

## 3.11

# Video Lab HyFlex: Practical Experiences of Courses with Practical Applications

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*Editor's note:* This case represents the COVID-19 pandemic-influenced HyFlex designs common at many institutions in 2020-2021. Some limitations on student flexibility were required due to public health concerns and university precautions. Yet, the faculty teaching the course found ways to support a substantial amount of flexibility while offering three distinct modes of participation weekly: in-person, online synchronous, and only asynchronous.

### Introduction

In the fall of 2020, as a result of COVID restrictions, most of the courses on the campus of a small 3200 student Liberal Arts school in the US northeast moved from full face-to-face to online or HyFlex. Limitations on class occupancy numbers to assure social distancing made full in-class attendance impossible. Online versions of some courses had existed for years at the university but in Fall 2020, all courses had to move from a traditional face-to-face modality. This was particularly challenging for lab-based courses and courses that trained students on the use of equipment. The Digital Communication department's core video production class exposes students to a survey of videography techniques, production theory, and multimedia recording equipment. This course is hands-on and would not normally be online, but the university required it to either be fully online or HyFlex. The fully online modality would not be viable since there could be no interaction with the physical video studio space, a significant portion of the curriculum, and so I chose to run the class in HyFlex. Students could opt for one of three modalities. Some students, a limited number, could opt for in-person only. Some students, but again a limited number, could opt for online only. Either of those modality choices required some specific need (health status, family issues, transportation limitations). Most of the students alternated class days synchronously online and in class. Therefore, the class had students in three modalities simultaneously.

IT support from the university was substantial. IT installed a Logitech Rally remote-controlled camera at the rear of the classroom. The remote easily allowed me to follow my movement around the class or focus the camera on specific demonstrations. The audio from the condenser mic picked up sound well throughout the classroom and, although sending sound to the speakers, especially when playing video files, required some care on Zoom, the online cohort's voices could be clearly heard. These HyFlex classrooms were equipped quickly during the month of August 2020 into September 2020. There was little time for testing before classes began, but IT was consistently available for support.

Having taught full asynchronous online courses for 10 years with the Virtual High School, online course development pedagogy was ingrained in me. Balancing that pedagogy, face-to-face pedagogy, and the active three modality classroom rooted in a HyFlex structure was new.

## **Lab-Based Communications Instruction**

The university's Digital Communications program has a series of video production classes all based in a hybrid lab/lecture format. Students learn a technique or technology and then are immediately exposed to that technique or technology through practical application during class activity. Exercises traditionally involved groups of students in rotation exploring the equipment individually and as part of a team led by the instructor or classroom coach. Demonstration and exercises allow for hands-on discovery of the equipment's function in a controlled environment with immediate access to instructor support. Equipment or technique demonstrations are done by the professor and a classroom coach using student volunteers. The course is also designed to teach video theory through practice. As a result, students work with equipment both during class, in a lab setting, and after class to become experienced with cameras, lighting, audio recording, editing, and studio production. The course is two hours and forty minutes long twice a week. Even with that much time per session, the course is fast-moving, introducing and practicing multiple skills in each session.

During the 2020-2021 school year, the two sections of this first-level course (COM 270) were filled by distinct groups. The fall semester included upperclassmen, primarily sophomores and juniors. The spring course was part of the university's first-year experience program and was the culminating class of the first-year Communications Department learning community. The students in that spring class were all freshmen, had been in three classes as a cohort during the Fall 2020 semester, and were taking their first lab-based communications course.

This HyFlex experience, occurring during the COVID pandemic, encountered some particular challenges that might not apply to a traditional HyFlex classroom, but the experience can shine a light on the specific difficulties and successes of HyFlex.

## **The HyFlex COM 270 Experience**

Normally, the university uses Microsoft Teams and Blackboard Collaborate for online synchronous classrooms. The Communications Department provided a Zoom account which permitted the instructor to log in to a class with multiple accounts.

Students attended the class in person in a computer lab. We were allowed a maximum of 10 students in my HyFlex classroom in accordance with campus COVID protocols. My course had 18 students in the fall and 15 in the spring semester. There were two face-to-face-only students in the fall and four in the spring. Face-to-face-only students were always in the classroom. There were three online-only students in the fall and none in the spring.

The institution provided a classroom coach, an upperclassman who had success previously in the course. The coach acted as a support for students in lab-based courses. The role of the coach attends the class, runs workshops, and provides advice about projects and technology. This coach is not a teaching assistant, but rather a peer support for the students.

HyFlex/Hybrid students attended class in a hybrid A/B schedule splitting the HyFlex students into two groups which alternated face-to-face with the face-to-face-only students. The HyFlex cohort of 13

was split into a 6 student and 7 student alternating group. Being conscious of diversity in gender, class, race, and ethnicity was critical for building an equitable classroom rotation.

The COVID policies at the university permitted students not only to choose their mode of learning but permitted shifts in that modality throughout the term. Students changing modes caused breaks in the continuity of course material and instructional experiences as they reoriented themselves to the new modality. This was most significant when a student moved from in-class to HyFlex or online only. A Positive COVID test or exposure to COVID forced temporary modality changes as well. COVID-exposed or students who tested positive for the virus were removed from class for two weeks or until they tested negative, yet they still participated in the class fully online.

All assignments were submitted through the institution's LMS. There were no physical submissions both because of COVID protocols and for consistency among the three learning modalities. This required freshmen in the first level course to quickly learn some of the complexities of the LMS.

## **HyFlex Pedagogy**

The capacity of the Zoom web-conferencing application for breakout room workspaces and the ability to record lectures made a premium Zoom account the best option for this class. (I later posted the pertinent technical demonstrations to the LMS.) Using two Zoom log-ins, I was able to monitor the class with one log-in as well as present as an instructor using the other. Sometimes my classroom coach took on this monitoring role. Experiencing the class on the second account helped me see the class from a student perspective and avoid "walking out of shot." One account was logged in using an iPad, and at least once through my cell phone. The iPad permitted mobility; I carried it around the room freeing me to participate in class as an instructor or demonstrate a skill while keeping the online students in view. The main Zoom meeting was projected onto a screen at the front of the room, but the Zoom camera could be switched between my laptop webcam and the Logi Rally camera at the rear of the room. I could conference with students in breakout rooms or one on one without using the classroom's camera and speakers. Switching to the laptop camera permitted a more personal connection while working with students.

The core ideas introduced and explained during the class could be presented through online lectures and video demonstrations, but the practical portion of the class was more difficult to translate to the virtual world. Live demonstrations in the classroom needed reformatting for the online setting in two fashions. Fully edited, pre-produced demos were played during class and posted on the LMS. Also, live in-class demos permitted the traditional interplay of questions and answers. I used a dual demonstrator model, one presenting in the wide shot from the classroom camera and the other in close-up showing detail on a second Zoom account. This ensured that the at-home portion of the class could have a full experience of the equipment.

Adjusting the class required continual innovation and the restructuring of class time, out-of-class assignments, and deadlines.

## **Challenges in the HyFlex COM 270 Class**

### **Access to Equipment**

One of the greatest challenges of this HyFlex environment is equipment rental for in-class hands-on workshops. Students in the online-only setting or in the HyFlex alternating sessions had difficulty

arranging rental of equipment to coincide with the class periods. The university equipment rentals were available during the week only. Normally, students can rent and return equipment any day of the week, which although flexible, still requires some planning on the part of students coming to a class with the equipment required. COVID restrictions altered the equipment room rental schedule. Students were required to have equipment for a 4-day rental from Tuesday to Friday. As a result, students in a Monday course had no access to equipment from the equipment room for class. Students in HyFlex and students in a Thursday class had to come on Tuesdays to get equipment even when they were not required to be there for their in-class session. Student placement in an A or B day HyFlex schedule impacted their ability to participate in the hands-on portions of a class period. Students who came without equipment did not have the full hands-on experience that is core to the course and did not acquire proficiency with equipment equal to their in-class counterparts. After a few weeks, I began to bring equipment from our departmental stock to use in class on Mondays so that all students fully encountered and could practice each technique or technology. Although a student could purchase equipment for themselves, it was not equitable to require that purchase. Low socioeconomic status students operated at a disadvantage in the classroom.

The COVID protocols restricted sharing equipment, requiring one device per student. All equipment had to be cleaned before being returned to the equipment room for distribution on Tuesdays. The cleaning task had to be completed by my classroom coach and me. The cleaning task was either completed during class time (removing us temporarily from the instructional role) or we spent additional time after class.

To alleviate some of the inequity with equipment access, I permitted the use of alternate video and audio recording devices including cell phones, Irig recording on cell phones, and some revision of assignments to remove the requirement of a lavalier mic. The use of cell phones was permitted for students who were online on any given day. Using the phone allowed the exploration of technique and theory even when equipment access was limited. The lesson could focus on skill development and application of theory without becoming lost in technical instruction. COM 270 has the responsibility to act as the training ground for equipment used throughout the remaining department communication courses. Instructing students on the use of the DSLR video equipment when students were fully online proved difficult and in some cases impossible, especially for students with special needs. This may have an impact on future video production classes in the department since these students may need additional training or retraining on equipment. Students will need these skills in required advanced courses, even if the core theory was understood in COM 270.

### **Access to Software and Computer Limitations**

The Communication Department curriculum works to provide students with exposure and training in a variety of production software. This is introduced in the core Video Production course. Normally, students would have to access the editing software either by purchasing it or using our department labs. As part of the accommodations made for COVID, students in the Video Production course were provided Adobe Creative Suite.

### ***Installing Software***

When on campus, students used the institution's media labs to access the video production software. Students in the HyFlex rotations or online only had to install the editing software on their home computer or laptop. Troubleshooting these installations proved difficult. The quality of the individual student laptops varied greatly. Several students had old computers or were using outdated operating

systems. Others had limited hard drive space. Some could not afford their own laptop. The lack of student computer fluency became apparent during these software installations; software function, software installation, and data storage.

Problems that normally would have been solved quickly in class required extra time during the class meeting for troubleshooting, breakout room troubleshooting; occasionally holding up class activities while the issue with online participants was resolved.

### ***Managing Student Computers***

Some students didn't know how to update their computer's operating system or even how hard drive space was allotted. (Managing hard drive space is crucial for video production since video files tend to be quite large.) The technical vocabulary associated with managing the computer system introduced a barrier to effective communication when troubleshooting. The normal student access to campus IT support was hampered by COVID protocols, increasing the need for instructors or classroom coaches to provide technical support.

University Information Technology and Resources (ITR) provided refurbished Mac laptops to a portion of the PC students to ease some of these issues. These loaner Macs provided an uncluttered laptop with adequate processing power and storage space to provide more equity in student access to the editing software. Students transitioning from Windows to the MAC OS struggled with the operating system change, adding an additional impediment to their learning.

One at-risk student reported that he had a laptop and was having difficulty installing the Adobe Creative Suite provided by the university. While the student was online, the specific issues of the install were difficult to clarify. In an individual help session (using Zoom), I discovered he was working on a Chromebook, which cannot run installed programs. There was no way for him to do the installation nor use the device as a laptop for the production class. His inability to describe the device he was using prevented the class from helping him, which disconnected him from others while online. Working with the ITR department, he was given a refurbished Mac laptop for the semester. The Chromebook's limitations set him back several weeks in the course. His cultural background made asking for help from the female classroom coach a challenge. The lack of clear, specific digital vocabulary, especially among the freshman in this introductory course made troubleshooting challenging. The in-person troubleshooting allowed for clear keystroke vocabulary clarification. The addition of new troubleshooting protocols had become critical in the lab class in HyFlex.

Students had to either purchase or rent specific interfaces for the equipment (card readers and batteries). Students coming to class often struggled with equipment compatibility. This is especially the case with freshman and sophomores at the beginning of their path toward digital proficiency. The online-only or students online for HyFlex would often be unable to transfer data from their camera to their laptop.

Individual Zoom sessions with the classroom coach or myself were another solution.

### ***Inconsistent Broadband Access***

The inconsistency in broadband bandwidth for students created some roadblocks. The limited student home bandwidth caused some struggles with downloading large files for editing projects, sharing their final product for class review, and downloading the editing software. The uploads and downloads, especially in tandem with the Zoom call, would either cause the download to slow or even

fail. Lost time from repeated download attempts stole valuable class time from students. For low socioeconomic status (SES) students or students in urban settings, bandwidth was a more significant issue, But even in the campus residences, depending on the time of day, internet access could be slow for the HyFlex students. This just meant that they often had to wait until their on-campus day to begin projects that required a substantial download. I worked to alter due dates for assignments to make the course grading equitable in the face of this technological struggle.

Download issues increased student frustration. Those slow downloads often resulted in damaged ZIP (compressed) files, which required another level of computer training for the students, especially the freshmen. Even when students were provided with links to the required video before the class session, several students would wait until an in-class day to download the content while on the campus network. They would often fall behind during class while waiting for the downloads. I offered lower resolution (smaller sized) files for the students as the semester progressed in order to ease the requirement for high bandwidth connection.

The class Zoom call was challenging for some of our low SES students. They were working from home with a slow connection or a shared family connection with limited bandwidth which disrupted their online status. This is a nationwide issue, not limited to this class or environment but has an impact on student understanding. Providing recordings of the class, or at least the instruction and demonstration portions of the class, gave those students a second chance to review material they missed when their connection failed or was constantly interrupted.

### **Studio Production**

The most difficult portion of the HyFlex course was in studio production training. Video Production in the face-to-face modality included training in multicam studio production using student rotations through the various studio roles. The exercise was to take a single camera pre-produced “instructional video” and replicate it in the studio environment. Each rotation had a student director who translated the script and shots from the editing final cut of the single-camera shoot to a live in-studio production. We only used three model students’ work and so the online cadre was able to see value for their eventual turn in the rotation by reflecting on their classmates’ choices. The repetition of the same three instructional activities assured that I could provide feedback that supported the next student’s project. COVID protocols for the video studio limited the in-class groups from exceeding the number of students needed for each role. The procedures of the normal studio rotations were disrupted when even one student was absent.

### ***Less Observational Learning Opportunity***

In a traditional classroom modality, a student in the studio, while not in rotation, would watch students in their assigned roles (camera, floor manager, talent, audio, etc.), gaining context for their eventual participation in the rotations (observational learning). Students online lost this learning opportunity because of the visual distance created by the classroom or laptop cameras and their limited control over their view of the activities in the studio. Online students could not look around and take in what was happening at each station. The limited student agency in controlling their view lessened awareness of the function of the equipment or the responsibilities of each studio role. They could not actively choose what they wanted to learn, and that lack of agency increased online student passivity in the studio lab session. When the online students arrived for their in-class day, they were often starting from scratch or at least with a deficient experience from the observed hands-on work of others, compared to in-class students.

To alleviate some of these issues, we set up multiple laptops to provide several views of the environment: one pointed at talent and cameras, one on the switcher team, one on camera control only. This gave the students the ability to switch views in Zoom to one of the preset webcam views in the studio. Although this did not replicate the intimacy and immediacy of the in-studio encounters, it did provide some agency. Asking online students to choose a role and note questions or observations added accountability and engaged the online cadre.

### ***Distracted Online Synchronous Students***

A student with their camera off could easily avoid engaging since the full in-class focus was on producing the in-studio segments. Those studio exercises required the complete attention of the in-class cohort, the instructor, and the classroom coach. On those days, online students were prone to disengage or take shortcuts in their classroom experience. Some students attended class while working at a retail counter, working out, or making a meal in the kitchen. The lack of physical engagement in the lab sessions made students feel some sections of class were less valuable and so would alter their focus away from lessons toward these other activities. The studio sessions made some students prefer the in-class experience and requested a change to face-to-face if only to help them stay motivated to learn.

### ***Engaging Online Synchronous Students***

I also tried to find roles for online students in the rotations. Online students could call directorial cues with only a little struggle with Zoom lag, but their ability to operate the studio cameras, manage the sound board, and act as Technical Director was compromised. With a laptop camera pointed at the switcher monitors, the online student could run the session. The classroom coach carried the laptop from rotation station to rotation station so the online director could explain shots and give instruction. The coach was able to support the online student and mentor them at each station. Once production started, we integrated the laptop into the headset system and the production could proceed with the floor manager, as usual, acting as the directorial voice in the studio.

Students in a hybrid alternating structure, no matter how successful our in-class work on an A or B group day, still gained only a portion of the intended real experience needed to develop video production skills.

### ***Unintended Positive Learning Outcomes***

One fascinating benefit of the three-modality option was that the in-class-only group became mentors to the rotating HyFlex groups because their expertise in the studio activity increased through repetition. In-class students modeled to the groups that arrived on either HyFlex day. One student, who struggled because of his lack of engagement when online had the support of another in-class student who both brought him up to speed and inspired him to do his best. These mentoring in-class students helped me spend more time with the online cadre, pointing out critical lessons from each in-studio session.

On one occasion our access in the classroom mic failed and we opened participation for the online learners through chat only while they worked on an editing project. The communication for those online learners *significantly increased* during the class period. Chat became a potent tool to get questions from the online cohort.

Students working online with limited bandwidth more often functioned well in student-to-student

interactions whereas high bandwidth access normally resulted in more interaction with instructor-based material. (Banerjee, 2020) Student behavior mimicked those results as students felt more comfortable using text to communicate when their connection at home could not handle the requirements of the course. Using chat to redirect students via private message was also successful.

Students who were either notably off task or seemingly disengaged with the camera off, were targets of private chat encouragement and check-ins. In a demonstration or lab setting when the instructor was engaged fully in an activity, chatting proved difficult. The classroom coach became a critical part of the solution, either taking on demonstration roles or dealing with the off-task reminders in private chat. Using the secondary Zoom account on the iPad or the classroom coach's account for private communication meant those private chats were not displayed on the screen in front of the classroom.

### **Collaborative Assignments**

Many assignments in Video Production require students to work in teams with a student responsible to act in a variety of roles focused on camera, sound, light, and talent grouping. Online students worked alone. One of the most significant adjustments I had to make was in relationship to the students online alone during small group equipment explorations. Recording boom mic tests or lavalier mic tests required a team structure: one student to operate the recorder, one to hold the boom, and one as talent. The students in the classroom were able to have classmates act as talent when performing camera motion projects and interview recordings. The students at home had to recruit family members into being their talent (video subjects). This functioned fine in a practical sense but often the cooperation and commitment of the home talent was minimal and as a result, online students' exploration of the skills was compromised.

### ***Adjustments for Online Students***

Supporting the online cohort required two adjustments. First, we made an effort to have online students participate in decision-making during the skill explorations through breakout rooms with these in-class teams. We also reproduced the same exercise on alternating days with the portion of the class that was hybrid. Monday would be the main day for the exploration and online students would participate without getting a hands-on opportunity and then on Wednesday the hybrid students who had been online on Monday formed a small practice group. Had there been no in-class only cadre and a balanced A and B group, alternating the lessons would have been a solution. Having an in-class-only cohort required this more flexible structure.

### **Three Types of Learning**

The students' capacity to choose from one of three modalities created a classroom cohort with a significantly larger number of modal experiences and even a more diverse individual student experience. Tracking the needs of individual students and the level of student understanding required significantly more formative assessment. A student who is not in class on any given day may miss subtle cues about lab work or may misunderstand instructions.

The physically disconnected nature of the online student resulted in a distancing from the muscle memory and material understanding of specific technology. Students who were all online struggled with even the simplest technology including Zoom recorders and Canon DLSR cameras set on automatic. Even with a classroom coach giving close-up views of the technological devices during lecture and demonstration, online-only or students who were online during a lecture day struggled with their technological skill development. I provide one-on-one opportunities during office hours to



support those online-only students as they explored the equipment.

### **Limited Access Devices**

One of the most significant issues with the HyFlex structure was the student's choice to access class using a cell phone. Lack of home internet access led some students to choose to use cell phones for access to the class. This severely limited their ability to see demonstrations and to participate effectively in class.

Students in the online synchronous setting were often barraged by distractions, especially if they were attending through their cell phones. Depending on the environment where they engaged in the online session, students also encountered distractions, pets, television, and family members in their "home classroom." In the multi-modal in-class setting, this placed the students at different levels of understanding, HyFlex/hybrid students at one place, in-class only students at another, and all online at another, which became more extreme as the weeks passed. Making a conscious effort to continually check in with the online students, either through call-outs or formative assessments, alleviated some of these challenges.

The remedy for most of these technological issues was being proactive as an instructor. My lectures were designed to reduce potential confusion as well as provide basic instruction. Anticipating questions was critical to building a comprehensive lecture. This assured that the language, the vocabulary of our work, and the specific technology we use were clear for all students as they attempted labs.

### **Providing Feedback**

The process of offering feedback in the classroom during the aesthetic component of the course had to alter substantially. The traditional technique for providing feedback to students in lab activities is for the instructor or coach to informally walk around the classroom to review work, provide suggestions, and catch errors early in a lab or exploration. This technique was not possible with the online students. Informal, mentoring style feedback for online students had to become more intentional. If a student online was off prompt during an exploration activity, they might not discover the error until deep into an assignment, requiring substantive revision and wasting time. This was discouraging to the students. In order to prevent early mistakes from being compounded when not corrected right away, I broke labs into smaller chunks to allow opportunities for questions earlier in the lab session. Individual lab chunks were graded which, in a pre-COVID traditional classroom, would have been in-class lab-based ungraded checkpoints.

A specific example of this was the use of the cell phone as a vertical recording device which hindered students in learning proper video framing. The online students might work for a while until the framing error was discovered. I could see the in-class student errors immediately. As the term progressed the role of formative assessment was reevaluated, I began to ask for test images or recordings via email to assure they were using their camera/phone correctly.

Students also worked in hybrid breakout rooms so that they could informally discuss concerns and questions with their peers or with the classroom coach or myself.

Students had to intentionally share their screen with me so that I could evaluate their learning and it was impossible to examine the physical interaction between the student and their technology and their interaction with their own laptop. I relied on student descriptions of their actions to

troubleshoot and advise them. I had to train my classroom coach in this alternate formative assessment pedagogical approach to feedback and mentoring.

To support the online and hybrid students, I instituted additional feedback opportunities.

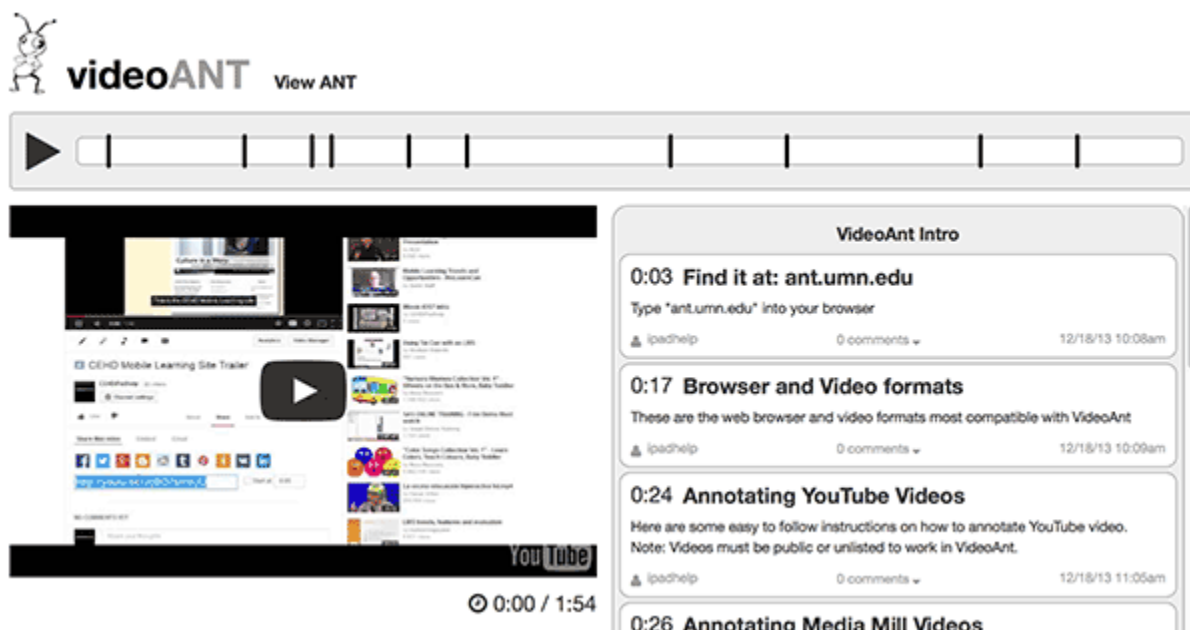
Students provided their peers' feedback in online blogs asynchronously. The blog comments functioned adequately for the students to revise their work. Creating clear prompts for their blog comments increased the efficacy of the peer review.

My classroom coach and I had to be proactive in demonstrating appropriate feedback. As we watched students work together during class, we shared our feedback and contextualized our comments in terms of the peer reviews. Some of the blog feedback became supportive or encouraging rather than focused on increasing the quality of the student's work. In a classroom with live feedback, the students' shallow critiques could be challenged by other students or the professor. Small group feedback in Zoom breakout rooms was successful but required monitoring. Breakout feedback sessions provided more immediate commentary but without the whole class exploration of feedback, the comments shared in those breakout rooms were inconsistent in their efficacy.

There were increased efforts throughout the terms to critique synchronously. This was done with an online form each student filled out during the class, permitting me to review the comments and share those comments with students in real-time and also provide feedback on the quality of the peer review with the entire class.

I used VideoAnt (<https://ant.umn.edu/>) to provide feedback locked to time code on the videos. Students uploaded their video work to a class YouTube account and then I shared the feedback using the VideoAnt system, which permits text feedback to be attached to markers placed in the video. While the student watches their video, the feedback is highlighted on the right side of the screen. (See Figure 1.)

Figure 1. VideoAnt Interface



To create a more personal feedback relationship, I also recorded video Screencast-o-matic (<https://screencast-o-matic.com/>) recordings of my feedback as I watched their videos. The oral versions screen recorded, permitted me to demonstrate proper feedback behaviors and was more conversational, supporting the building of relationships with the students. Coupling the screen recorded feedback with the VideoAnt feedback successfully increased the quality of student work, although the development of feedback and skills in students was more limited than in a traditional face-to-face classroom.

## **Conclusion**

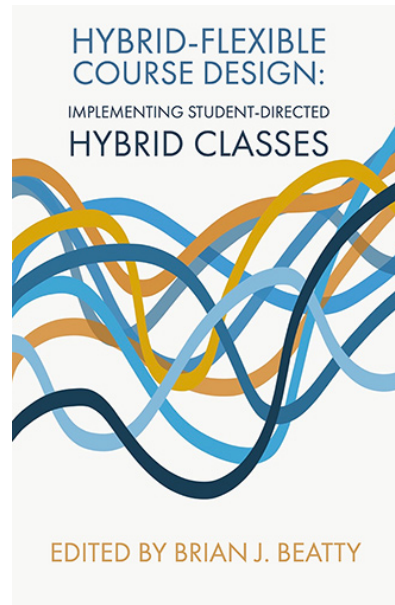
Lab-based or exploration-based classes where students are learning skills and technologies have unique challenges in HyFlex. These challenges can be exacerbated by environmental factors like bandwidth, student access to technology and support, health protocols, and video conferencing applications. Shifting a traditionally in-person experiential course to HyFlex required significant adjustment in student engagement and mentoring. The normal informal, instructional encounters must be made more intentional, and significant care should be taken in providing feedback in multiple modalities.

Creating a classroom community where each student was accountable for every other student's experience helped students overcome the potential isolation the HyFlex switching caused. Student accountability and student engagement must be handled with consistency and care to assure the class understands the purpose of activities and the value of full engagement.

HyFlex in a lab-based entry-level video course provided us a new perspective on the underlying challenges of the multimodal classroom while providing an opportunity to evaluate traditional pedagogy and traditional classroom expectations and re-imagine the course in practice.

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