Supplemental Material

CBE—Life Sciences Education

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Table 1s. Coding for faculty responses to the memorable moment questions: 1) Describe a memorable moment you had when teaching online during COVID-19 2) What made this moment memorable? and 3) How did this moment impact your teaching? The theme that was not included in the academic manifestation of the pedagogical resilience framework (Table 1) is highlighted in gray.

Questions	Theme	Code	Example
1	Type of memorable moment	Positive: good outcome or encouraging experience; students grateful; inclusive classroom observations	"Several students wrote me private notes to thank me for the ways that I showed them that I cared about their well-being and their success in the class"
		Negative: poor outcome or discouraging experience; students cheating; students misbehaving; complaining about the protocol changes	"I finally heard from a student who had disappeared, after I tried multiple ways to contact her."
		Both: combination of outcome/experiences; student struggling led instructor to become more flexible; helping students with trauma and feeling rewarded	"I connected more with high-trauma students"
		None: instructor states no memory comes to mind	"Nothing comes to mind"
1-3	Increased or purposeful kindness	Yes: the instructor comments the importance of flexibility or understanding, empathy, and/or self-care, demonstrating they care about their students	"I offered to set up a special discussion group for students who were healthcare workers who wanted to share their fears/concerns/frustrations. It was memorable because of the degree of interest and the outpouring of emotion in the group."
		Otherwise = No: this includes faculty making pedagogical changes for online transition	
3	Moment elicited change for the instructor	Bettered: confirmed or gained confidence in online teaching; renewed commitment to their work; reuse activity in future; has ideas to improve their teaching in the future; mindful/concerted effort to be compassionate or empathetic	"I recognized that even online a sense of community and support could be created...and I didn't need to lead it, but simply facilitate."
		Discouraged: expressing they didn't like online teaching or were frustrated by it; difficulties with cheating	"I'm considering retiring early and changing careers."
		No: had no memorable moment or answer doesn't demonstrate any impact from memory	

1-3	Reflection on student sense of belonging	Yes: refers to community, students learning from each other, students sharing personal stories	"My students really opening up to me about the struggles they were having at home during the pandemic. I was very open about my own struggles, so they seemed more willing to share theirs with me as a result."
		Otherwise = No	
1-3	Facet of Transactional Distance	Yes: faculty memory describes their willingness to be flexible OR increased/quality communication between students and faculty OR increased guidance, structure, or support provided for students/students seem comfortable with course structure/expectations	"Working with a student who was finishing class in her grandmother's iPhone because it's all she had. I was impressed with her dedication. It was a reminder to set reasonable expectations that don't require tons of techno"
		Otherwise = No	

Table 2s. Coding for faculty responses to the question: What difficulties did you encounter teaching online? The theme that was not included in the academic manifestation of the pedagogical resilience framework (Table 1) is highlighted in gray.

Theme: Difficulty included…	Code	Example
losing face-to-face interactions	Yes (includes loss of field/lab experience; informal assessment; class management (changing syllabus); it feels less personal, testing)	"I cannot see students' body language, which is something I heavily rely to run regular classes (responding to students' needs)"
	Otherwise = No	
student access to internet or technology	Yes (difficulty included students not having or having unreliable access to technology or internet)	"Student access to technology is the most significant barrier."
	Otherwise = No	
technology for instructors	Yes (references tech issues, trouble with systems like Zoom, picking software)	"Learning how to use the web conferencing application took some time."
	Otherwise = No	
time management or drain	Yes (describes the increased time it took to design/transition/prepare for online or infers work added extra time)	"Time management issues - I taught asynchronous, and the grading/feedback took forever"
	Otherwise = No	
student engagement	Reduced (difficulty includes a reduction in or lack of student participation).	"Students were not as engaged; the level of community noise was greatly reduced and I think that affected enthusiasm for participating."
	Yes (difficulty included student engagement or participation, but faculty does not indicate that engagement was reduced).	"Keeping students engaged with me and with their peers."
	No (Difficulty does NOT include student engagement or participation)	
negative student behavior/attitude	Yes (reduced enthusiasm or attendance, accountability problems, unrealistic expectations from the students, or cheating)	"Students expecting instructors to be online all the time, student difficulty and frustration with challenging coursework"
	Otherwise = No	
sense of community	Yes (faculty describes difficulty maintaining a sense of belonging or community OR faculty describes reduced sense of community, student interactions)	"It was hard to create a sense of community now that they were no longer in the same room."

	Otherwise = No	
a facet of Transactional Distance	Yes (faculty had difficulty being flexible/adapting OR difficulty communicating with their students OR difficulty providing guidance, structure, or support for students/students struggled with loss of in-person structure and accountability)	"Content optimization; Pacing/timing; Lack of real-time opportunities to modify discussion based on reactions/feedback."
	Otherwise = No	
student hardship	Yes (difficulty includes students' challenging home life, family care, work requirements, illness, stress, and/or grief)	"My students difficulties were my difficulties. […] At least 4 were working at jobs that required 12 hour shifts. One got covid-19 and was in and out of class as the illness came and went in waves. Several had major family responsibilities ranging from jobs (as described), care and tutoring for siblings (in one case a disabled brother). I lost count of how many had family deaths due to Covid; one student lost 4 family members in 2 weeks."
	Otherwise = No	

Table 3s. Coding for faculty responses to the question: What unexpected benefit(s) did you encounter teaching online? The themes that were not included in the academic manifestation of the pedagogical resilience framework (Table 1) is highlighted in gray.

Theme	Code	Examples
Observed benefit	Yes (faculty describes a benefit)	
	No (faculty states they saw no benefit)	
Heard from shy voices	Yes (faculty heard/saw participation from shy students; increased inclusivity; some students engaging more or for the first time online)	"Some students shared more in the online space! They had things to say about their changed circumstances, shared things about their families, or their educational goals, or how they were seeing the world. These things weren't about learning content, but were about who they were as people."
	Otherwise = No	
Faculty got to know students better	Yes (instructor states this, learning about personal lives, or refers to high communication between students)	"More one-on-one interaction with the students than I expected; I got to know the students better than I would have in class I think."
	Otherwise = No	
Faculty learned/refined technology skill	Yes (faculty learned or refined new online teaching or computer software skill (*e.g.* Zoom, virtual posters) OR developed/discovered resources for online teaching (*e.g.* discussion boards, chat windows, breakout rooms)	"Discovering the chat function helped engage students more than asking questions in class"
	Otherwise = No	
Faculty improved teaching	Yes (thinking about the intent of their course; "pedagogy"; equity; new activity succeeded, modified exams/grading, better evaluations; the learning or engagement of students increased; students enjoyed asynchronous option; one-to-one interactions improved, better organization of course)	"Made quizzes and final exam open book and that mitigated student stress."
	Otherwise = No	
Benefit included facet of Transactional Distance	Yes (faculty benefit describes their willingness to be flexible OR increased/quality communication between students and faculty OR increased guidance, structure, or support for students OR students seem comfortable with course structure/expectations OR students like	"I had to be more deliberate with things, and shy students participated way more!"

	working at their own pace	
	Otherwise = No	
Benefit included quality of life improvement for faculty	Yes (benefit included home life such as sleeping in, no commuting, doing things at home, OR indirect benefits including more time for grading or receiving encouragement)	"I have not found any benefits to teaching online, other than my shortened commute time and gas bills"
	Otherwise = No	

Table 4s. Count of faculty responses regarding exposure to online teaching from different university institutions. Institutions acronyms are community college (CC), master's granting institution (MGI), minority-serving institution (MSI), PhD granting institution (PGI), primarily undergraduate institution (PUI), research-intensive university (RIU).

Experience teaching online	CC	MGI	MSI	PGI	PUI	RIU
No	9	8	2	17	21	17
Yes	9	4	2	8	11	3
Received Online Training						
During transition	5	4		10	10	4
After transition	7	3	2	6	10	1
Never	6	5	2	8	11	13
Trained, timing unknown				1		3

Table 5s. The most common coded answers from 59 faculty who answered the question: "What difficulties did you encounter teaching online?"

Difficulty	Percent faculty encountered difficulty
Losing face-to-face interactions	47%
Reducing transactional distance (flexibility, communication, structure)	36%
Student engagement	31%
Using technology by the faculty	29%

Table 6s. Mann-Whitney-Wilcoxon (M-W) and Kruskal-Wallis (K-W) test results for statistical significance of coding themes between different faculty groups: Training (Yes or No), Training Period (during, after, or never), and Teaching experience online (Experienced or Inexperienced). Additional details can be found in Table 2.

Coding theme	Training M-W p	Training Period K-W p	Teaching experience M-W p
Question: 1) Describe a memorable moment you had when teaching online during COVID-19 2) What made this moment memorable? and 3) How did this moment impact your teaching?			
Included increased or purposeful kindness	0.639	0.027	0.079
Elicited change for the instructor	0.585	0.174	0.395
Type of memorable moment	0.135	0.195	0.652
Questions: What difficulties did you encounter teaching online?			
Losing face-to-face interactions	0.499	0.531	0.928
Student access to internet or technology	0.323	0.460	0.473
Technology for instructors	0.999	0.644	0.136
Time management or drain	0.748	0.460	0.162
Student engagement	0.374	0.309	0.345
Negative student behavior/attitude	0.644	0.485	0.037
Sense of community	0.008	0.043	0.497
Aspect of transactional distance	0.783	0.989	0.654
Student hardship	0.411	0.967	0.146
Question: What unexpected benefit(s) did you encounter teaching online?			
Faculty learned/refined technology skill	0.465	0.405	0.059
Observed an unexpected benefit	0.385	0.258	0.023
Improved teaching	0.961	0.226	0.252