The "Mainstreaming" of Online Teaching and Conflicted Faculty Perceptions

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ABSTRACT

The COVID-19 pandemic heavily accelerated the adoption of online education. Technology adoption literature indicates that individuals are motivated to adopt technology as a result of various factors including social influence, performance expectations, effort expectations, and the conditions that facilitate their use. These factors are mediated by the degree of voluntariness of technology adoption and risks and rewards associated with adopting online learning. Given the pandemic experience, faculty members were forced to adopt online teaching, removing the voluntary nature of technology adoption. This study surveys a national sample of faculty to understand faculty perceptions of online teaching and reports on perceived changes in perceptions resulting from the pandemic and future intentions to teach online. In contrast to prior literature, findings indicate that faculty tend to have positive perceptions of knowledge outcomes associated with online teaching, and although there are areas for improvement, most faculty members intend to teach online again post-pandemic.

KEYWORDS

Faculty Adoption of Technology, Online Learning, Post-Pandemic Learning, Technology Adoption, UTAUT

INTRODUCTION

While institutions of higher education have experienced steady growth in online learning over time (Seaman, Allen, Seaman, 2018; Inside, 2020), the COVID-19 pandemic drastically increased adoption of online education. In the Spring of 2020, a majority of institutions shifted to complete remote learning, with faculty often quickly adjusting to online learning systems and methods. With this shift, faculty who had previously expressed significant concern and hesitation with adoption of online learning (Green, Alejandro, Brown, 2009; Hunt et al., 2014; Bailey, 2016) were essentially forced to adopt these systems, resulting in a fundamental shift in the operations of institutions of higher education, and a unique opportunity to examine online learning.

Numerous studies have explored the impact of the pandemic on teaching. For instance, several studies highlight innovations required to teach students in fields which typically involved hands-on-learning, such as surgical education, teacher education, and nursing (Scull et al., 2020; Schmitz et

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al., 2021). Others emphasize challenges in academic integrity and ethics with online learning that arose during the pandemic (Burns, 2020; White, 2021). Many also present strategies for incorporating high impact practices, such as service learning and group work in online settings (Ahmet et al., 2021; Qasem et al., 2022). While many of these studies note some practical suggestions for post-pandemic learning, questions remain regarding the impact of the pandemic experience on overall faculty perceptions of online learning, as well as how the experience may affect long term adoption plans once the emergency necessity for online learning diminishes.

With the initial crisis response now subsiding, administrators, students and faculty are reacclimating to the new university environment. Administrators are tasked with making decisions about course offerings, and faculty must also consider pedagogical shifts and changes that may be required given the impact of the pandemic. This study contributes to this dialogue by exploring faculty perceptions of online learning, including perceived pressures and student expectations, and new perceptions of strengths and weaknesses of online learning. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) model, we aim to understand whether faculty are more or less likely to adopt online learning post-pandemic, and how faculty perceptions of online learning may have changed as a result of the pandemic.

LITERATURE REVIEW

Unified Theory of Acceptance and Use of Technology

Innovation adoption models assist in understanding what factors are most critical at what times in evolving adoption processes (Rogers, 1962). The Unified Theory of Acceptance and Use of Technology or UTAUT model (Venkatesh et al., 2003) is a prominent, integrative model of technology adoption, including factors related to: social influence, voluntariness, performance expectancy, effort expectancy, and facilitating conditions. These traditional technology adoption factors are used here to organize this study. See Figure 1 for the simplified model used as a framework.

Figure 1. Basic Venkatesh Adoption Model (UTAUT) (Adapted from Venkatesh et al., 2003, p.447)
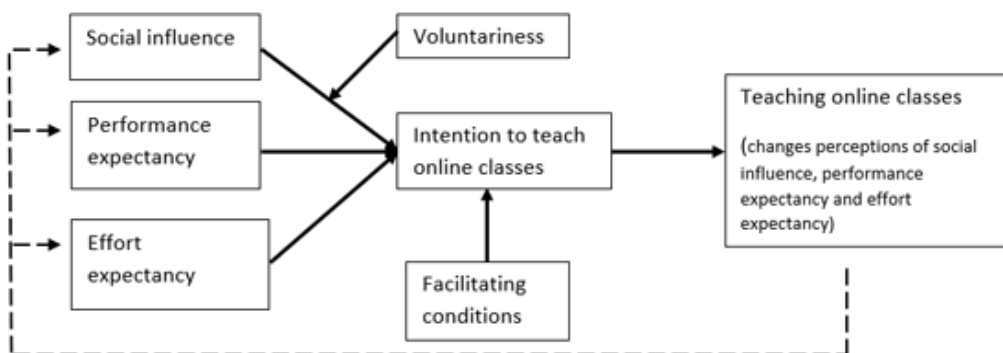
Social Influence. Initial inputs in the UTAUT model include social influence, performance expectancy, and effort expectancy. To begin, social influence is the effect of those around one on a person's technology adoption habits (Lewis et al., 2013). This factor is based on social norms; that individuals are influenced by how they think others will view them (Venkatesh et al., 2003). Existing studies find that, for example, social influence affected student intentions to adopt Google

Classroom; students were more likely to adopt if their peers adopted the technology as well (Kumar & Bervell, 2019). Surprisingly, the social influence of faculty colleagues' perceptions has not been investigated, even in studies focusing on technology adoption issues. While the influence of students on the faculty adoption process has not been insignificant (e.g., King & Boyatt, 2015; Inside 2020), concerns regarding negative student evaluations have been found noting that students think that they are "teaching themselves" in online settings (Smimou & Dahl, 2012), and this may have a negative relationship with intentions to teach online. Thompson et al. (1991) also emphasize the role of institutions in social influence, noting that organizational superior support is also a form of social influence. In the case of faculty, this can include rewarding adoption, for example, through the use of stipends.

Within the UTAUT model, the relationship between social influence and intention to adopt is mediated by voluntariness. Voluntariness refers to the choice adopters have; the more- choice adopters have, the more social influence is important. While institutional pressures to compete with online programs were important in some areas prior to the pandemic (such as proprietary institutions), full-time faculty had generally retained substantial decision-making power about whether or not they would go online and to what degree. With the pandemic, the importance of voluntariness changed radically (Tam & El-Azar, 2020; Dennis, 2020) as universities temporarily required online instruction in most circumstances. While restoration of a face-to-face environment has occurred, future student demand may change the voluntary nature of online teaching for faculty in the future, and thus also change the nature of social influence (McKenzie, 2021; Wood, 2022).

Performance Expectancy. Next, performance expectancy refers to perceptions of convenience (e.g., flexibility), capacity to instill knowledge, effectiveness, and fostering of student goal setting and engagement. Of these factors, flexibility has been the most important predictor of online teaching and learning technology adoption (Green, Alejandro, & Brown, 2009; Tanner, Noser, & Totaro, 2011; Inside, 2020). Faculty have tended to perceive the overall learning experience for students as being of substantially lower quality (Maguire, 2005; Tanner, Noser, & Totaro, 2011; Lloyd, Byrne & McCoy, 2012; Hunt et al., 2014; Inside, 2020). Further, faculty are concerned about students who are less self-disciplined, younger, and academically weaker (Shen et al., 2013; Xu & Jaggars, 2014), and about retention issues (Bawa, 2016). Labs and clinical sessions are also of prime importance to faculty (Cann, 2016; Zhou, 2020). Academic integrity is yet another issue considered to be problematic in online settings (Rogers, 2006; Wright, 2014; Alessio et al., 2018; Nguyen, Keuseman, & Humson, 2020). Relatedly, there has been consistent concern about learner passivity such as students setting their own learning goals (Tanner, Noser, & Totaro, 2011; Lloyd, Byrne & McCoy, 2012; Hunt et al., 2014). Thus, the literature generally paints a somewhat negative perception of performance expectancy from the average faculty member's perspective prior to the pandemic experience.

Effort Expectancy. Effort expectancy refers to the time and energy it takes to master a technology and use it over time in comparison to other technologies. The literature strongly suggests that online teaching takes more effort (e.g., Tomei, 2006; Mupinga & Maughn, 2008; Worely & Tesdell, 2009), but there are some heterogenous findings (van de Vord & Pogue, 2012; Aryal & Aryal, 2015). In general, faculty tend to have concerns about substantial workload (Maguire, 2005; Green, Alejandro, & Brown, 2009; Lloyd, Byrne & McCoy, 2012; Allen et al., 2013; Wright, 2014; Hunt et al. 2014; Lawrence & Tar 2018; Inside 2020). The UTAUT model posits that increased effort expectancy is related to lower intentions to adopt. However, it is unknown how perceptions of effort expectancy may have changed given the pandemic experience. One on hand, faculty may have become acutely aware of the increased effort requirement and no longer wish to pursue online teaching, while on the other, faculty may have already invested effort in putting their classes online, resulting in lower effort required to keep them going.

Facilitating Conditions. Mediating the relationship between social influence, performance expectancy, effort expectancy and adoption is the intent to adopt. Within this, facilitating conditions play a major role. Facilitating conditions refer to the technical support for building courses, the training

before and during implementation of online courses, as well as around-the-clock technical support for faculty and students having difficulties. These support functions are universally advocated in the research (e.g., Lloyd, Byrne, & McCoy, 2012; King & Boyatt, 2015; Horvitz et al., 2015; Mansbach & Austin, 2018; McGee, Windes, & Torres, 2017; Panda & Mishra, 2007; Porter & Graham, 2015; Stickney et al., 2019; Zheng et al., 2018). While technology concerns are unimportant when the technology is functioning properly, glitches and problems can be so off-putting that faculty decide not to return to the mode under normal circumstances. In the past this has been a modest concern (Lloyd, Byrne & McCoy, 2012; Porter & Graham, 2015; Mansbach & Austin, 2018), but there are indications that it is playing a diminishing role in online teaching adoption (Dumont et al., 2021). However, the presence of good facilitating conditions is found to be a weak motivational factor for adoption in online teaching settings (Abdekhoda et al., 2016; Casdorph, 2014) unless linked to incentives (Orr, Williams, & Pennington, 2009: Herman, 2013). On the other hand, poor facilitating conditions are a potent disincentive (Green, Alejandro, & Brown, 2009; Hunt et al., 2014; Bailey, 2016, Botha-Ravyse & Blignaut, 2017). A substantial long-term presence in online education improves faculty perceptions of facilitating conditions (Maguire, 2005; Lloyd, Byrne, & McCoy, 2012; Allen & Seaman, 2013; Inside, 2020), but it is unclear how quickly and effectively institutions with a small online presence before the pandemic improved facilitating conditions to get them up to speed.

Research Questions

The purpose of this study, then, is to investigate the effect of the COVID-19 pandemic on faculty perceptions of online learning and intentions to adopt online teaching. The research questions mirror the factors used in the UTAUT model of adoption as highlighted in the discussion above.

Social Influence & Voluntariness

1. How do faculty perceive student interest in having courses online, and how has this changed pre-and post-pandemic?
2. How do faculty perceive pressure to adopt online learning, given potential for poorer student evaluations?
3. What is the prominence of stipends for online teaching in the university online environment?

Performance Expectancy

4. How do faculty perceive performance of online teaching with respect to knowledge achievement, lecture presentations, student reflection and evaluation, and setting of student learning goals?
5. How do faculty perceive the importance of flexibility with online courses, both for themselves and for students?

Effort Expectancy

6. How do faculty perceive the effort involved in teaching online courses, both in initial setup and maintenance?
7. Do faculty believe that additional effort in teaching online courses is worth-while?

Facilitating Conditions

8. How do faculty perceive the availability of teaching support pre-and post-pandemic?

Intentions to Adopt Online Teaching

9. What are faculty intentions to teach online post-pandemic?

METHODS

Research Site and Sampling

The current sample is the third in a series of similar, but not identical, surveys seeking to understand the evolution of online teaching adoption practices. In the first series, an initial survey regarding faculty adoption was beta-tested at a California State University in spring 2020 on an emergency basis, just prior to the educational lockdown. From this beta test, 400 usable responses were analyzed, resulting in an unpublished internal report. In the second series, the survey was then revised to update the questions to better ascertain pre- and post- pandemic perceptions, and distributed to faculty at the University of North Florida (UNF). UNF is an institution that balances teaching and research, and has approximately 17,000 students (14,500 undergraduate and 2500 graduate students). This resulted in a revised survey, which was distributed in the middle of the pandemic in August 2020, with results published in 2021 (Dumont et al., 2021). While data from prior samples will not be directly compared because of variations in populations, modifications to items, and different times of distribution; some insights can be gleaned when informally comparing the UNF study and the national sample investigated here.

The present survey was disseminated in June of 2021 when many people thought the pandemic was winding down (i.e., before the Omicron variant had been discovered). An external vendor, Qualtrics Services, gathered a national sample, limited to those teaching at the university level regardless of rank. Demographic characteristics are provided in Table 1.

Survey Instrument

The revised survey had a total of 71 questions, which included 62 questions to measure faculty perceptions, and 9 demographic questions. A total of 226 surveys were submitted, but incomplete surveys were discarded. A total of 210 surveys were completed and usable.

Sample Characteristics

Survey responses included faculty from several disciplines, with balanced representation across disciplines; business (21%), computing, engineering, construction, and mathematics (15%), social sciences (14%), and health and medicine (13%). Full-time instructors were most represented at 35% of the sample, full professors at 22% followed by assistant and associate professors at 19%. Two thirds of respondents worked in public institutions as opposed to one-third in private institutions. Teaching universities were the best represented (52%), followed by research universities (25%), and community colleges (22%). Sixty percent of the respondents reported being non-Hispanic White, followed by Black (17%), Hispanic (13%) and Asian or Pacific Islander (8%). In this survey, 62% of faculty live within 20 miles of the campus, 21% live from 21 miles to 30 miles, and 17% live more than 30 miles from campus. 39% of the respondents were born before 1980, with another 45% being born by 1996. The gender of the respondents skews more female than male, with 61% being female and 39% male.

Table 1. Participant Demographics

Discipline	Freq.	%
Arts, Letters, and Humanities	25	12%
Business	43	21%
Computing, Engineering, Construction, and Mathematics	32	15%
Education and Human Services	26	12%
Health and Medicine	28	13%
Natural Sciences	25	12%
Social Sciences	29	14%
Other	2	1%
Total	210	100%
Faculty Rank	**Freq.**	**%**
Assistant Professor	23	11%
Associate Professor	17	8%
Professor	46	22%
Part-time Adjunct	30	14%
Full Time Instructor	91	43%
Other (doctoral instructor, graduate student, senior instructor)	3	1%
Total	210	100%
Type of Institution	**Freq.**	**%**
Private Institution	70	33%
Public Institution	138	66%
Other/No Response	2	1%
Total	210	100%
Institutional Focus	**Freq.**	**%**
Community college	46	22%
College/university with a focus on teaching	110	52%
College/university with a research focus	53	25%
Other, please specify	1	1%
Total	210	100%
Race	Freq.	%
White (non-Hispanic)	126	60%
Hispanic or Latino	28	13%
Black or African American	36	17%
Native American or American Indian	1	5%
Asian Pacific Islander	16	8%

Table 1 continued

Discipline	Freq.	%
Prefer not to say	3	1%
Total	210	100%
Distance to Campus	Freq.	%
Within 10 miles	56	27%
11-20 miles	74	35%
21-30 miles	45	21%
31-40 miles	23	11%
41-50 miles	2	1%
Over 50 miles	10	5%
Total	210	100%
Age Group	Freq.	%
Baby Boomers (1944 – 1964)	22	11%
Generation X (1965 – 1980)	58	28%
Generation Y (1981 – 1996)	94	45%
Generation Z (1995 – 2015)	30	14%
Other	5	2%
Prefer not to say	1	1%
Total	210	100%
Gender	Freq.	%
Female	128	61%
Male	82	39%
Other	0	0%
Total	210	100%

As of August 2020, only 15.7% of respondents had not taught any portion of their courses online, or had only one course prior to the COVID-19 pandemic. In addition, 38% indicated that their first online class was taught as a result of the COVID-19 crisis. So, fully half of the respondents were relatively new to online teaching. Only 22.4% of the respondents were veteran online instructors, if that is defined as having taught more than 11 online courses, as shown in Table 2. When comparing the differences in the samples between the Dumont et al., (2021) study and the current one, the key differences are that a higher percentage of respondents in this study were instructors, respondents from community colleges, research institutions, and private institutions. There were also fewer non-Hispanic White faculty, and faculty were somewhat younger.

Table 2. Faculty Online Teaching Adoption

Teaching Online	Count	Percent
Have not taught online	14	6.7%
Have taught 1 online class before Covid-19 crisis	19	9%
Have taught between 2-10	50	23.8%
Have taught between 11-20	22	10.5%
Have taught more than 20	25	11.9%
Started teaching online because of covid	80	38.1%
Total	210	100%

FINDINGS

Social Influence

The first input captured in the Venkatesh et al. (2003) model was social influence. The survey measured social influence using four items related to student interest in online courses, student feedback, and stipends. Results indicate that faculty perceive students to have been interested in having more classes online prior to the pandemic, with only a slight increase post-pandemic. In contrast to expectations in the literature stating that faculty expect students to have negative feedback of online courses (Smimou & Dahl, 2012), findings from this sample indicated faculty believed feedback in online classes would be similar or better than reviews of face-to-face classes. Finally, a majority of sampled faculty have received financial incentives for teaching online. Results can be found in Table 3.

Table 3. Social Influences: Student Demand, Student Evaluations, Stipends

Question N=210	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
Prior to the COVID-19 crisis, students seemed interested in having more classes online.	71%	15%	14%	100%
After the COVID-19 crisis, students will be interested in having more online courses.	72%	19%	9%	100%
Student feedback of my online classes is equal or better than that of my face-to-face classes.	73%	14%	13%	100%
I do or have received stipends for teaching online classes.	70%	12%	18%	100%

Performance Expectancy

In the context of this study, performance includes perceptions of the capability of the technology itself to contribute to knowledge achievement, lectures, the ability to help students reflect and evaluate their learning, and utility in allowing students to set learning goals. Additionally, we include perceptions of

flexibility by faculty for themselves and their students which is invariably the single most powerful driver (when aligned with similar terms such as convenience) in the adoption of online education.

Results indicate that faculty tend to believe online teaching can provide equivalent or better outcomes than face-to-face classes with respect to lectures, student reflections and evaluations, and achievement of knowledge outcomes. These findings challenge previous literature noting that faculty had poor perceptions of performance of online courses (Maguire, 2005; Tanner, Noser, & Totaro, 2011; Lloyd, Byrne & McCoy, 2012; Hunt et al., 2014; Inside, 2020). However, faculty tended to disagree with the perception that online teaching is good at helping students set learning goals, with only 27% of faculty sampled agreeing with this statement.

Further, faculty overwhelmingly feel that flexibility is positive, with agree/highly agree ratings for students and themselves at 83 and 82%, respectively. This sample, gathered a year later than the Dumont et al. study, was significantly more optimistic about all but one performance item. The majority of respondents in both studies were dubious about online students being assisted in setting their own learning goals. Perhaps this is because of the sometimes-formulaic presentation of many online courses in order to enhance a stable and well-articulated learning environment, but it is unclear whether or not this is an indication by faculty of learning passivity. Table 4 contains detailed results.

Table 4. Performance Expectancy

Question N=210	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
I believe that online teaching achieves knowledge outcomes equal (or greater) than face-to-face classes.	69%	15%	16%	100%
I believe that online teaching can provide equivalent or better lecture presentations than face-to-face classes.	69%	15%	16%	100%
I believe that online teaching does as good or better job in helping students reflect on and evaluate their learning.	66%	15%	19%	100%
I believe that online teaching does as good or better job in helping students set learning goals	27%	10%	63%	100%
The flexibility provided by online courses is important for students.	83%	13%	4%	100%
The flexibility provided by online teaching is important to me.	82%	14%	4%	100%

Effort Expectancy

Existing evidence indicates that faculty often associate online courses with a significantly higher workload than face-to-face courses. Online course development, maintenance, and time-on-teaching are typically considered to be more demanding than is the case in face-to-face courses. The findings in this case study are similar. 79% of the participants found that teaching online was more time consuming, and that only dropped down to 74% when asked about class maintenance after initial course development. Even though this sample was generally more favorable to teaching performance than the Dumont et al. study, a third did not feel the effort worth it and another 15% chose the neutral category. This mirrors the resignation that many faculty have about online teaching as opposed to its comfortable embrace. Full results are provided in Table 5.

Table 5. Effort Expectancy

Question N=210	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
I believe that online teaching requires a significant investment of additional time initially.	79%	12%	9%	100%
I believe that online teaching requires a significant investment of additional time even after the first time you teach a class.	74%	14%	12%	100%
I believe that the effort it takes to teach online is worth it.	50%	15%	35%	100%

Facilitating Conditions

Facilitating conditions are an important factor when they are lacking (driving faculty away when they have bad experiences) but have not been empirically found to be a major factor in moving faculty to online teaching. However, facilitating conditions are widely reported to enhance efforts for improvements in technology, presentation, efficiency, software mastery, etc., which in turn positively affects student perceptions. In this study, as in the Dumont et al. study, there was strong agreement that general training, customized training, time and resources were made available for online course development and course updating. While slight improvements were noted in training post-pandemic, time and resource allocation was stagnant. Additional details are provided in Table 6.

Table 6. Facilitating Conditions

Question N=210	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
Prior to the COVID-19 crisis, good training was available about the learning platform at my campus.	79%	13%	8%	100%

Table 6 continued

Question N=210	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
Since the COVID-19 crisis, good training has been available about the learning platform at my campus.	82%	11%	7%	100%
Prior to the COVID-19 crisis, customized training was available when I was building an online class.	71%	15%	14%	100%
Since the COVID-19 crisis, customized training has been available when I am building an online course.	78%	13%	9%	100%
Prior to the COVID-19 crisis, time and resources were allocated for me to learn about online teaching issues.	79%	13%	8%	100%
Since the COVID-19 crisis, time and resources have been allocated for me to learn about online teaching issues.	78%	17%	5%	100%

Faculty Intentions to Teach Online

To understand what the level of intentions for faculty in the sample were, we asked two questions. The first was about at least resuming the same level of teaching as before the pandemic. Nearly 80% agreed or strongly agreed with the statement. Perhaps more tellingly, the agree or strongly agree sentiment only lowered five percent when asked if respondents would increase the level of online teaching. In other words, three quarters of the respondents planned to increase their online teaching after the pandemic as compared to before it. See Table 7 for details.

Table 7. Faculty Intentions to Teach Online

Question N=196	Agree/Strongly Agree	Neither Agree nor Disagree	Disagree/Strongly Disagree	Total
After the pandemic I will resume the same level of online teaching as I did before it.	79%	9%	12%	100%
After the pandemic, I will increase the level of online teaching compared to before it.	74%	12%	14%	100%

DISCUSSION

The purpose of this study was to investigate the effect of the COVID-19 pandemic on faculty perceptions of online teaching, and intentions to adopt online teaching. Overall, findings from this national sample point to a positive perception of online teaching, with a few major concerns.

Based on the factors identified in The Unified Theory of Acceptance and Use of Technology or UTAUT model (Venkatesh et al., 2003), the first set of research questions aimed to understand faculty perceptions of social influence from students (pre and post pandemic), perceptions of student evaluations for online courses, and availability of stipends as an adoption incentive. It's important to note that roughly 38% of faculty sampled in this study only began to teach online because of the pandemic, and an additional 16% had either never taught online or had only taught one class online. However, over 70% were aware of stipends being offered for teaching online, and most faculty believed that students wanted to take classes online both pre and post pandemic (with only a modest increase). Further, faculty generally believe that student evaluations would be no worse in online classes. Taken together, social influence appears to have been high prior to the pandemic, and additional social pressures and incentives are also quite high.

The second set of research questions related to the performance expectancy factor. While existing literature pointed to a number of concerns about knowledge achievement and student outcomes with online learning (Maguire, 2005; Tanner, Noser, & Totaro, 2011; Lloyd, Byrne & McCoy, 2012; Hunt et al., 2014; Cann, 2016; Zhou, 2020), results from this sample reflected a more positive perception of online learning. One major exception was that faculty do not believe online learning allows students to best set learning goals. Consistent with existing literature, faculty believe flexibility is important both for themselves as well as for students.

The third set of research questions related to effort expectancy, and were consistent with the literature noting that faculty expect online teaching to come with an additional workload Maguire, 2005; Green, Alejandro, & Brown, 2009; Lloyd, Byrne & McCoy, 2012; Allen et al., 2013; Wright, 2014; Hunt et al. 2014; Lawrence & Tar 2018). Only approximately half of the sample agreed that this additional work was 'worth it'. With the understanding that faculty think knowledge outcomes and student evaluations remain relatively consistent with that of face-to-face classes, additional research is needed to understand other motivating factors. Because more than one-third of the sample had never taught online or only taught online as a result of the pandemic, it's possible that some faculty members have not yet been able to realize reduced workloads for repeat online classes. This is particularly important as much research has also noted that moving face-to-face classes online in a crisis often did not reflect best practices in pedagogy around online learning (Ali, 2020).

The final research questions asked about facilitating conditions, or the resources and support for online learning. Faculty generally reflected only a minor increase in the availability of support and resources for online learning at their institutions. There was a minor drop in the number of

faculty who agreed or strongly agreed that since the COVID-19 crisis, time and resources have been allocated for to learn about online teaching issues. This may be due to the additional time and stresses associated with teaching during a pandemic, as resources may have needed to be diverted to service responsibilities like crisis response committees. Finally, a majority of faculty indicated that they would increase their online teaching after the pandemic.

In sum, results suggest that, on one hand, faculty are more aware of and accepting of the inevitability of increased demand for online classes and the need to respond to it. Both students and faculty have become more interested in the increased flexibility provided by online teaching. This is accompanied by a growing sense of online teaching capability as an expected professional competency and collegial obligation. The forced exposure to online teaching reduces one barrier (i.e., lack of familiarity) even though it neither guarantees successful adaptation or satisfaction. On the other hand, while the number of faculty with concerns about general performance capabilities in online teaching seems to be decreasing, those that are still skeptical—about a third—are not insignificant. Further, while this broad-based study only identified one area of strong performance concern—development of student learning goals suggesting some degree of passivity—it is likely that there are other concerns related to areas such as labs and testing. While stipends and resources have been forthcoming in the past, it is unclear if this will be the case now that online learned has, at least for a small period of time, become the standard.

One limitation of the study is that it is not truly longitudinal. Although the some of the authors have looked at similar samples of faculty at single institutions with similar questions, the questions were not identical and the profile of faculty was dissimilar. In particular, the current sample is one which has a higher percentage of instructors, younger faculty, respondents from community colleges, research institutions, and private institutions, and is somewhat more diverse. Future research can continue to track the evolving perceptions of faculty in different contexts with more attention to the specific concerns of faculty.

COMPETING INTERESTS

The authors of this publication declare there are no competing interests.

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