

Zoom or Doom? The CM Curriculum at a Glance During Covid

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Over the course of nearly three years, the Covid-19 pandemic changed the ways in which education is taught across the globe. Specifically looking towards the Construction Management (CM) department at California State University San Luis Obispo (Cal Poly) and its curriculum, this paper surveys and analyzes the shifts made to the major-based course load. The basis of this study is the research of the potential modification of the CM curriculum classes in order to accommodate past covid restrictions. Studies have shown that individuals have suffered under the new online-based learning standard. In an age of altering restrictions, the study conducted in this paper gathers information from both students and faculty on what they believe to be the best alternatives to traditional in-person, classroom learning and how the Construction Management department can aim to replicate that setting as best as possible. Through a student survey and faculty interview, questions were asked about preferences of course structure during Covid in order to establish a standard, baseline solution for modified learning within the CM curriculum. This standard was determined to be in-person and masked. An alternative option of a hybrid course where there is online coursework, accompanied by in-person meetings was also preferred.

Key Words: Covid-19, online learning, in-person learning, CM curriculum

Introduction

It is common knowledge that the Covid-19 pandemic has had an impact on the lives of countless individuals across the world. Specifically, regarding the education system, Covid has arguably had a greater impact upon it more than anything. The pandemic has shifted the means in methods of teaching, in ways not previously believed to be possible. But is this shift for the better or for the worse? In this paper, studies conducted will give feedback to the Construction Management department by their own students and faculty uncovering their takes on the issue. Back in 2020, the United Nations released a statement that, “The COVID-19 pandemic has created the largest disruption of education systems in history, affecting nearly 1.6 billion learners in more than 190 countries and all continents” (Nations, 2020). This just goes to show the widespread impact that the pandemic has had

across the globe. An issue on this level and scale, occurring so recently, lacks the long-term effects and research of students suffering at the hands of online education protocols. It is a fact that Covid-19 has fundamentally changed the educational landscape. However, the question is, are our students as prepared and educated under this new standard with a degree obtained during an age of virtual learning?

Purpose

Being a Construction Management student who received a mixed experience of both in-person (pre-pandemic) and online (post-pandemic) education through this department, the author received firsthand experience on both sides of the coin. The purpose of this senior project is to gather information from both students and faculty on what they believe to be the best alternatives to traditional, in-person, classroom learning and how Cal Poly's CM department can aim to replicate that setting as best as possible. This survey and study concludes with what has worked, and what hasn't. The goal of this project is to obtain feedback and find out what the best solution is. The heart of this paper is determining a standard, baseline solution for modified learning within the Construction Management curriculum. It is important to ensure that amidst another tightening of restrictions, or possible future pandemics, that the CM department is prepared for an environment where their students see the best results in their academic careers, even when faced with unforeseen obstacles.

Literature Review

In preliminary research conducted in preparation for this project, several studies were found from other universities and schools around the world. These studies concluded that online learning has experienced issues with confusing *quality* with *emergency* and the latter could have a "long-term damaging effect" on the former due to teachers and students having little to no prior experience with online learning in comparison to face-to-face learning. (Bozkurt et al., 2020, Hodges et al., 2020). This issue is anything but secular to a specific region, age, college, department, or specific major. Everyone is hurting here. This is important to note, because in the transition to online learning, there seemed to be a gap between what new requirements there were and what the students themselves needed during this time. Quality of instruction suffered amongst other things.

In a different study, students from two general English courses at UAE in Abu Dhabi participated in a survey at the end of the semester in the 2019-20 academic year. The study found, "A greater level of self-discipline and motivation to follow through online classes is particularly important during the earlier period when students are getting used to the new system. A participant in the current study remarked that 'I always need to sit in the front seat to focus. If I sit in the second seat, I start dreaming. In online courses, I am on another planet'" (Hussein et al., 2020). This exemplifies what many online courses are lacking, which is the student-instructor relationship that falls short between computer screens. The level of engagement that occurs is at a loss.

From a past study of students' usage and experience with technology it was found that most students feel that face-to-face contact is essential for building a sense of community. The article stated, "Even when classes are partially online, students may feel that only discussion detracts from this feeling of community with their peers and tutor" (Conole et al., 2008). In comparison to a wide range of technological usage during the pandemic, face-to-face contact was nonexistent during this period. This study showed the importance that face-to-face interaction has on a classroom, and therefore the success of those individuals.

A survey of undergraduate psychology students at an Australian university was conducted pre-pandemic. The results showed that, “Students preferred to complete activities face-to-face rather than online, but there was no significant difference in their test performance in the two modalities. In their written responses, students expressed a strong preference for class discussions to be conducted face-to-face, reporting that they felt more engaged, and received more immediate feedback, than in online discussion” (Kemp and Grieve, 2014). This was an interesting study to note, because although test scores were not affected, that is not to say that students felt they were excelling or getting everything they could out of the courses. Although test scores may not be affected, real life-application to the knowledge gained and what is retained after the completion of such is what is being negatively impacted. Arguably, test scores are not an indication of success, but the general application and knowledge that comes to applying the lessons learned in the coursework itself.

Methodology

Both qualitative and quantitative research was conducted in this study. The topic being focused upon the research of a standard baseline implementation for online learning in the Construction Management department is one that is measured upon the opinions and views of department faculty and students themselves. The questions asked in the supplemental survey and interview were on whether students and faculty see a benefit to virtual learning alternatives and any ideas they might have themselves for it. The research conducted also evolved into responses that were emergent and developmental in nature.

Survey Methodology

Primary data collection, or field research was the best approach to the collection of data for this topic. The survey approach conducted worked best for pooling what the Construction Management student body thinks on this topic in the most efficient manner. A survey of 19 questions was sent out through the popular platform, Google Forms, with a range of questions aimed to gauge if there were any emergent trends in the student body pool about their feelings towards the current online curriculum offered in the Construction Management Department. Most of the questions were aimed to rank their preferences of online learning tactics and platforms. However, there were a couple of short answer forums open for students to share anything specific to their own experiences. Some of the questions included in the survey are stated below.

- Academic Year?
- Gender Identity?
- Preference between in-person, online, and hybrid learning
- Online platform usage in CM classes
- Online learning tool preferences
- Are you productive with online learning?
- Are you more distracted at home or in a classroom?
- CM lab experience
- What do you like about online learning?
- What do you dislike about online learning?
- Do you feel you missed out on learning opportunities due to Covid?

Interview Methodology

A faculty interview was conducted by the author with Construction Management professor of five years, Thomas Kommer. The interview was structured with an introduction of standard questions on his history with the CM department itself, and his baseline of teaching style. The questions soon turned to those aimed to receive faculty input and impact on their teaching styles during the pandemic and the struggles that they experienced on their own end in order to modify their teaching practices in a completely different manner. This interview was of great importance because both instructor and student share a symbiotic relationship towards the success of teaching a specific subject. The interview with Professor Kommer did in fact take on a life of its own once the questions about his experience during Covid were expressed. There was a lot of emergent and exploratory responses that came about this interview. Standard questions asked during the interview included the likes stated below.

- How long have you been teaching at Cal Poly?
- What specific classes have you taught during Covid?
- What did you do to prepare during the transition to online learning?
- How did you modify your curriculum?
- Did the department supply any supplemental workshops to assist with the transition to online learning?
- What form of online learning do you prefer?
- Do you prefer masked, in-person classes or zoom?
- Did you see students doing better or worse in class during Covid?
- Do you have any ideas on a universal solution to online learning during Covid?

Methodology Analysis

In the survey conducted, questions were included distinguishing the surveyors' gender identity and year in obtaining their degree. This was due to the fact that responses to online learning from different demographics was desired. In a study conducted at the Massachusetts Institute of Technology (MIT), a survey of graduate students from different majors, genders and ethnicities was conducted and some interesting results were reported. The research concluded that the majority of groups across the board preferred in person learning. However, when looking at the results based off of category, they saw that men, and those completing their higher-level degrees, were the only ones who had a majority rule in favor of online learning. The article concluded, "Male students and students with master's degrees were more likely to successfully complete the online courses" (Littenberg-Tobias and Reich, 2020). It was found that, as a whole, in-person learning was preferred, however when asked in further detail everyone broke down aspects they liked and disliked with both online learning and face-to-face education.

In deciphering the data collected through the Google Forms survey, the data was converted into an excel sheet breaking down and grouping the questions collected and answers given by the surveyors. From that point the data was able to be analyzed by the different preliminary questions answered in order to see the data spread over the different demographics of CM students. For the purpose of the research, gender identity was a distinguishing factor to have a closer look at in regard to whether males or females prefer in-person or online-based learning. In excel these numbers were then able to be converted into percentages to represent the two differing groups.

It was decided that a survey would be sent out to students and an interview conducted with a faculty member because a wider range of responses from the student body was more important for the research findings. The more personal, in-depth interview was appropriate for a faculty member because they are the entities in the CM department with actual data they can reference to back up their experiences through Covid; i.e. test scores, quarterly reviews, student feedback, etc.

Survey Results

Results from the survey were pooled from a group of thirty-one Construction Management students ranging from students in their second to fifth years in their undergraduate degrees. Fifty eight percent of the survey group were females, leaving the remaining forty-two as males. This finding was interesting to compare to the data as referenced above by MIT, in order to see the reflection of gender and how they answered to the proceeding questions throughout the survey. Before the breakdown of this data, it is important to note what online platforms that students were familiar with in the first place. Below, Figure 1 shows the breakdown between the thirty-one students and what they have experienced in their CM classes during Covid. Zoom lectures, class assignments through Canvas

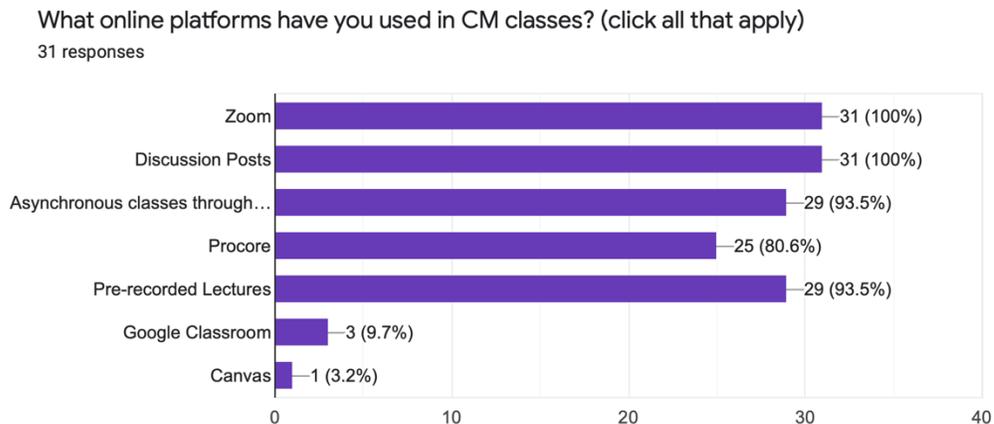


Figure 1: Online Platform Usage

and pre-recorded lectures posted onto Canvas were all the platforms in use and experienced by the majority of the surveyed CM students. This data collected is important because it helps gauge the experience of the students and how the CM faculty went about replicating in-person classes onto the online platform. The data presented below in Figure 2 also breaks down the labs that each of the students had experienced before and during Covid. This is another preliminary question of importance because Construction Management labs are considered the backbone of our hands-on experience. In classes such as Residential Construction (CM 214) and Commercial Construction (CM 313), students build corresponding structures throughout the quarter including a tiny house and a subsequent commercial structure. This is an important area of the curriculum that is sacrificed during online learning.

Have you taken any of the following labs (click all that apply)

31 responses

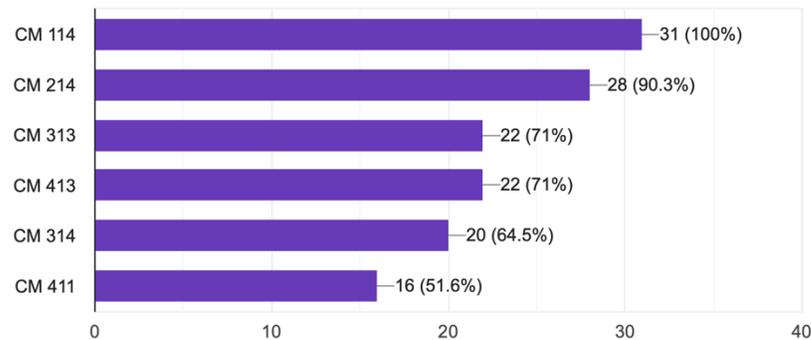


Figure 2: Lab Experience

When the question, “What do you dislike about online learning?” was asked, student feedback ranged from, “I feel like I do not have an understanding of several construction concepts because it was either taught poorly online, was hard to grasp through a computer screen, or there was no pressure to actually learn the concept” to “There are missed experiences in labs as well as I believe there is less course content in online learning.” The overarching trend of missed experiences, lack of interaction, and inadequate teaching of the subject was disheartening to analyze.

In the wave of deciphering what students do not like about online learning, what works for them and what doesn't, it is important to find a silver lining of what they thought was efficient and how the Construction Management curriculum should be taught during a potential lockdown in the future. Below, Figure 3 breaks down the preferences of the survey group and what they believed to be the best alternative to traditional, in-person learning. Out of the survey group, 41.9% of students stated that amidst another round of restrictions, they would still prefer to be in-person and masked. When given the option of a hybrid of online and in-person, 38.7% of students stated that they would prefer that over the other adaptive options. When taking a closer look and breaking down the data based on gender, some interesting results were found. When asked which they preferred— in-person, online, asynchronous, or a hybrid of online and in-person—the results found that 62.5% of males preferred an in-person class, compared to 22.2% of females and 38.5% of males preferred a hybrid option, compared to 77.8% of females. No one in the study preferred online or asynchronous courses. This is something to note, because it contradicts the findings by MIT, however, perhaps with a larger sample size the results might be different.

If we were to go into lockdown again what form of learning would you prefer?

31 responses

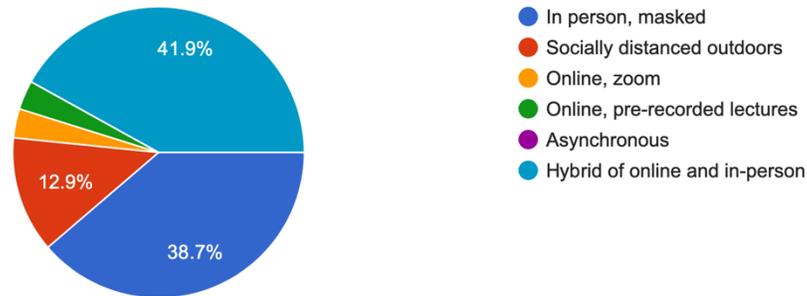


Figure 3: Platform Preferences During Covid

Interview Response

A faculty interview was conducted with Construction Management Professor of five years, Thomas Kommer, JD. Professor Kommer has extensive experience in both the innerworkings of teaching in this department before, during and after Covid. After the wave of preliminary questions was conducted, some information about the fallout was revealed. Covid occurred directly in the transition from the original online-course organizational engine Polylearn, to now the current usage of Canvas. Professor Kommer reported that not only himself, but countless other faculty were going into this transition to online learning blind. He stated, “Many teachers didn’t know how to put it online. Canvas was meant to be a tool to assist the courses, but now they were relying on it as a necessity” (T. Kommer, personal communication, May 17, 2022). He also recalled it being difficult as an instructor, on how he would go about altering the course work itself. Being that of a more organic lecturer, a lot of his lectures stemmed from questions he asked during the class period, questions asked of him and conversations with the students. He feels that much of this is lost even in a live Zoom setting.

Because of this style of teaching, Professor Kommer felt that the best way to teach a course online was trying to replicate the in-person experience as best as possible. Consequently, live Zoom lectures and discussion boards were his main tools with online course modification. Although Zoom was mainly utilized by him, Professor Kommer still reported that, “Zoom as a primary instructional mode is a tool that should be employed with limited usage. Zoom based learning is less diluted than that of asynchronous coursework, however it is still not a complete substitution for traditional in-classroom learning. With widespread usage it is merely a band aid” (T. Kommer, personal communication, May 17, 2022). Looking more in-depth into asynchronous coursework, some interesting information was provided. Prior to Covid-19, it was difficult to shift a class into an online format. Asynchronous classes had to have a significant case made for them as the proposing teacher had to receive prior approval for this mode by the department’s Curriculum Committee. In Kommer’s opinion, the rigorous process served a useful function to maintain the integrity of the curriculum. Amidst Covid, there has been a shift in the approval process in which there, a lot of the time, has to be an online alternative option for many of the classes.

When asked what he would prefer if we were to return to a tightening of restrictions, Professor Kommer stated that he would prefer any type of in-person learning; outdoor, socially distance, masked, etc... This was due to, “The distraction level of most students in an on-line setting and the struggle to maintain concentration and involvement. Although test scores and assignments stayed relatively the same, there was a negative shift in participation” (T. Kommer, personal communication, May 17, 2022).

Summary

In summation, great feedback and new information was provided through the student survey and faculty interview. In the survey, it was found that through online CM classes during Covid, students mainly utilized Zoom, discussion posts, asynchronous classes through Canvas, and pre-recorded lectures. Amidst another lockdown and tightening of restrictions, 41.9% of students preferred to be in-person and masked and 38.7% had a preference of a hybrid of both online and in-person. This was an interesting finding in which a combined majority of 80.6% of surveyors preferred to have some type of face-to-face instruction.

In the faculty interview some interesting information came to light. It was revealed that the CM department previously had a more rigorous approval process for asynchronous classes prior to Covid. In reflection to the feedback from the student survey, students felt that there was a disconnection between teacher and student with asynchronous classes. With there being more asynchronous classes provided in the CM curriculum than ever, this goes to question why so many are being approved amidst the negative feedback by both students and faculty. Professor Kommer also brought to attention that he himself prefers live Zoom lectures as an online form of course modification, however nothing can replicate traditional, face-to-face instruction. Any type of in-person alternative is preferred.

Conclusions

Conclusions to the survey and interview research are reflections on how the Construction Management department can aim to improve in the future during a new reality of learning and instruction during Covid. Through passionate feedback from the survey group of CM students, there is a trend on preference of in-person classes whenever possible. The standard for classes during a tightening of restrictions should still be in-person and masked. An option of a hybrid course where there is online coursework, accompanied by in-person meetings is also preferred. The data and research collected shows that student’s test scores don’t necessarily change in the online format, but there is a lack of engagement and real-life application after course completion. Hands on experiences, especially from CM labs are nonexistent in the online format. Both students and faculty acknowledge the gap in their education by a lack of those experiences. Conclusions specifically from the faculty interview include the reinstatement of a more difficult application process for asynchronous coursework. Data from the survey supports that the majority of students don’t prefer it and feel they aren’t getting what they could out of the course if it were in a traditional format.

Future Research

In reflection to the data obtained by the survey against the study conducted by MIT, this survey's smaller sample size seemed to lend itself to some outliers. Where MIT found that men preferred online coursework, this study found the contrary was true. It would be interesting in future research to be performed on a larger sample group to see if there is any alteration to these numbers within the Construction Management student body.

In combination to the findings of this study, it would lend itself to more research about the approval process for asynchronous classes. If there were a written baseline of procedures for course instruction amidst pandemics and lockdowns, both students and faculty in the department might be put at ease during these confusing times. The baseline being that of in-person and masked instruction and the alternative online option being live Zoom lectures or pre-recorded material. It would be beneficial to see if an online approval process could be reinstated and what that entails for the future of the Cal Poly CM department itself.

References & Appendix

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