes were offered in an online format when classes resumed post-spring break. At that point, how comfortable were you with online teaching?
 - a. Very Comfortable
 - b. Somewhat Comfortable
 - c. Neither Comfortable nor Uncomfortable
 - d. Somewhat Uncomfortable
 - e. Very Uncomfortable
3. Compare your teaching experience in face-to-face classes pre-spring break to your learning experience in online classes post-spring break. One word or phrase that best describes the switch is _____.
4. Which of these features did you use in your classes? Select all that apply.
 - a. Synchronous conferences/classes
 - b. Asynchronous videos/video lectures
 - c. Audio interaction
 - d. Whiteboard interaction
 - e. Polling
 - f. Student presentation
 - g. Breakout rooms
 - h. Online text-based discussions
 - i. Other (please specify)
5. Compare your online classes post-spring break to your face-to-face classes pre-spring break. Did you find the online classes to be:
 - a. A More Interactive Experience
 - b. Neither More Interactive nor Less Interactive Experience
 - c. A Less Interactive Experience
6. Complete the following sentence. Adjusting to the online teaching format was:
 - a. Very Difficult for me
 - b. Somewhat Difficult for me
 - c. Neither Difficult nor Easy for me

- d. Somewhat Easy for me
 - e. Very Easy for me
7. Having experienced fully online teaching for seven weeks, how comfortable do you now feel about online teaching?
- a. Much More Comfortable than before
 - b. Somewhat More Comfortable than before
 - c. Neither more nor less Comfortable than before
 - d. Somewhat Less Comfortable than before
 - e. Much Less Comfortable than before
8. As a result of this 7-week online teaching experience, would you be:
- a. More interested in teaching online courses in future
 - b. Neither more nor less interested in teaching online courses in future
 - c. Less interested in teaching online courses in future
9. If you had to teach your classes online again for an extended period of time, what changes (if any) would you make?
10. Finally, are you a full-time or an adjunct/part time faculty member?
- a. Full-time
 - b. Part-time/adjunct

Appendix B

Student Survey

1. First, tell us about yourself. Are you a _____?
 - a. Graduating Senior (i.e. graduating in Spring 2020)
 - b. Senior
 - c. Junior
 - d. Sophomore
 - e. Freshman
2. How many fully online classes (i.e. classes with Z suffix) did you take prior to Spring 2020?
 - a. None
 - b. 1–3
 - c. 4–6
 - d. 7 or more
3. All classes were offered in an online format when classes resumed post-spring break. At that point, how comfortable were you with online learning?
 - a. Very comfortable
 - b. Moderately Comfortable
 - c. Neither Comfortable nor Uncomfortable
 - d. Somewhat Uncomfortable
 - e. Very Uncomfortable
4. Compare your learning experience in face-to-face classes pre-spring break to your learning experience in online classes post-spring break. One word or phrase that best describes the switch is _____.
5. Compare your face-to-face classes pre-spring break to your online classes post-spring break. Did you find the change in learning format to be:
 - a. A Very Positive Experience
 - b. A Somewhat Positive Experience
 - c. Neither Positive Nor Negative Experience
 - d. A Somewhat Negative Experience
 - e. A Negative Experience
6. Which of these features were used in your classes? Select all that apply.
 - a. Video interaction
 - b. Audio interaction
 - c. Whiteboard interaction
 - d. Polling
 - e. Student presentation

- f. Breakout rooms
- g. Online text-based discussions
7. Compare your online classes post-spring break to your face-to-face classes pre-spring break. Did you find the online classes weeks to be:
 - a. A More Interactive Experience
 - b. Neither More Interactive nor Less Interactive Experience
 - c. A Less Interactive Experience
8. Complete the following sentence. Adjusting to the online learning format was:
 - a. Very Difficult for me
 - b. Somewhat Difficult for me
 - c. Neither Difficult nor Easy for me
 - d. Somewhat Easy for me
 - e. Very Easy for me
9. Having experienced online learning for seven weeks, how comfortable do you now feel about online learning?
 - a. Much More Comfortable than before
 - b. Somewhat More Comfortable than before
 - c. Neither more nor less Comfortable than before
 - d. Somewhat Less Comfortable than before
 - e. Much Less Comfortable than before
10. As a result of this 7-week online learning experience, would you be:
 - a. More interested in taking online courses in future
 - b. Neither more nor less interested in taking online courses in future
 - c. Less interested in taking online courses in future

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