

Chapter 17

REFLECTING ON A YEAR OF EMERGENCY REMOTE TEACHING

Jeonghyun Lee – Georgia Institute of Technology, The Center for 21st Century Universities (C21U)
Farahnaz Soleimani – Georgia Institute of Technology, C21U
Stephen W Harmon – Georgia Institute of Technology, C21U

Abstract: This chapter reflects on lessons learned from a year of emergency remote teaching at Georgia Tech since the pandemic outbreak in March 2020. We focus on practical implications for supporting faculty in future emergency remote teaching situations based on an understanding of how faculty adapted to this novel phenomenon and the challenges they encountered during the rapid transition. Specifically, we examine faculty members' perceptions and attitudes toward emergency remote teaching by taking a mixed-methods approach. We conducted a study using data collected from two anonymous online surveys administered in April 2020 and December 2020 as well as case study interviews conducted in May 2020. Our findings suggest that engaging students in interactive discussions or collaborative activities and assessing students' learning were the areas in which faculty struggled the most persistently across both semesters. Yet, we observed between the two semesters an increasing trend in the proportion of faculty who felt their course was suitable for online instruction. We also observed a similar uptick in faculty who sought instructional resources from within their department and technology experts on campus. Our study findings capture creative and flexible strategies that our instructors have used to overcome these instructional challenges (e.g., re-configuring projects to handle logistical difficulties). We also identify varying needs and other important individual factors that might explain different transitioning experiences among faculty. The chapter concludes by discussing next steps to effectively support faculty members' instructional practices and rebuild "the hybrid model" of education for the post-pandemic era.

Key words: higher education, emergency remote teaching, faculty perceptions, instructional technology, mixed-methods

1. Introduction

The coronavirus disease (COVID-19) pandemic has shifted higher education in significant ways. In March 2020, many colleges and universities around the world switched abruptly from face-to-face to remote delivery of courses in response to the public health emergency. To better understand what this novel phenomenon entails for faculty in the longer term, research is needed to examine its impact on faculty perceptions over time. To address this problem, our mixed-method study sought to elucidate how faculty members have adapted to emergency remote teaching between Spring 2020 and Fall 2020 and discuss what lessons we have learned based on our study findings.

2. Notion of Emergency Move to Remote Teaching

Since the unprecedented global pandemic began in early 2020, an increasing body of research has investigated the recent institutional transition to remote teaching and suggested that this phenomenon should be considered as distinct from pre-planned and carefully designed online

or distance education. Emergency remote teaching forces teachers to deliver courses with limited support within a very short amount of preparation time (Hodges et al., 2020; Trust & Whalen, 2020). Like teachers in traditional classrooms, teachers in the emergency remote teaching situation need to navigate through an iterative process of constantly evaluating the circumstances and resources available, classifying environmental factors that they can or cannot control, and adjusting teaching methods. But unlike a traditional classroom, many of these teachers have little or no experience in an online environment, are unfamiliar with the technology required, and have little to no time to prepare for the transition (Whittle et al., 2020). Not to mention the fact that their students might be equally unprepared and inexperienced in an online class.

Research findings have revealed that emergency remote teaching demands a great deal of effort and flexibility at both the faculty and institution level. For example, institutions should be capable of providing an extensive library of open online resources such as webinars and pre-planning to prepare necessary tools for online teaching (Kessler et al., 2020; Safi et al., 2020). Furthermore, this emergency has prompted some institutions to develop innovative and sustainable tools that can be easily scaled across many courses to improve remote teaching practices (Lee et al., 2020).

3. Challenges with Adapting to Online Teaching

From the faculty perspective, the implementation of new teaching technology can be seen a daunting task, even in the pre-pandemic context, as it generally requires institutional support and opportunities to practice concrete activities using personal devices (Kukulska-Hulmes, 2012). Safi et al.'s (2020) support this perceived difficulty, as their survey findings suggest that adapting to new technology, creating interactive class materials, and arranging collaborative projects in an online environment were among the top concerns for faculty during the period of emergency teaching. Cutri et al. (2020) have expanded the concept of faculty readiness to transition to online teaching in the context of the pandemic crisis. Their findings suggest that faculty online readiness can be viewed as rather "forced readiness" in which preparation and teaching occur almost simultaneously due to uncertainty and temporality of the context (p. 533). To gain further insight into faculty's challenges, our study focuses on capturing faculty voices through the means of a survey and case study interviews.

With respect to training faculty to teach online courses, previous research has emphasized the need to involve faculty in an in-depth online platform and pedagogical training. For instance, one-on-one assistance through collaboration with colleagues and university personnel have been found to enhance faculty's preparation for online teaching (Lackey, 2011). However, it is possible that these well-known types of resources may not necessarily be feasible to supporting emergency remote teaching practices due to limited time and resources. Our mixed-method study aims to offer implications for the types of resources that faculty members have actually sought and found as potentially beneficial during the transition to online teaching.

Our study poses three research questions. First, how did faculty generally perceive the emergency remote teaching experience during Spring 2020 and Fall 2020? Second, what instructional strategies did faculty use to support students' online learning? Finally, what were some salient challenges faculty faced during remote teaching, and what resources can be helpful in the future?

4. method

5. Participants and Settings

Two anonymous online surveys were administered to teaching faculty at a technology-focused public university in a southern state of the US, with one toward the end of Spring 2020 and another in the Fall 2020 semester. As a result, 266 faculty respondents completed the Spring survey, while there were 148 respondents for the Fall survey, out of roughly 1,100 faculty overall. Of those 148 Fall 2020 respondents, only 40 reported that they had participated in the Spring 2020 survey. In general, the distribution of demographic characteristics of faculty who responded to the survey was similar between the two semesters (see Table 1).

Table 1. Distribution of demographic characteristics of survey respondents.

Current Position	Count (Percent)		Years of Teaching	n (%)		College	n (%)	
	Spring 2020	Fall 2020		Spring 2020	Fall 2020		Spring 2020	Fall 2020
Professor	75 (30%)	56 (38%)	0-5 years	54 (22%)	23 (16%)	Busine- ss	19 (8%)	16 (12%)
Associate Professor	33 (13%)	20 (14%)	6-10 years	53 (21%)	27 (19%)	Comp- uting	17 (7%)	4 (3%)
Assistant Professor	25 (10%)	20 (14%)	11-15 years	42 (17%)	21 (15%)	Design	9 (4%)	10 (8%)
Academic Professional	17 (7%)	21 (15%)	16-20 years	25 (10%)	19 (13%)	Engin- eering	85 (35%)	44 (33%)
Adjunct/Lecturer	31 (12%)	17 (12%)	20 years or more	74 (30%)	54 (38%)	Liberal Arts	48 (20%)	27 (20%)
Other	68 (27%)	11 (8%)				Scienc- es	66 (27%)	32 (24%)
Grand Total	249 (100%)	145 (100%)		248 (100%)	144 (100%)		244 (100%)	133 (100%)

For the case study, seven faculty members participated in one-on-one interviews during May, 2020. The participants consisted of three non-tenure-track and four tenure-track faculty members. Three participants were from the College of Design, two from the College of Engineering, and the other two from the College of Sciences. The range of years of teaching at the institution was between 2 to 34 years.

6. Procedures and Data Sources

Our study adopted a convergent mixed methods design in which we gathered both quantitative and qualitative data concurrently and compared the results (Creswell & Guetterman, 2019). To collect quantitative data, the researchers coordinated with the Office of Provost to distribute a Qualtrics survey link through the all-faculty e-mail listserv. Only faculty who were currently teaching and used to teach in-person on campus were invited to participate. Interested faculty were asked to review a consent form before continuing the survey, which took less than 20 minutes to complete.

For the case study interviews, a stratified sampling method was used in which we contacted via e-mail two or three faculty members who were recommended by the Dean's Office in each of the six colleges. Faculty members who expressed an interest in participating in the study were asked to review a consent form before proceeding. The individual interview sessions took place virtually and were audio-recorded using BlueJeans, a web-conferencing tool. Each session lasted approximately 30-40 minutes.

7. Measures and Data Analysis

The online survey consisted of 18 closed-ended and 2 open-ended questions that were designed to capture participants' remote teaching experiences. Measures of faculty perceptions consisted of five specific scales, including: degree of adjustment to instruction,

suitability of course subject to remote teaching, and perceived level of comfort, satisfaction, and difficulty.

Questions for the case study interview were designed to gather faculty's input about their teaching background (5 questions) and emergency remote teaching experience (5 questions). Through these questions, we focused on understanding some notable issues and types of resources that can be helpful for facilitating effective online teaching. We conducted a systematic coding analysis to capture nuanced viewpoints toward the emergency remote teaching phenomenon within and across cases (Yin, 2003). We first created initial categories and subsequently made detailed descriptions of each case. We expanded and revised the categories through an iterative process of carefully describing, classifying, and interpreting relevant themes that emerged.

8. FINDINGS

9. Faculty Perceptions toward Emergency Remote Teaching

First, we sought to examine how faculty adapted to emergency remote teaching and how they perceived their transitioning experience. Regarding the primary methods to deliver instruction, there was a notable difference in the trends between Spring 2020 and Fall 2020 respondents such that they have increasingly used synchronous or live delivery methods and even some in-person methods, which is somewhat expected. Almost half of the total Spring respondents (47%) reported that they used a combination of asynchronous and synchronous methods. Also, 35% primarily used synchronous methods while the remaining 18% relied on asynchronous methods. Among Fall respondents, 48% reported primarily using synchronous methods. Another 33% indicated that their instruction involved face-to-face elements. Only 19% reported using asynchronous methods, indicating that, across time, faculty have become more dependent on real-time or interactive methods to deliver their courses.

Then we examined the faculty's perceptions, specifically around the degree of adjustment, suitability, comfort, satisfaction, and difficulty (see Table 2). On average, the Fall group reported making slightly more adjustments and perceiving more difficulty in switching classroom activities to online than did the Spring group. However, interestingly, the Spring group perceived on average that their course subjects were only "moderately" suitable for online instruction whereas the Fall group indicated their courses on average were "very" suitable for online instruction. Also, the Fall group reported an increased level of comfort toward conducting remote teaching activities, compared to the Spring group. Yet, within the comfort scale in each semester, a relatively large proportion of faculty (22% in Spring and 23% in Fall) reported either "uncomfortable" or "very uncomfortable" with engaging students in interactive discussions online. Both groups also reported very similar levels of average satisfaction, which ranged somewhere between "neutral" and "satisfied." Within the satisfaction scale, the activity of assessing student learning was the area with which both groups were least satisfied, as nearly 30% reported being "dissatisfied" or "very dissatisfied."

Table 2. Comparison of transitioning perceptions between the semesters.

Perception Area ¹	Likert Scale	Spring 2020		Fall 2020		t
		Mean	SD	Mean	SD	
Adjustment	0=none, 1=a little, 2=a moderate amount, 3=a lot, 4=a great deal	2.82	.96	3.08	1.00	-2.59*

¹ The comfort scale includes four sub-scales: updating the syllabus, moving quizzes and homework online, transitioning lectures to online, and engaging students in discussion with online forums. The satisfaction scale includes delivering learning content, uploading learning materials, communicating with students, holding office hours, and assessing students' learning and progress. The Cronbach's alpha of the comfort scale was .77 and that of the satisfaction scale was .83, indicating acceptable levels of internal reliability.

Suitability	0=not well at all, 1=slightly well, 2=moderately well, 3=very well, 4=extremely well	1.95	1.15	3.30	1.15	-11.25***
Comfort	1=very uncomfortable, 2=uncomfortable, 3=neutral, 4=comfortable, 5=very comfortable	3.87	.83	4.07	1.07	-2.31*
Satisfaction	1=very dissatisfied, 2=dissatisfied, 3=neutral, 4=satisfied, 5=very satisfied	3.60	.76	3.68	0.81	-1.01
Difficulty	1=very easy, 2=easy 3=neutral, 4=difficult, 5=very difficult	3.15	1.06	3.41	0.77	-2.39*

Note. * indicates $p < .05$ and *** indicates $p < .001$.

10. Instructional Strategies to Adapt to Emergency Remote Teaching

We analyzed the survey response data collected from two open-ended questions to capture a snapshot of how our faculty respondents generally dealt with the issues of decreased interactivity since switching to remote teaching. In one question, we asked the respondents to report any instructional strategies they used to enhance a sense of belonging in their courses. From both surveys, four broad topics emerged. In Spring 2020, 27% of total comments (n=214) mentioned providing students with social support by showing empathy and warmth or by holding a virtual "happy hour" in which the class members could casually interact with one another in real time. The respondents also commonly reported having frequent or regular communications with students about their learning experiences through virtual office hours (25%) or engaging students in collaborative activities such as through discussion boards (23%). Another 19% mentioned offering students personalized care or being responsive to students' individual concerns through email, phone calls, and other more personalized contacts. The results of the Fall 2020 survey showed slightly different trends (n=111). Almost half of the comments (45%) mentioned using collaborative learning activities, and 34% mentioned offering extra class meetings or communications. Compared to Spring, a smaller proportion of respondents reported providing social support (12%) and personalized care (5%). This suggests that faculty might feel that students had adapted better by Fall and thus perceived less need for social support.

Another question asked how the faculty accounted for students in disadvantaged situations such as having limited access to the internet. Results from both surveys revealed that many faculty members added some degree of flexibility to the format of lectures, assignments, or exams (e.g., logistics, deadlines), 60% of the total comments from Spring (n=244) and 63% from Fall (n=118). One of the commonly mentioned strategies included dividing a continuous long lecture into a series of short videos—typically less than 15 minutes—when uploading pre-recorded lecture videos. Next, 15% of the Spring total and 22% of the Fall total reported accommodating students' individual needs related to time zone differences or electronic device issues. The remaining 11% in Spring and 5% in Fall were comments by respondents indicating that they were aware of the issues but did not use specific strategies.

11. Instructional Challenges during Emergency Remote Teaching

Finally, we examined prevalent challenges and issues that faculty often faced during emergency remote teaching. Our survey findings showed that many faculty respondents encountered a range of challenges that were associated with the emergency move to online course delivery. One of the survey questions asked respondents to report whether they had

any issues during remote teaching and if so, what the major sources of these issues were. In the Spring data (n=243), more than three quarters of respondents (76%) reported having some issues related to remote teaching. Regarding the primary sources of issues, internet connectivity was most frequently reported (20%), technical issues outside their control was next (14%), followed by teaching equipment issues (12%). 30% of those who reported having issues chose “Other” sources of issues. Similarly, yet a slightly higher percentage of the Fall respondents (82%; total n=142) reported experiencing some issues such as technical issues (20% of this 82%), connectivity problems (19%), and teaching equipment issues (13%) and other issues (30%).

To broaden our understanding of the source of these issues, we further analyzed optional open-ended comments submitted by those respondents who selected the “Other” category. According to their comments, these issues fell within four broad categories: (1) instructional tools (e.g., more guidance or support needed) (28% of the Spring total; 30% of the Fall total); (2) assignments and assessment (e.g., learning tasks do not fit the online mode) (26% in Spring; 19% in Fall); (3) students (e.g., accessibility issues, different time zones, other personal challenges) (29% in Spring; 30% in Fall); and (4) instructors’ own personal or emotional challenges due to time constraints and extra effort (17% in Spring; 21% in Fall). Our findings suggest that faculty’s challenges appeared to stem mainly from technology issues across the semesters. However, it is worthwhile to note that many of our respondents had to continue dealing with both their students’ and their own personal and emotional challenges, which seemed to add more difficulty to their transitioning experience. Moreover, as we observed in case study interviews, we should note that there exist varying needs and other important individual factors (e.g., familiarity with technology, home environment, professional history) that might explain different transitioning experiences among faculty.

12. Lessons Learned: Implications for Helpful Resources

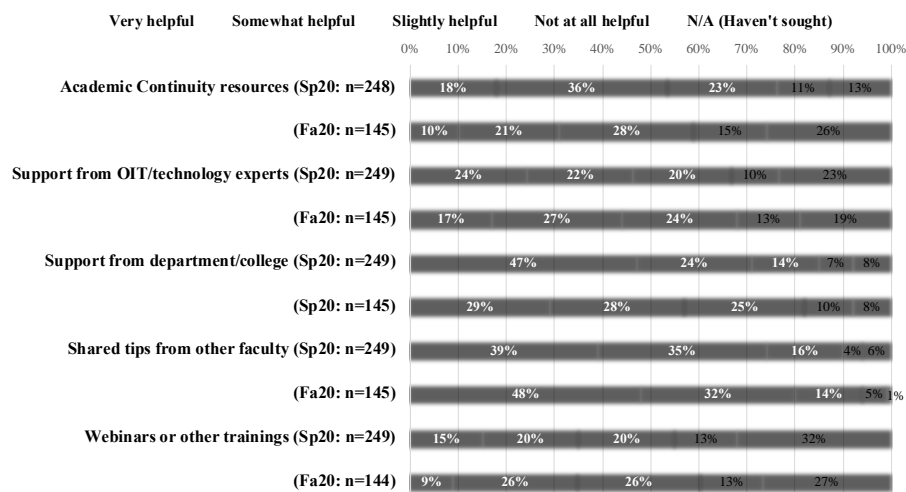
Finally, we were interested in drawing implications for types of resources that can help faculty better cope with future emergency remote teaching situations. A set of survey questions asked faculty to rate the helpfulness of various instructional resources for remote teaching that were available at the institution during Spring 2020 and Fall 2020. Across the semesters, many respondents rated support from their department or college and shared tips from other faculty as either “very” or “somewhat” helpful, ranging from 57% to 73% (see Figure 1). In fact, these types of resources were sought by faculty most actively. We also observed a notable uptick in faculty who sought instructional resources from technology experts on campus.

Next, we analyzed the case study interview data with a particular focus on identifying the participants’ salient needs and areas of resources that may be beneficial in the future. As a result of the coding analysis, we identified six broad categories that fall between micro- and macro-levels. The first category is provision of accessible teaching equipment and tools. The participants often mentioned that they wished they could receive more help from technology experts or IT staff to learn new features in the Canvas Learning Management System (LMS) or get access to a variety of digital tools that are suitable for different modes of course delivery. Second, the need to increase logistically accessible learning materials and facilities for students was also brought up frequently, especially for hands-on subjects (e.g., studio courses). As for the third category, the participants echoed the potential benefit of receiving customized support for remote teaching. Examples of such types of resources would include proactive support from the department (e.g., purchasing equipment), workshops tailored to subject matter or class size, and tips from peer faculty members. Fourth, many participants expressed interest in connecting with teaching experts to have opportunities to learn, practice and apply various instructional strategies to online teaching. They were interested in learning

best practices to personalize teaching, maintain student engagement, and facilitate critical thinking and collaborative learning.

Fifth, beyond individual perspectives, the participants generally voiced the need for active communication from the institution to ensure quality and standards in remote teaching and learning. They often mentioned that they would benefit from receiving clearer guidance on exams or assessment policies (e.g., honor code, digital proctoring) and resources to promote the sustainability of a hybrid teaching model. Lastly, it seems crucial that the institution dedicates resources to supporting the well-being of faculty members. These resources are expected to not only make the transition easier and less stressful for faculty but also equip faculty with appropriate tools to overcome their own and students' personal challenges.

Figure 1. Perceived helpfulness of different resources for remote teaching.



13. Conclusion

During a period of emergency transition to online teaching and swift adoption of the hybrid teaching mode, our faculty perceived increased levels of comfort and greater suitability of their courses for online teaching. Moreover, faculty appeared to shift their focus of instructional strategies from social and emotional support to academic support by implementing various interactive class activities online. Nevertheless, faculty members continued to experience obstacles associated with reduced interactivity and connectivity while adapting to remote teaching. Based on our findings, institutions should consider increasing accessibility of teaching and learning tools, provide systematic resources to ensure instructional quality, and encourage local units (e.g., colleges and departments) to proactively support faculty needs.

References

- Creswell, J. W., & Guetterman, T. C. (2019). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Pearson Education.
- Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: Transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education*, 43(4), 523-541. <https://doi.org/10.1080/02619768.2020.1815702>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, 27.
- Kessler, A., Barnes, S., Rajagopal, K., Rankin, J., Pouchak, L., Silis, M., & Esser, W. (2020). Saving a semester of learning: MIT's emergency transition to online instruction. *Information and Learning Sciences*, 121(7/8), 587-597. <https://doi.org/10.1108/ILS-04-2020-0097>
- Kukulska-Hulme, A. (2012). How should the higher education workforce adapt to advancements in technology for teaching and learning? *The Internet and Higher Education*, 15(4), 247-254. <https://doi.org/10.1016/j.iheduc.2011.12.002>
- Lackey, K. (2011). Faculty development: An analysis of current and effective training strategies for preparing faculty to teach online. *Online Journal of Distance Learning Administration*, 14(4), 8-34.

- Lee, J. J., Lisle, M., & Courville, T. (2020). Adapting vertically-scaled solutions across many Georgia Tech classes. In Y. Gazi & N. Baker (Eds.), *Moving horizontally: The new dimensions of at-scale learning at the time of COVID-19* (pp. 115-130). Georgia Institute of Technology. Retrieved from <http://hdl.handle.net/1853/64296>
- Safi, F., Wenzel, T., & Spalding, L. A. T. (2020). Remote learning community: Supporting teacher educators during unprecedented times. *Journal of Technology and Teacher Education*, 28(2), 211-222. <http://www.learntechlib.org/p/216308/>
- Trust, T., & Whalen, J. (2020). Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education*, 28(2), 189-199.
- Whittle, C., Tiwari, S., Yan, S., & Williams, J. (2020). Emergency remote teaching environment: a conceptual framework for responsive online teaching in crises. *Information and Learning Sciences*, 121(5/6), 311-319. <https://doi.org/10.1108/ILS-04-2020-0099>
- Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage.