

Pandammit! Forcing Engineering Instructors to Deliver Courses Remotely – Challenges & Successes



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Background

- The COVID-19 pandemic brought about an abrupt end to in-person teaching at universities around the world in Spring 2021.
- This situation brought about a unique opportunity to study how instructors handle a forced change in teaching practices.
- This situation was interesting because instructors are rarely forced to make changes to their instructional methods and could have implications for accelerating instructional change in the future.

Research Question:

What are the most frequently cited successes and challenges experienced by instructors following a forced change to remote learning?

Methods

- Weekly surveys were sent to engineering faculty during the last seven weeks of the semester (April-May 2021).
- The first survey occurred in week 12 after the transition to remote instruction.
- Surveys consisted of multiple choice and open-ended questions; the latter were thematically analyzed.
 - The top 3 themes from the successes and challenges across the entire survey period are presented.
- Survey Questions Analyzed:
 - Describe a teaching success you had this past week.
 - Describe a teaching challenge you are having or anticipate having.

Results

Codes	Definitions	Examples
Grading	Pertains to the act of grading.	Success: "Graded first self-paced take home exam." Challenge: "Fairness in grading due to different impacts on students and teams."
Engagement	Pertains to student participation/interaction/attendance in class, with lectures, video, office hours, or with the instructor.	Challenge: "Difficult to assess student engagement"
Assessments	Pertains to the mention of quizzes or exams including anticipation, planning, design, and administration. This excludes the students' submission of the exams.	Success: "Using Canvas quizzes seemed to work well." Challenge: "I'm still not sure about how to conduct the final exam, such as which format and how to monitor students, etc."
Instructor Task Completion	Pertains to completing course content, including finishing up the course. This could be recording videos, uploading all assignments, etc.	Success: "I completed all of my video lectures."

Figure 1: Top Successes for Instructors

Week	Grading	Assessments	Instructor Task Completion
Week 12	1	4	8
Week 13	5	10	4
Week 14	5	5	4
Week 15	4	4	8
Week 16	7	4	9
Finals Week	8	12	5
Grades	16	2	1

Figure 2: Top Challenges for Instructors

Week	Engagement	Assessments	Grading
Week 12	14	4	1
Week 13	13	4	4
Week 14	4	6	2
Week 15	9	6	2
Week 16	3	7	6
Finals Week	1	4	10
Grades	1	2	6

Demographics

DEPARTMENTS

*Chemical & Biomolecular Engineering and Electrical & Computer Engineering departments were combined to ensure confidentiality due to low participation rates.

GENDER

Faculty by Position (n = 39)

Positions	Percent
Assistant Tenure-Track Professor	30.8%
Associate and Full Professor	38.4%
Assistant Tenure-Track Professor of Practice	23.1%
Associate and Full Professor of Practice	7.7%

Key Findings

- Instructors mentioned Assessments and Grading as both successes and challenges.
- As expected, instructors' acknowledgment of content and assignment creation (Task Completion) decreased after the last week of instruction (Week 16).
- Student Engagement was a considerable challenge during the first two weeks of remote instruction.
- Mentions of grading challenges peaked during Finals Week, while mentions of Grading successes peaked as final grades were issued.

Conclusion & Future Work

- This study has begun to shed light on the success and challenges experienced by instructors during the initial period of forced remote instruction.
- Next Steps: Analyze Fall 2020 and Spring 2021 survey data to better understand changes in successes and challenges as the impact the pandemic had on teaching evolved.

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