# ABSTRACT

The authors conducted a worldwide survey to explore the experiences of higher education faculty who converted classes to distance learning during the COVID-19 pandemic. Most respondents experienced much higher workloads and stress than in face-to-face classes. Previous experience with Online Distance Learning (ODL) predicted positive faculty response. Less than half used a school- provided LMS, instead using a wide range of other technologies. Respondents said they learned the need for adaptability and good planning, emphasizing doing what it takes to serve their students. There was high variability in most answers, indicating that the experiences of individual teachers ranged widely between positive and negative. The researchers provide recommendations based on the findings, including the need for better ODL instructional design training as part of long-term professional development for faculty and remembering the importance of all student higher education experiences, many of which are beyond the scope of the actual classes.

**KEYWORDS**

Corona, Coronavirus, COVID, Distance Learning, Educational Technology, Learning, Teaching, Technology, Virus

# INTRODUCTION

In the Spring of 2020, schools around the world suspended face-to-face instruction due to the coronavirus pandemic. Teachers around the world had no choice but to convert face-to-face classes to distance learning, often with short notice, a seemingly daunting task for teachers who had designed their courses for in-person instruction (Petzold, 2020). The transition presented challenges for academic staff, many of whom needed higher levels of technology competency and proficiency than they had previously acquired, as well as for students who suffered from feelings of isolation through not being able to interact with their classmates or attend in-person classes (Gillett-Swan, 2017).

Most of the early publications about the impacts of the pandemic on education either promoted the benefits of practices such as social distancing and event cancelation (Tate, 2020), challenges faced by students (Supiano, 2020, March 19), technology choices and resources (Darby, 2020, April 14), or the bigger-picture landscape of education and consequences of suspending face-to-face instruction (Ruf, 2020, March 17). Indeed, the only articles found in the scholarly press related to teaching and learning, because of the timeline required for empirical research, were editorials or reports on the course of the instructional transition in one school or geographic region, with limited quantitative data. The actual experiences of teachers while converting their classes to distance instruction, and thereafter managing the classes, received little attention in the first weeks following the transition. The goal of this study, therefore, was to be among the first to document the experiences of teachers at higher education institutions as the result of converting their classes on short notice. The researchers did this by providing a statistical survey and open-ended questions about the extent to which courses were converted due to the pandemic and the perceived level of difficulty. More detailed exploration

of the resulting pedagogy and technical problems were beyond the scope of this baseline study.

This study is, therefore, significant because it is one of the first scholarly publications to seek a world-wide sample of respondents exploring the experiences of higher education faculty as they negotiated the complex and stressful transition from face-to-face instruction to distance learning in existing classes. Furthermore, it considers the levels and categories of support provided by the schools and the future curriculum consequences of the pandemic.

The following research questions guided this study:

**RQ1:** What were the experiences of higher education faculty in converting classes to distance learning?

**RQ2:** What instructional technology did higher education faculty use in the classes they converted to distance learning?

**RQ3:** What were the experiences of students, as perceived by higher education faculty, in classes converted to distance learning?

**RQ4:** To what extent did schools provide support for the transition of classes to distance learning?

**RQ5:** To what extent do the higher education faculty think the changes will become part of the curriculum in the long term?

**RQ6:** How difficult was teaching the classes after they were converted to distance learning?

**RQ7:** What did the higher education faculty members feel they learned from their experiences of converting classes to distance learning?

The researchers grouped these research questions into constructs of two or more questions each, Teacher Experiences, Instructional Technology, Student Experiences, Curriculum Integration, and Difficulty. These constructs, drawn from the research questions, represented the most salient issues related to the conversion of face-to-face classes to distance learning, and then teaching the classes for the remainder of the semester.

# LITERATURE REVIEW

Little empirical research had yet reached the scholarly literature, as of the completion of this study, about the experiences of higher education faculty as they responded to the COVID-19 pandemic. The scholarly medical literature abounds with studies about the SARS-CoV-2 coronavirus but little literature has yet reached publication that addresses the worldwide consequences for education and educational technology.

# Brief History of the Pandemic

The SARS-CoV-2 coronavirus, and it’s resulting COVID-19 disease in humans, surfaced in Wuhan, China, late in 2019. The first deaths were reported in January 2020 and by late January, multiple countries reported confirmed cases, leading to the declaration of a global health emergency by the World Health Organization (WHO). The virus is highly communicable, including by people showing no symptoms, and many countries recommended or required self-quarantine-at-home and social distance of at least two meters (six feet). Many businesses closed as a result of governmental policy or recommendations (Taylor, 2020, April 28) because no vaccine could be ready for months.

Schools around the world closed or suspended face-to-face instruction. In the space of as little as a few days, higher education faculty had to redesign instruction to pivot classes from in-person to online or other distance learning methods (Gardner, 2020, March 20).

Separated from their familiar on-campus environment, students faced uncertainty, extra costs, anxiety, the effects of social isolation, and even sleep disorders (Cao et al., 2020; Ghebreyesus, 2020; Weissman, 2020). Economically disadvantaged and international students often did not all have their own personal computers or home internet access (Mukherjee, 2020, March 29). In some cases, students who relied heavily on campus resources, like food, housing, and healthcare, had no “home” to return to when their campus closed (Weissman, 2020). As a result, schools needed to innovate.

A poll released in April 2020 by the Kaiser Family Foundation in the US (Kirzinger, Kearney, Hammel & Brodie, 2020) found that 45% of American adults said the pandemic had affected their mental health and 19% said it had a “major impact.” A separate Kaiser Family Foundation report (Kirzinger, 2020) indicated that 58% of US young people ages 18-24 reported that worry and stress related to the coronavirus had negatively impacted their mental health.

In higher education, the importance of the social relationships and the social-emotional distress caused by the pandemic closure of schools rapidly gained attention. Carolyn Foote (in Yorio, 2020) said that addressing student stress caused by uncertainty and isolation was central to the question of remote schooling, not just refining the logistics of making instruction work. She said that educators needed to “stay connected with colleagues, be visible to students, [and] help students be visible to each other” (p. 14).

Lieber (2020, May 1) said that parents send their children to college/university for at least three goals, (1) gaining knowledge and forming improved adult brains, (2) obtaining the diploma that signals perseverance and the ability to succeed to prospective employers, and (3) finding friends and mentors who will support them in their lives, which is difficult to achieve when studying from home, Lieber said.

Many students longed for their return to the campus environment. A student of one of the authors said, “I’m someone who benefits from having a face-to-face conversation and learning in a classroom setting. I’ve never realized how much I have taken for granted the human interaction here on campus and how much I do truly appreciate what goes on.”

Educators in discussion boards reported students disengaging, challenging teachers to keep their students motivated (Higheredandcoronavirus, 2020). Learners become engaged when their learning environment fosters relationships, employs productive instructional strategies, and encourages social and emotional development. As a result, engaged learners “exhibit behaviors, thinking processes, or emotions that indicate they are connecting with course materials, with the teacher, and with each other” (Rice & Kipp, 2020, May 6).

# Consequences for Higher Education

The pandemic need to convert classes to distance learning was eye-opening to many people about the potential of using educational technology to create virtual classrooms, live lectures, online tests and quizzes, the sharing of documents, and doing so in a way that was effective (Mahalakshmi & Radha, 2020). Many of the tools needed for the conversion of classes to distance learning were already available at the schools, such as existing learning management systems and conferencing software like Zoom

and MS Teams (Gardner, 2020, March 20). The authors know anecdotally that some teachers and schools developed their own technology solutions, adapting software or apps designed for other uses. Many scholars have observed that courses that are converted to distance learning on an emergency basis are not true online distance learning (ODL) classes because they are often not well-considered, theory-based instructional designs for sustainable online learning but rather are “ad-hoc, low fidelity mitigation strategies” (Gardner, 2020, March 20, p. 2). Professors who converted their classes to distance learning often did not have the expertise required for online teaching and learning pedagogy, finding it to be an intimidating task (Petzold, 2020). The challenges were complicated by the fact that the majority of higher education teachers have never actually taken a course in teaching (Bailey & Card, 2009), much less about instructional design for online learning. DeRosa recommended not thinking of “converting” or “translating” a class to distance learning for one semester, but rather thinking in terms of “adapting” which, she said, requires faculty to understand the choices they have and to make those choices from an informed perspective (Supiano, 2020, April 30), or in other words,

to make decisions based on the affordances of the educational resources (Marek & Wu, 2020).

# Teacher Experiences

The few scholarly papers that have been published about teacher experiences in response to the pandemic have been limited. For example, a study of higher education teachers in the Ghaziabad region of India found that the actual benefits of virtual teaching were less than expected as a result of issues of network connectivity, training, and lack of the personal touch limited the adoption and success of virtual classrooms (Arora & Srinivasan, 2020). Past research has shown that in 2016 compared to 2002, faculty were progressively less enthusiastic about online instruction because the “normalization” of online distance learning made faculty more sensitive to the “transactional gap created by time and location separation” and other negative factors (Perry & Steck, 2019, p. 10).

The rapidly-change environment of teaching during the coronavirus pandemic, and the fragmented nature of the scholarly research, as of this writing, led the authors to conclude that a baseline study of the experiences of teachers worldwide, reflecting on their transition of classes to distance learning, would be valuable.

# METHODS

**Instrument**

The researchers used a Google Forms survey to collect data answering all seven of the research questions, including quantitative questions, most of which were answered by Likert-like scales, and one research question answered by open-ended answers. The following section describes the research design.

Because the coronavirus pandemic, and the suspension of face-to-face instruction, was unprecedented in the modern age, no previous model or research design existed that could be adapted for this study. As a result, the researchers developed a survey instrument based on journalistic reports, professional publications, and online articles focusing on higher education; editorials about the ramifications for higher education; and discussion threads in online faculty discussion forums. The quantitative portion of the instrument included 17 items, 16 with Likert- like scales, and one with checkboxes. In additional, participants answered several demographic questions to allow examination of differences found among the demographic variables, such as age, region of the world, faculty rank, discipline, years of teaching, and incorporation of instructional technology into classes in previous semesters.

The researchers created a construct for each of the quantitative research questions, with two or more individual survey questions per construct. The complete list of questions, sorted by construct, is in Table 1 in the Findings section. The six constructs were *Teacher Experiences*, *Instructional Technology*, *Student Experiences*, *Curriculum Integration*, and *Difficulty*.

The researchers tested the questionnaire in a pilot study with 61 colleagues, who did not participate in the final data collection, and the overall internal consistency was found to be acceptable (Cronbach’s Alpha at 0.79). A native English-speaking expert in survey methodology for scholarly research assessed face-validity and suggested minor wording changes in some questions. The final survey questionnaire received minor adjustments based on both the pilot study results and the validity feedback. The Human Subjects Institutional Review Board at the first author’s institution, Wayne State College, Wayne, Nebraska, USA, approved the study, including the final methodology and the statement of informed consent at the beginning of the online survey document.

# Procedures

The researchers extended the invitation to participate to higher education faculty members who had converted courses to distance learning via multiple channels and platforms. These included providing the Google Forms link in ResearchGate discussions, LinkedIn education-oriented groups, Twitter posts tagging selected education-oriented keywords and accounts, a Facebook COVID-19 faculty discussion group, an ICCE Conference Education Group, personal social media posts, and emails to colleagues. The researchers exported the Google Forms results to the SPSS statistical analysis software for descriptive statistics, ANOVA analysis, and Post Hoc tests.

Qualitative analysis of the one open-ended question used an iterative process, described by Creswell (2011). The researchers initially grouped the answers in open categories and then refined them to attain a theoretical focus (Chwo, Marek & Wu, 2018). They continued an iterative process, comparing the potential themes with the original data and using reflective analysis (Richards & Lockhart, 1994) in order to finalize the resulting themes.

# FINDINGS

**Demographics of Participants**

The researchers asked the 418 respondents 11 demographic questions to allow understanding of the people responding to the survey. The demographic questions consisted of checkboxes for categories, but also allowed participants to add their own categories, often duplicating each other. Before final analysis, the researchers reviewed and groups these additional categories to remove the duplication. After the cutoff for data collection, the researchers determined that some demographic categories lay beyond the scope of the current analysis. The demographics, categories, and percentages are display in Table 1.

By far the most responses were from Asia, making up 90.2% of the completed surveys, followed by North American and European respondents. Close to a quarter (26.3%) had never taught via distance learning before. The academic ranks of most participants were either Instructor/Lecturer (34.9%) or Assistant Professor/Senior Lecturer (48.3%). Most were between 31 and 50 years old.

Over 30 disciplines were reported by participants. After grouping by the researchers, 26.6% of responders were in the humanities and social science, 18.4% were in business, 12.4% in computer science, 12% in hard sciences and mathematics, 10.3% from technology and engineering fields, 9.3% education, 7.7% from medical-related fields, and 3.3% from Fine Arts, plus a few other isolated disciplines. Years of teaching by the participants was also well-balanced.

Participants reported that 95.5% of them had converted *undergraduate* classes to distance learning as the result of the pandemic. One-third of the respondents (32.3%) converted *graduate* classes. Twenty- eight-point-seven percent had converted both graduate and undergraduate classes. Most participants (64.4%) said they were using a combination of synchronous and asynchronous forms of instruction, with 21.2% using asynchronous instruction only and 14.4% using synchronous instruction only.

or average, *M* = 3.086 indicated that the overall average teacher experience was slightly toward the positive side. The standard deviation, however, indicated a wide variation in the experience of individual faculty responding to the survey. The individual questions had even wider standard deviations, from 0.945 for question 1.3. to 1.046 for question 1.4.

The answer to Research Question 1, therefore, is that the responding faculty had some experiences and influences that were negative or undesirable, balanced by some that were positive or beneficial. Individual faculty reported a wide range of positive and negative perceptions.

# INSTRUCTIONAL TECHNOLOGY

To answer Research Question 2, about the instructional technology the higher education faculty used in the classes they converted to distance learning, the construct Instructional Technology included two questions. Question 2.1. asked to what extent the instructional technology the faculty member ended up using was familiar to the respondent and to the respondent’s students. The answers (*M* = 3.29, *SD* = 0.982) were between 3, *somewhat familia*r, and 4, *mostly familiar*.

Question 2.2. asked the participants to select check-boxes or enter free text to describe the categories of technology they used in their converted classes. The researchers concluded that detailed analysis was beyond the scope of the current study, but 84.5% indicated that they were using chat applications, such as Messenger, Line, or Whatsapp. “Live” audio or video class meetings were used by 78.3% of the respondents. A standardized campus learning management system (LMS), such as Canvas or D2L, was used by 43% of the respondents. LMS systems not provided by their institutions were used by 62.8%. Forth-three percent used email, 14.3% used personal phone calls, and 13.9% used social media platforms. Postal mail was used by nine respondents (2.1%).

The answer to Research Question 2, therefore, is that the responding faculty used a wide range of technology systems in their converted class. Some, but not all, were provided by their schools. Often the faculty were not full familiar with the teaching and learning technology they ended up using.

# Student Experiences

To answer Research Question 3, about the experiences of students with classes converted to distance learning, as perceived by their faculty, the construct Student Experiences included four questions. Question 3.1. asked the respondents how ready they thought their students were to change their learning behaviors to distance learning after the COVID-19 restrictions. The answers indicated that the faculty perceived that their students were neutral or possibly ambivalent about the changes (*M* = 3.00). The question had one of the highest standard deviations in the study (*SD* = 1.033) indicating considerable variation.

Question 3.2. was about the teacher’s understanding of how many students owned a computer and had home internet access when distance learning began. On average, the teachers perceived that all but a few of their students (*M* = 4.01, *SD* = 0.747) had the computer or home internet access they needed. Question 3.3. asked to what degree students participated or disengaged in the converted distance learning class or classes. The answer (*M* = 3.38, *SD* = 0.957) was between 3, *no change*, and 4, *participated somewhat more*. The high standard deviation indicated a wide range

of perceived student behaviors.

Question 3.4. asked whether the teachers tried to ease the concerns of students and encourage them to persist with their schoolwork. The answer (*M* = 3.85, *SD* = 0.866) indicated that as a whole, teachers applied themselves to addressing the concerns of their students, but with a wide variation which could reflect the inclinations of the teacher or the need expressed by the students.

The final question in the construct, 3.5., asked the participant’s perception of how hard distance learning had been for their students after the conversion of their classes. The teachers perceived that the converted classes were between 2, *somewhat hard for the students*, and 3, *like any class* (*M* = 2.61, *SD* = 0.951) but the answers spanned the five-point Likert-scale. Over half of the teachers said that the converted classes had been *somewhat hard* or *very hard* for their students.

The overall construct Student Experiences leaned somewhat toward the positive side (*M* = 3.372, *SD* = 0.558). The answer to Research Question 3, therefore is that diverse factors, ranging from technology access to motivation, and teacher support, influenced the experience of the students, as perceived by their teachers. Although these factors leaned toward the somewhat positive, students had extensive negative experiences.

# School Support

The construct School Support answered Research Question 4, with two survey questions. Question

4.1. asked to what degree the respondent’s school provided sufficient training and mentoring during the class conversion. The response (*M* = 3.48, *SD* = 0.999) indicated a wide range in answers, averaging between 3, *enough to get by*, and 4, *good support*. Only 4.1% of the respondents indicated *no support at all*.

Question 4.2. was a companion to 4.1., this time asking about the level of resources and other assistance made available by the school. The similar answers (*M* = 3.44, *SD* = 0.995) were between 3, *enough to get by*, and 4, *good support*, with very similar variation among responses.

The overall construct School Support leaned positive (*M* = 3.456, *SD* = 0.935), meaning that the answer to Research Question 4 is that most teachers believed that they had received sufficient training, mentoring, resources, and support from their schools.

# Curriculum Integration

The construct Curriculum Integration answered Research Question 5, about whether the courses converted to distance instruction might remain distance learning in the long-term curriculum, with two survey questions. Question 5.1. asked respondents about the chances that their converted class format(s) would be in the long-term curriculum after face-to-face classes resume. The results (*M* = 3.46, *SD* = 1.006) fell between 3, *unknown*, and 4, *somewhat likely*, with wide variation in the answers. Question 5.2., about how much change and improvements the teacher would make in their converted classes, if they were to be taught again via distance learning in the future. The mean answer (*M* = 3.81, *SD* = 0.843) was between 3, *same amount as for any class*, and 4, q*uite a few changes.*

Only three respondents (0.7%) thought no changes would be needed. *Quite a few changes*, 4, received by far the most responses, (58%).

The answers to the construct Curriculum Integration (M = 3.635, SD = 0.708) means that the overall answer to Research Question 5 is that the respondents perceived that there was potential for their classes to be taught via distance learning after face-to-face classes resumed, but most saw the need to make substantial changes in their rapidly-crafted pandemic instructional designs.

The construction Difficulty answered the final quantitative research question, 6, with two survey questions. In Question 6.1., about stress experienced by the respondents after transitioning to distance teaching, the answers (*M* = 3.17, *SD* = 0.805) were between 3, *a moderate amount of stress but manageable*, and 4, *enough to cause some issues*. Question 6.2, about the teacher’s workload after converting the classes compared to regular face-to-face teaching, had the highest mean of any question on the test (M = 4.04, SD = 0.840). Answers 4, *somewhat more work*, and 5, *very much more work*, together were selected by 77.5% of the respondents.

The answers to the construct of Difficulty (*M* = 3.605, *SD* = 0.669) mean that the overall answer to Research Question 6 is that the respondents experienced moderate to high stress and most experienced moderate to considerably increased workloads in completing their courses after the hastily conversion to distance learning. and between adjunct and full professor. However, there was no significant difference of faculty rank between instructor/lecturer and assistant professor/senior lecturer, between instructor/lecturer and associate professor, or between instructor or lecturer and full professor. The researchers concluded that these differences existed because, in most cases, adjunct faculty is often the least experienced, and thus adjunct respondents were more likely to experiences difficulties in converting their classes.

# QUALITATIVE ANALYSIS

Research Question 7 was answered by performing theme analysis on the answers to the open-ended qualitative question “What lessons have you learned from this process of teaching classes converted on short notice due to the coronavirus?” Four primary themes emerged, (1) teaching styles and teacher challenges, (2) student learning styles and challenges, (3) technology, and (4) planning and adaptability.

# Teaching Styles and Teacher Challenges

The faculty responding to the open-ended question discussed their instructional strategies for their converted classes. “I needed to revise all my lecture notes to make them more detailed with lots of pictures/diagrams/videos, since I cannot explain thoroughly to the students as I did in the classes,” said one. As the quantitative data showed, respondents with more experience teaching online felt more prepared. “Because I have done it before and all materials are already in soft-copy, or online- ready, I find it less stressful,” said one.

Some comments were about how they interacted with students, stressing the need for proactive communication. “Dealing with students with empathy, keeping them informed, and having them on social media helped the transition and the motivation to continue,” said one respondent, “though we have around 10% of the students withdrawing.”

The teachers also reported lessons they learned about their own readiness. “I should have learned the new IT sooner, by the time it was needed (like Covid-19, who has ever expected it to happen?),” said one respondent. “Then I wouldn’t be panicking and could continue to perform my job with the least hiccups.”

Many of the respondents felt good about their efforts. “I have learnt that when put to the test, I’m able to perform in a very stressful situation,” said a faculty member. “I have never been comfortable with technology but somehow I have overcome the many issues I faced. I also realize that I need to overcome my discomfort with technology and work on improving my skills.”

may have also felt more motivation to share their experiences for cultural or practical reasons. Asia also has more recent experience with serious pandemics that the rest of the world, including SARS in 2003, which may make Asian countries more cautious about the spread of pandemics, and which may have sensitized faculty in Asia to the importance of understanding the educational consequences of COVID-19.

In addition, the researchers tracked responses as they came in. The last 10% of responses, which were mainly American or European, changed the percentages very little, suggesting that data saturation had been achieved. The demographic distributions led the researchers to believe that the sample was appropriately representative. Nevertheless, in interpreting the results of this study, the geographic weighting of the respondents may have affected the validity of the sample in terms of worldwide trends.

# Sample Variability

While only three of the questions in this survey had means below three (representing the middle, neutral, or average answer) most had high variability. The standard deviations of all but three questions were above 0.9 and four questions had standard deviations above 1.0. This indicates that the responses were not concentrated, but rather that the respondents had diverse experiences, both positive and negative, which bely the mostly-positive mean values of most of the scales. The researchers believe that this variability is the result of the considerable differences in how prepared each university was for the transition to all-online, as well as the wide range in the relevant experience levels of individual faculty. Both factors likely made an important contribution to the experiences of individual teachers during the transition. In this case, therefore, the high variation is not a concern about the data, but rather indicative of a meaningful lack of homogeneity in the responses, and therefore signals the considerably different levels of readiness to transition to distance learning of schools and faculty around the world, and the resulting widely varying contexts for distance learning.

# Workload and Stress

The higher education faculty in this study experienced considerably higher workload and stress on average as the result of having to convert their classes to distance learning and complete the semester in that mode. This fits a pattern that is well established in higher education.

Windes & Lesht (2014) determined that there are different motivating factors and perceptions of teaching online across institutional types. Shih et al. (2003) also stated that successful distance learning needs three elements - policy, people, and technology. Wingo, Ivankova, and Moss (2017) found that faculty were concerned about their workload in online teaching, as well as perceptions of barriers to student success in online learning and manageable class sizes.

While the data showed that the respondents were ready to transform their classes, they should not be interpreted as being enthusiastic about it. Rather, the results of question 1.1 more likely represent an understanding that it was necessary to the safety of themselves and their students, regardless of how troublesome the process might be.