

Lessons Learned from Practices Used in Online Classes

Dr. Yilin Feng, California State University, Los Angeles

Yilin Feng is an assistant professor at California State University, Los Angeles. She received her Ph.D. degree from Purdue University. Her research interest is in airport simulation, operation, and management.

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Introduction

At a large state university in South California, students in the aviation administration program may choose to take an undergraduate level course on airport administration, which is one of the core courses in the program. This course explores the key aspects in airport administration, such as airport planning, government relationship, airport-airline relationship, airport budget and finance management. The course was an on-campus face-to-face course which includes both lecture and field trip before 2020. However, the course has to be redesigned to be a 100% online course in 2020 Fall semester because of the COVID-19.

Many issues were considered when the course was transferred into a 100% online course. For example, a majority of the undergraduate students came from economically underdeveloped areas. Those students may have limited access to the internet or electronic equipment from home. There may be some other difficulties for students to study at home, such as no quiet study space or responsibility to take care of other family members. Attending a 2-hour online lecture meeting without disruptions is almost impossible for some students. The field trip becomes impossible because of the COVID-19 as well. Also, students may feel less engaged and motivated to learn in an online course.

This paper first discusses in details about the challenges and issues that must be considered when the course is redesigned. The roadmap for the online course is presented. This paper also introduces several practices that are used in the online course to motivate students. This paper talks about the effects and lessons learned each practice based on the instructor's observations and feedback from students. This paper also discusses how the lessons learned from using the new practices in an online course could inspire the improvement of the traditional face-to-face course in the future.

Airport Administration Course

Airport administration is an undergraduate course in the Aviation Administration program in the college serving Technology majors at a state university in south California. The course aims to explore the major topics related to airport administration, such as airport planning, marketing, governmental, legal, and public relations, financial management, and airport financing, and prepare students for future career as airport operator and manager. This course is provided every fall semester. Before the COVID-19 pandemic, this course was 100% face-to-face which included 70% lecture/discussion and 30% field trips to several airports in the south California. In the field trip, usually the airport manager would show students around the airport, introduce to them airport facilities and different services the airport provided, and answer students questions along the trip. The field trip is a good opportunity for students to experience what they have learned from class and observe what it would be like to work as an airport manager or operator.

However, this course was required to transfer to a 100% online course in 2020 fall semester because of the COVID-19. Online course is not just moving the in-class lecture to an online

video meeting. Online course has some unique challenges that may sabotage students' learning ability, motivation, and engagement.

First, online course relies heavily on electronic equipment and the internet. In a state university, however, many students may have limited access to the internet or electronic equipment from home. Students may have to share the room with their family members and then not be able to find a quiet place to study in their house. They may have to take care of their family members. Therefore, attending a 2-hour online lecture meeting without disruption may not be that easy for many students. This is one of the reasons that Airport Administration is made to be asynchronous.

Second, moving lecture online may have the potential issues that students may feel less motivated and less engaged. Students lose the interactions with the instructor and with their classmates. Students, then, may feel less supported by the instructor and feel like that they are studying on their own.

Another challenge to transfer this course to 100% online format is finding some alternative activities and practices for the field trips. Field trip is a unique and important chance for students in the Airport Administration course to interact with the industry and connect what they have learned from class with what is really happening in the real world. Removing the field trip without adding any alternative activities would be a huge loss for this class. Especially most of the students who attend the Airport Administration class have career goals as working as airport management. Learning, then, may not be their first priority, which is understandable and must be taken into consideration.

The last challenge comes from this unique period. The pandemic and sudden lock down may make many people feel stressful. Especially, for a state university with many of its students coming from low-income families, many students have to work to pay their tuition fee. The pandemic may force many of them to lose their jobs temporarily or permanently. They or their family members may be at the risk of infection. All of those factors would be overwhelming, and their first priority may not be studying which would be understandable.

Two primary goals of the course are to make students feel engaged and motivated to learn. Taken all of these challenges and difficulties into considerations, the instructors tried to achieve the following goals when she redesigned this course to become a 100% online course in 2020 summer based on the community of inquiry theoretical framework [1]:

1. **Cognitive presence:** Understand each student's situation and ensure that the course materials are selected based on students' background.
2. **Teaching presence:** Build a supporting instructor-student connection and ensure that each student would have the same access to the learning materials and sources.
3. **Social presence:** Build a strong student-to-student connection and ensure that each student could communicate in a trusting and supporting environment.

The following part of this paper talks about practices that the instructor used to achieve these three goals. Students feedback are also presented to discuss the effect of these practices. Lessons

learned from the online course that could be used in the face-to-face course in the future are also discussed.

Roadmap for Making the Course Asynchronous

In 2020, an undergraduate-level airport administration course was transferred to 100% online because of the lockdown at campus. Before the lockdown, the course consisted of 70% lecture/discussion and 30% field trip. To overcome the difficulties and challenges of online teaching, the instructor changed the course to 60% lecture, 20% weekly activity (which includes weekly quiz and discussion activity), and 20% team project. Figure 1 is a roadmap for the online course structure.

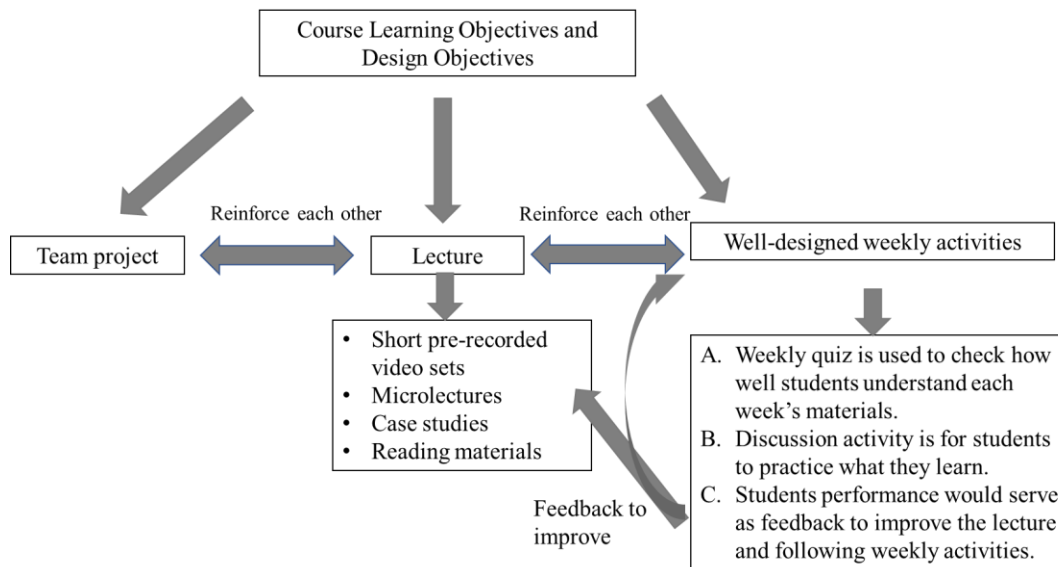


Figure 1: Roadmap for the online course

One important principle the instructor applies is to use more low bandwidth and low asynchronous teaching techniques. Figure 2 shows the four teaching techniques categories based on the bandwidth and immediacy. Teaching techniques with high bandwidth and high synchronous, such as live-stream lectures would have high requirements for electronic equipment and the internet stability and speed. An online course that relies heavily on those teaching techniques would place extra stress to students who have limited access to the internet or the electronic equipment. Techniques with low bandwidth and/or low synchronous, such as online reading, pre-recorded lectures, collaborative document, could release the requirements for the equipment and the internet. Therefore, the instructor applies more low bandwidth and/or low asynchronous teaching techniques to relieve student's pressure caused by the limitations in electronic equipment and the internet.

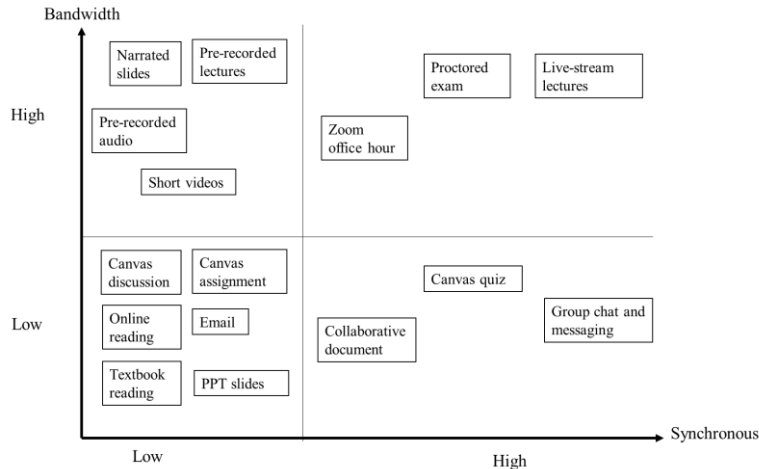


Figure 2: Teaching techniques matrix. Adopted from Daniel Stanford (Twitter: @dstanford)

Lecture

The lecture is not just changing the face-to-face in-class lecture to an online live-stream lectures. As discussed previously, students may have many different difficulties or issues to attend an online video meeting for 2 hours. Also, without the interactions with the instructor and the supporting learn climate as it is for face-to-face class, it is hard for students to stay focus in a 2-hours online video meeting. Therefore, instead of live-stream lectures, this course uses pre-recorded lectures and PPT slides. Also, students are required to read textbook and supplemental reading materials that reinforce with the pre-recorded lectures.

Weekly activity

Weekly activity, which includes weekly quiz and discussion activity, is used to check student understanding for the online learning. In online course, it is hard for instructor to monitor and address students misconception. Weekly quiz with well-designed questions that coincide with that week's lecture topics is an effective practice to identify any potential misconceptions [1].

Discussion activity, on the other hand, is a good chance for students to apply what they learn from the lecture and to discuss with their classmates to build a supporting student-to-student connection. To make the discussion activity effective, the instructor would select discussion topics that align with the learning goals and reinforce real-world application. Clear expectations are also very important for an effective discussion activity [2]. The instructor would provide detailed instructions, rubrics, and examples of productive contributions.

Team project

In the Airport Administration course, team project is selected as an alternative activity to the previous field trip. A lot of extra work should be done by the instructor to ensure active team collaboration.

Practices Used to Motivate Students and Feedback

Surveys before class begins

To have a better understanding of students situations, the instructor set up two surveys at the beginning of the semester, checking student well-being and technological readiness. Some of the questions included in the two surveys were: “Which type of devices do you have a reliable and unlimited access to”, “Do you have a stable, unlimited Internet connection from home?”. “Which technologies are you not comfortable or familiar with using for class?” “How are your stress levels in general?”.

Inspire students about the course topic

The instructor set up a discussion session on Canvas for students to introduce themselves along with an icebreaker question. For example, for the Airport Administration class, the icebreaker question was “what is your favorite airport and why”. The instructor found that students loved this icebreaker question. They went through each other’s answer and shared their experience about different airports. This activity helped students to build a connection with each other. The instructor also made a video to introduce herself. In that video, the instructor not only talked about her research and education experience but also her hobbies and interest, as well as her favorite airport. By doing so, the instructor began to build a connection with the students too.

Develop effective module

Setting up a clear and fixed pattern (or routine) for each week’s activity is also of great importance to online course. Students, then, would feel less confused about what they were required to do each week and where they could find the materials. Figure 3 shows the pattern of each week’s module in Airport Administration course.

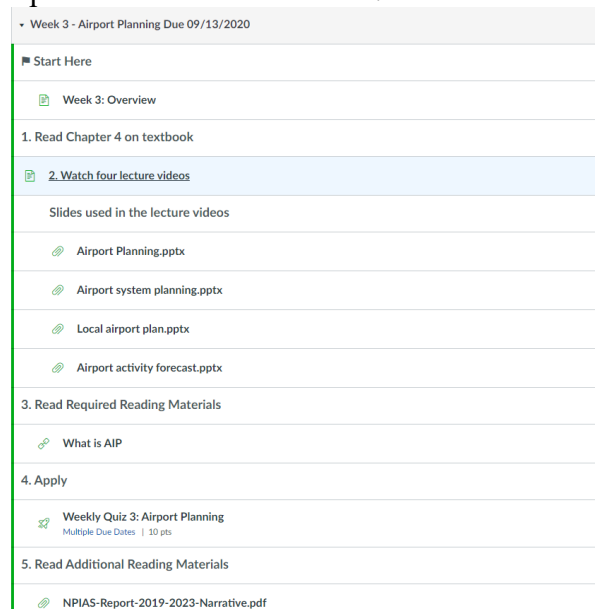


Figure 3: Example of the weekly module structure

Each week would start with an overview which included that week's activities, learning objectives, and available materials. An explanation of the level of cognition would also be included in each week's overview. Students could finish each week's pre-recorded lecture videos and reading activities, and then practice what they have learned with a weekly quiz. The quiz usually includes 10 questions that were directly related to that week's learning objectives. The quiz was a good way for the instructor to check how well the students learn this week's topics and identify any misconceptions.

Develop effective microlectures

Microlectures are pre-recorded videos that cover a single key concept. The length of the microlecture is controlled within 7-8 minutes: the first 30 seconds are used to present an overview; the next 5-6 minutes are to present the materials; and the last 30 seconds are to summarize the learning objectives and key points [4]. A question that is related to the key point for student to ponder may also be included in the end of the microlecture. Previous research indicated that microlecture would be an effective way to present instructor presence and help students feel more engaged and motivated to learn. [5].

Build supporting instructor-to-student connections

To know more about the students, the instructor encouraged students to make an appointment and talk with the instructor via online video meetings. The meeting would usually begin with brief self-introductions. The instructor would, then, ask some questions based on student's introduction. Then, the instructor would ask if students had any questions, concerns, or suggestions about the course. In the Airport Administration course in 2020 fall, about 70% of the students took part in this activity. Most of them shared with the instructor their career plans after graduation, which could inspire the instructor about how to help them achieve their goals. Many students also talked about their personal life with the instructor and asked the instructor about how she felt to work during the pandemic. These interactions helped to build a stronger connection between the instructor and the student and help with the instructor presence.

Provide prompt feedback

Another thing that is very important, especially during this stressful period, is prompt feedback. The instructor tried to respond to students' emails and Canvas messages as soon as possible (usually within 20 minutes). By doing so, students would feel supported and less stressful when they ran into some questions or difficulties. Prompt feedback would also enhance the instructor presence. Many students indicated in the class survey or during the online meeting that they appreciated the instructor's prompt reply which helped them feel that online learning was not as stressful as they thought it would be.

Check for students feeling

The instructor attached great importance to students' feedback and opinions about the teaching methods. Therefore, an anonymous midterm survey was set up, asking students about their feeling and suggestions about the class. 90% of the students in the Airport Administration course

chose “very good” or “good” in terms of the overall learning experience. The instructor would also check students feeling during the online video chat.

Team Project

Team project is used as the alternative activity of field trip. However, it may be difficult to conduct team projects in an online course: students do not have chances to work on the project together, and the instructor cannot check and monitor students progress as they can do in face-to-face course. The instructor, then, needs some extra practices to support students with the team project.

As for the project topic selection, students are encouraged to discuss their interested topics about airport operations and administration on a Canvas discussion section, and form team by themselves. Then, the instructor would join each team’s first meeting to help them set a tone for the project. Later in the semester, the instructor would keep posting materials that would be useful to their projects on Canvas and check each team’s progress as much as possible. Students are also encouraged to send their drafts to the instructor for suggestions before the deadline. The topics students select in the Airport Administration course cover so many different aspects: from how to handle aging aircraft to airport security, from the impact of COVID 19 to sources of airport funds, from baggage handling system to aircraft accident investigation.

The final presentation method, whether online live-stream or pre-recorded presentation video, is decided by a student survey. Again, because of the equipment and internet limitation, the majority of the students prefer pre-recorded presentation video. The final presentations and the final project reports indicate that students do learn a lot about airport from both their projects and other students’ presentations. The team project provides students an opportunity to dig deeper into one specific topic and connect what they have learned from class with the real world. The team project also provides students an opportunity to work with his or her classmates and build a stronger student-to-student connection, which becomes quite precious during the pandemic.

Lessons Learned

Online course is not just holding an online live-stream lecture as remote learning would make students feel distant from the instructor and from his or her classmate. Instructors should make many changes and apply many new practices to make sure that students are engaged and are motivated to learn.

Two surveys about student technological readiness and well-being were set up in the beginning of the semester. Table 1 presents some of the results of the technological readiness survey. 20% of the students in the Airport Administration course in 2020 Fall semester indicated that they had either limited access to the internet, or they only had cellular connections. For the student well-being check-in survey, 49% of the students indicated that they were experiencing some stress, while 20% of the students said that they were experiencing significant or overwhelming stress currently.

Table 1. Results of student technological readiness survey

Do you have access to a stable, unlimited Internet connection from home?		
	Number of students	Percentage
Yes	23	80%
Yes, but not unlimited	2	7%
Yes, but only through cellular data	3	10%
No	1	3%
Some of the response to questions: What else would you like me to know about how you are doing or your technological access and comfort right now?		
“I believe I have everything needed to participate in this course.” “I hope to learn through online as much as I would through traditional teaching methods.” “To be completely honest with you professor, at times Zoom can be a challenge because the WIFI I have at home may constantly be unstable which at times (embarrassingly enough) disconnects from Zoom from time to time. I will still try my best.” “It is a little hard for me to find a quiet enough place for long zoom meetings” “My internet sometimes gets slow when more people are working at home.” “I don't have access to a webcam at the moment, but everything else is fine.”		

The results demonstrated the instructor’s idea to control the length of each pre-recorded lecture video and use microlecture. Instead of one long video that cover all the topics, the instructor would make several short videos, each of which covers only one topic. This may benefit students that had limited Internet access and students who were experiencing significant or overwhelming stress.

Several low bandwidth and/or low asynchronous teaching techniques are applied to make sure that students with limited electronic equipment and/or unstable internet would access to the same learning resources as students with appropriate equipment and stable internet. Many of the practices used in the online course can also be used in the future when the campus reopens to enhance the cognitive presence, the teaching presence, and the social presence [1].

The lecture is redesigned to include short-length pre-recorded lecture videos, microlectures, and other low bandwidth and/or low asynchronous practices. Without face-to-face interaction, weekly activity, such as weekly quiz and discussion activity, becomes the effective tool to check how the student understand the learning materials and monitor any misconception. The weekly activity, then, should be well designed to reinforce with the learning objectives. A team project is used as an alternative activity to the field trip. The instructor should be aware that it is harder for students to do team projects in an online course. Therefore, extra support should be provided by the instructor to keep students on track.

Besides the changes in the course structures, several practices are applied to motivate students online learning and engage students. Some of the practices that students appreciate most are the surveys, the clear and fixed pattern for each week’s activity, the microlectures, and prompt feedback. For example, two surveys are launched in the beginning of the semester to check whether students have technical difficulties or other problems. 20% of the students in the Airport Administration course in 2020 Fall semester indicated that they had either limited access to the internet, or they only had cellular connections. More low-bandwidth and/or low asynchronous

teaching techniques are applied in the semester, then, to make sure that those students would be able to access to the same learning materials as students with stable internet.

A survey about how students feel about the new online learning mode was set up near the end of the semester. Table 2 presents some of the results of the survey. About 91% of the students felt good about the new online teaching structure, and the weekly activity workload was acceptable to about 94% of the students.

Table 2. Results of the survey about students feeling about the online learning mode.

In general, how do you like my overall teaching methods so far?		
	Number of students	Percentage
Very good	26	74%
Good	6	17%
Neutral	3	9%
Not very good	0	0%
Not good, need improvement	0	0%
How do you think about the assignment activities workload so far?		
Too much	2	6%
A little overwhelmed	7	20%
Neutral	26	74%
Too little	0	0%

Some of the practices used in the online course can also be used in the face-to-face class when the campus reopens. For example, with the face-to-face lecture back, the instructor could still set up a clear and fixed pattern for each week's module on Canvas. The online module would be a supplemental for the face-to-face lecture and help student to have a clear idea about what they are expected to do each week. The pre-recorded lecture videos and the microlectures can also be put on the Canvas. The instructor could publish a microlecture to introduce a question to intrigue students interest. Students could think about the question before the class and share their reflections in the class. After the class, the instructor could publish some short pre-recorded lecture videos to discuss the key points which student could use as references if they want to re-check these topics in the future.

Another practice that may benefit the course in the future face-to-face class is to build supporting instructor-to-student connections. The instructor is surprised that how the 10-15 minutes small talk with her student could help to build a "real" connection with her students. Students are willing to share their stories, future plans, and sometimes confusions with the instructor. All of these would help the instructor to understand students better, and then help students to achieve their career goals in better ways. On student's side, this kind of interaction with the instructor would make them feel engaged in the class and motivate them to learn. The option to have a small talk with students either face-to-face or online would benefit the teaching presence even when the face-to-face class is back in the future.

Conclusion

This paper introduces how an undergraduate level course in the aviation administration program in a state university is redesigned to be fully online. Practices used in the online course to help motivate and engage students are also presented and discussed in the paper. Many of the practices used in the online course, such as clear and fixed learning pattern, microlecture, short-length pre-recorded lecture videos, building supporting instructor-to-student connection, can be revised and used in the face-to-face course when the campus reopens in the future. Future research would be applying the practices that are talked about in this paper to face-to-face course and analyze to what extent this practice would benefit the course.

References

- [1] Befus, Madelaine K. "A thematic synthesis of Community of Inquiry research 2000 to 2014". 2016 Available from <http://hdl.handle.net/10791/190>.
- [2] Nilson, L. B., & Goodson, L. A. "*Online teaching at its best: Merging instructional design with teaching and learning research*". Jossey-Bass. 2018.
- [3] Nilson, L. "*Leading Effective Discussions*." Chapter in *Teaching at its Best: A Research-Based Resource for College Instructors*. 2003. Second Edition. Bolton, MA.
- [4] Boettcher, J. V., & Conrad, R.-M. "*The online teaching survival guide: Simple and practical pedagogical tips*" (2nd ed.). 2016. Jossey-Bass
- [5] Scagnoli, N. "*7 things you should know about microlectures*". 2012. Available from <https://library.educause.edu/resources/2012/11/7-things-you-should-know-about-microlectures>