

Designing Entertaining and Memorable Instructional Videos

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View the Summit presentation at:

<https://www.youtube.com/watch?v=GWxZICg5QnU>

Abstract

The COVID pandemic was a catalyst to accelerate the shift to an increasingly online world, and the move to distance education provided an opportunity to develop video production and remote teaching skills. A paradigm shift is underway in the entertainment and education industries and we will probably continue to interact more over the network even after restrictions are lifted.

This presentation reports on a project to prepare videos for a music industry survey class in which tools from the entertainment industry were combined with self-regulated learning techniques. The goal was to get and maintain students' attention and to increase their understanding and retention of the information presented. This was done by making the videos more engaging sonically and visually, and by introducing and practicing study skills to help them become more aware of the learning process. Since this is a general education course and the majority of students are not music industry majors, it was felt that helping students becoming effective learners would be worthwhile and help develop a transferable skill for the future success of all students in a world of accelerating change.

A workflow for the video production process is presented, including the preparation of lectures, suggested equipment, configuration and setup of OBS Studio, transitions, variety of shots, sound effects, post-production editing, and file compression. It is important that this process be streamlined, since the longer it takes, the less likely professors are to have the time to do it in addition to everything else that they have to accomplish.

Our students are bombarded with an endless stream of short videos with a wide range of styles and content, and it may be fair to assume that they are not always eager to sit

through our presentations. In order to get and maintain their attention we must try extra hard to make them irresistible. Applying techniques from the entertainment industry can help make content more engaging, but it is not enough just to get students to watch if we want to achieve our course objectives. To have any lasting impact we want students to process key pieces of information and store it in memory in a way that will allow it to be recalled and applied in the future. Examples of videos made for this project are demonstrated in which a variety of learning techniques are applied, such as mind maps, knowledge surveys, confidence estimates, time projections, and memory recall. Going through the process will help students remember the information presented on copyright and publishing, but more importantly, learning about how to learn and retain information while studying these topics is likely to be of more value in the long run.

Keywords: distance education, learning, video production, attention, memory, Linda Nilson

Introduction

The move to distance education during the pandemic has provided an opportunity to develop video production and remote teaching skills. COVID has been a catalyst to accelerate the shift to an increasingly online world. A paradigm shift is underway in the entertainment and education industries and we will probably continue to interact more over the network even after restrictions are lifted. I decided to spend part of the year developing video production skills to use in online teaching and conferencing.

We have always wanted to engage students and help them to achieve course outcomes. We are now operating in an attention economy. In a world of continually shortening attention spans, our student customers are awash in a sea of content and messaging, and we may assume that many do not want to watch our video lectures. We must try as

hard as possible to make our content enjoyable and irresistible. They probably will never be as entertaining and fun to watch as social media, but on the other hand it can be more substantial and satisfying in the long term. Students will watch them if they are interesting and help them learn and achieve their goals.

There is little point in putting more effort into making better videos if students don't retain the information after watching them. The other side of this project was to incorporate pedagogical techniques to get students' attention, and to introduce learning techniques that students can use on their own in the future. Developing transferable skills and character strengths is something of value for the ninety-five percent of the students in the class who are not majors and are taking the class for general elective credit. The videos make the addressing of meta learning explicit, especially when we arrive at points in the course where information is presented that has been observed previously in lecture to be hard to grasp and retain, such as the bundle of rights covered by copyright, and publishing income streams.

Pedagogical Techniques

I applied many pedagogical suggestions gleaned from books by Linda Nilson. Before starting a new chapter, I conduct a "knowledge survey" and ask students what they already know about the content. This helps alert them to what is going to be important and get their subconscious preparing for it. Along the way we stop and they answer questions to apply new information or make lists of new facts. Nilson suggests asking students to make a "confidence estimate" where they rate how sure they are of their answers on a ten-point skill. We are all at risk of imagining that we know more about a subject than we really do, which reduces our disposition towards considering new information. As we discover during the presentation that follows what the real answers are to questions, and then review how sure we were of our previous answers, we may become humbled and more willing to consider what the presenter has to say. Blocks and entire lessons conclude with a "memory recall" where students answer more specific versions of the knowledge survey questions and summarize what they have learned. Nilson says that pulling information out of memory is a more efficient way to study than to review one's notes.

Outlines are provided in the form of mind maps, which Nilson says are more digestible since they are presented in graphical form.

Along the way, students are instructed to pause the presentation and apply what they have learned by making a start on homework assignments. Reference is made to material on Canvas where steps for assignments are broken down and models are presented of what finished assignments might look like (Figure 1).

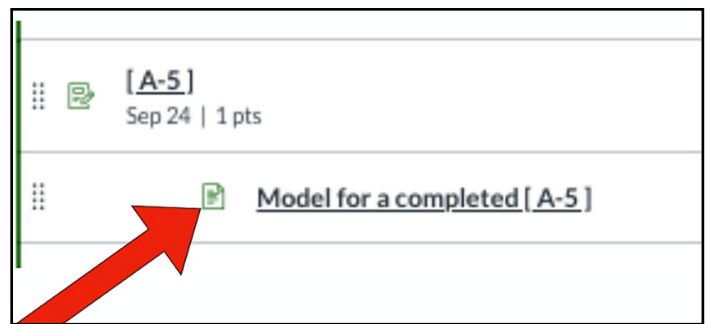


Figure 1. Linking to Canvas documents helps get students to take advantage of what's there.

The disadvantage for the teacher is that the appearance of the site may change between semesters and make it confusing for the student if you don't isolate these pointers from lecture content on topics that won't change as quickly, and that you don't want to have to redo each semester.

Students are incentivized to watch and pay attention to the videos if they see that it saves them time doing their assignments, which increases the value of the time and energy invested by the teacher in producing them.

Getting and Holding Attention

Conventional lengthy PowerPoint presentations no longer dazzle audiences and are not going to hold students' attention or inspire them to make the effort to absorb, remember, and apply information. Most recently the same dip in effectiveness of technology can be noticed in online meetings. While Zoom meetings were initially novel, the excitement quickly wore off, and engaging students in online lectures is a challenge, especially when they have an option of opening another window on their system and checking their email or social media. We need to be brief if we want to compete with TikTok and Instagram. Instead of complaining about students losing the power of concentration we can capitalize on their innate desire to get new information that could improve their lives or help them better understand the world. One advantage we have is that by making some effort to produce content, we can make our presentations more visually and sonically interesting than what students see when watching videos made by someone talking to their phone.

There are many techniques that we can apply from the entertainment industry, beginning with acting more like a performer: modulating our voices, gesticulating, incorporating humor and "bits". Music is a natural element to add in music business courses, and sound effects can be obtained from [freesound.org](https://www.freesound.org). Feedback was solicited from students, leading to a number of improvements, such as playing recorded audio at a lower volume level so it wasn't so startling compared with the speaker's voice. They also reported enjoying the changing backgrounds and visual variety.

I settled on a color palette and used yellow backgrounds

for knowledge surveys, salmon for memory recall, and blue for answers and review. I made a collection of small images that I used to indicate that students should stop to perform a knowledge survey (a diagram of an activated brain), answer questions (a highway worker with a “Stop!” sign), pull things from memory (Dumbledore pulling a thread out of his brain with his wand). Each of these elements had a corresponding sound effect (a “boing” to stop, a mysterious sound to retrieve a memory).

I used three types of shots: a close-up of just me talking, a midrange one with me overlapping the Keynote presentation (which I use on my Apple computer instead of PowerPoint), and a wide shot of just the presentation with no speaker. Shots were alternated every few minutes with crossfades between them.

Knowing that students are going to watch lectures on their phones makes it even more vital to be engaging, since we exist side-by-side all their favorite distractions. Delivery was designed for cell phones, and close-ups were favored in order to reveal facial expressions. Large fonts and few words were put on the presentation slides to improve readability on small screens.

Many students are getting used to fifteen-second chunks of TikTok videos. While we may resist reducing our teaching to sound bites, we can still divide them into segments, with each followed by questions to answer in a form or an activity to perform. I teach my students to include a call to action in their social media. I have taken to following my

own advice and giving viewers instructions of what they should do, while maintaining an intimate, conversational style.

Nilson asks students to make “time estimates” of how long they think it will take to complete an assignment and then to check how long it ends up taking. This encourages clearing the desk (or better, the room) of distractions to help become more efficient and accurate in planning and managing time.

I asked students to fill out a Google form about what they thought of the videos. Responses are automatically added to a spreadsheet (Figure 2). Their comments increased my confidence that I was taking the right approach.

Viewing stats can be checked to see what percentage of the students are watching the lecture videos (about 20%). I ask students whether videos are too long or not (no one said they are too short. In the self-reflection assignment at the end of the semester I asked which learning techniques they found most helpful. Responses include:

This class made me do and learn in ways that other classes have not ever before. A lot of the assignments in this class were connected, by using our memory or referring back to other chapters, and this made information stick in your mind more. The learning techniques were very thorough.

Timestamp	Which video are you	What did you find most interesting? What techniques are helping your learning process the most?	How do you feel about the length?	Any other comments or suggestions?
2/12/2021 12:2	Week 4 - branding	Walking through the steps of how to do the assignments	too long	The background noises to me were a little to loud.
2/16/2021 23:2	Week 4 - branding	I like that the PowerPoint was engaging with the different colors and picture examples.	about right	N/A
3/2/2021 23:45	Week 6 - copyright	I find that the length and sound effects make it easy to pay attention. The graphics are also useful.	about right	N/A
3/9/2021 15:02	Week 7 - publishing	Knowing more about publishing and how it really works	about right	None
3/9/2021 15:48	Week 2 - overview	I found it interesting that you added some humor to keep me engaged. Some techniques that are helping me is that you explain things every well.	about right	I think the videos are great!
3/16/2021 14:1	Week 8 - sampling	the interesting part was how common sampling was and how free you were to do it in comparison to today.	too long	
3/16/2021 17:3	Week 8 - sampling	the different samples	too long	more clarification I got lost because it was too long
4/6/2021 22:45	Week 7 - publishing	Online learning has been hard this year, but being able to watch lectures is very helpful in understanding the topics	about right	I like the green screen

Figure 2. Students are surveyed via a Google form to learn their reactions to the videos.

I have noticed I started doing some of the techniques now. The main one is seeing how long it will take you to complete. It hit me last week that I was doing it without even knowing. I started timing myself at work with some of the duties I do on a consistent basis to see if I could do them faster and better.

Setup

One of my goals this year was to create a small production studio for conferencing and recording lectures. I put up a green screen behind me and set up a couple of LED panels to provide even lighting. I got a ring light to put around my webcam, which was mounted on a tripod to make it easier to adjust the height. I used a lavalier microphone to get a clearer sound, which became the hardest thing to get used to. I invariably forgot it was clipped on my shirt and would walk away while still connected. Once it rubbed against my beard creating many weird sounds throughout the lecture. Another time my camera rotated slightly and picked up some of the background beyond the edge of my green screen, which then was projected over the Keynote slides. I was tempted to accept poor results due to technical problems, but in the end I accepted that I would have to redo them in order to follow the precept, “Do the right thing” since I knew I could do better and that it would improve the students’ experience.

The importance of doing sound and video checks and playing back the recordings was gradually learned after many failures of recording an entire lecture only to discover that the microphone input was not mixed properly with playback from the computer. It was also important to be periodically checking what my software, [OBS Studio](#), was recording as I lectured. I made checklists of how everything was configured since I only worked on video production once a week and would forget all the steps (and got tired of having to figure it out anew each time). It got easier and I became more efficient over time.

The hub of the system is the free software OBS Studio, which can be used to record and to stream. So far I have only used it to record, but in the future I plan on applying what I’ve learned to presenting live. One of OBS’s most powerful features is its ability to set up a variety of scenes with different combinations of windows and framings (Figure 3).

Once scenes have been created, hotkeys can be assigned to switch between them using keys on the computer rather than clicking with a mouse (Figure 4). I keep one hand on the number pad and the other on my mouse as I lecture so that I can switch between close-ups of me talking, to shots of me off to the side while overlapping the presentation, to the presentation occupying the entire screen. The software offers a choice of effects as the system transitions from one

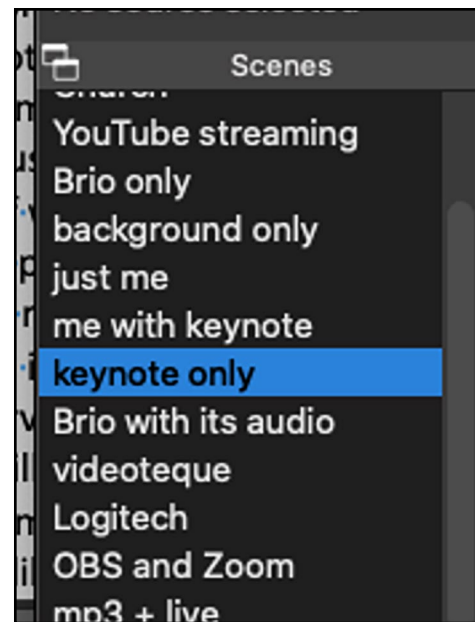


Figure 3. The scenes I have created for a variety of purposes. They are easy to setup and edit when your needs change.

scene to another (swipe, slide, stinger, fade to color, and luma wipe); the time it takes to make the effect change is also adjustable. The other hand operates the changing of slides in Keynote. If your computer is powerful enough (mine is not) you can use two monitors without encountering lagging—one for the presentation and the other for OBS. Use the lowest resolution that you actually need in order to reduce processor load. One reason that I went to a lavalier microphone was that my computer fan would kick on when the computer worked too hard. Since I couldn’t use two monitors, I made a small window for the presentation and another for OBS so that I could make sure I was staying in the frame (Figure 5).

I needed an audio interface for the lavalier microphone. To input from both it and computer audio on an Apple computer, I created a multi-output device in Audio MIDI setup and chose multi-output device as the output sound source in the sound preferences panel after downloading a free plugin called iShowU (Figure 6).

OBS’s advanced audio properties lets you have a single microphone come out of both speakers (Figure 7).

Workflow

Time is of the essence and we already have many demands on it. Part of the project was to develop a workflow that I could use to produce videos efficiently—otherwise I knew that I wouldn’t continue to consistently create them. Taking heed of Parkinson’s Law (that work expands to fill allotted time) I decided to allow a maximum time limit of two hours per week to script, record, upload, and integrate the content, and as I became more experienced gradually reduced that towards one hour.

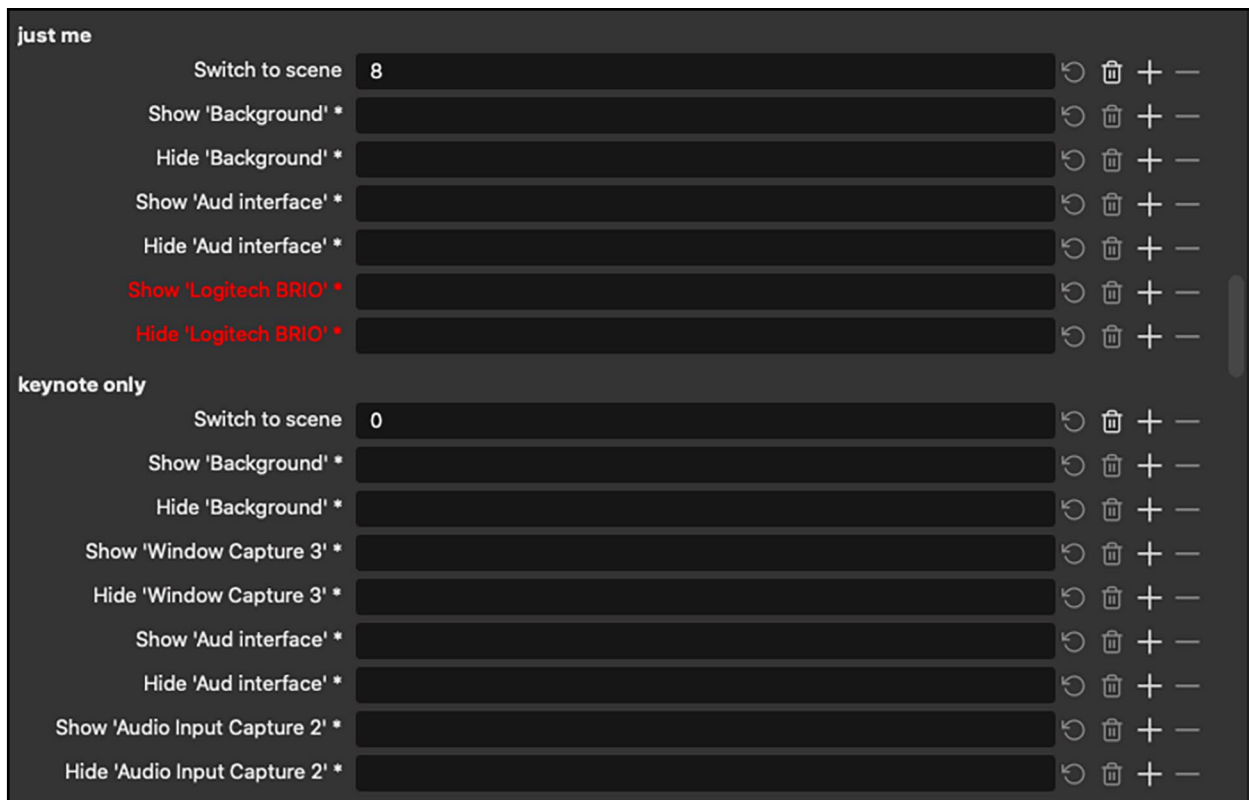


Figure 4. Setting up hotkeys. If I type on the “8” key it switches to a full screen of me talking; If I type a “0” the scene will switch to the presentation alone.

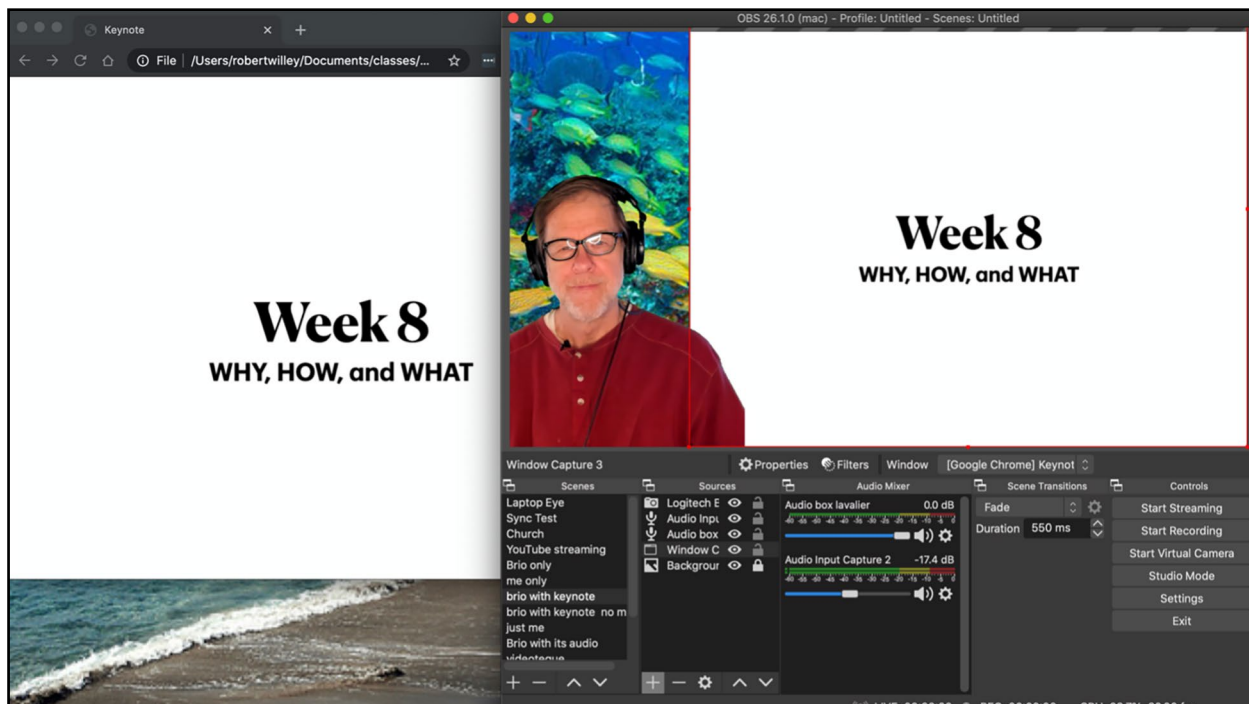


Figure 5. Keynote open in a browser window on the left, OBS on the right. I forgot to take my headphones off when recording this.

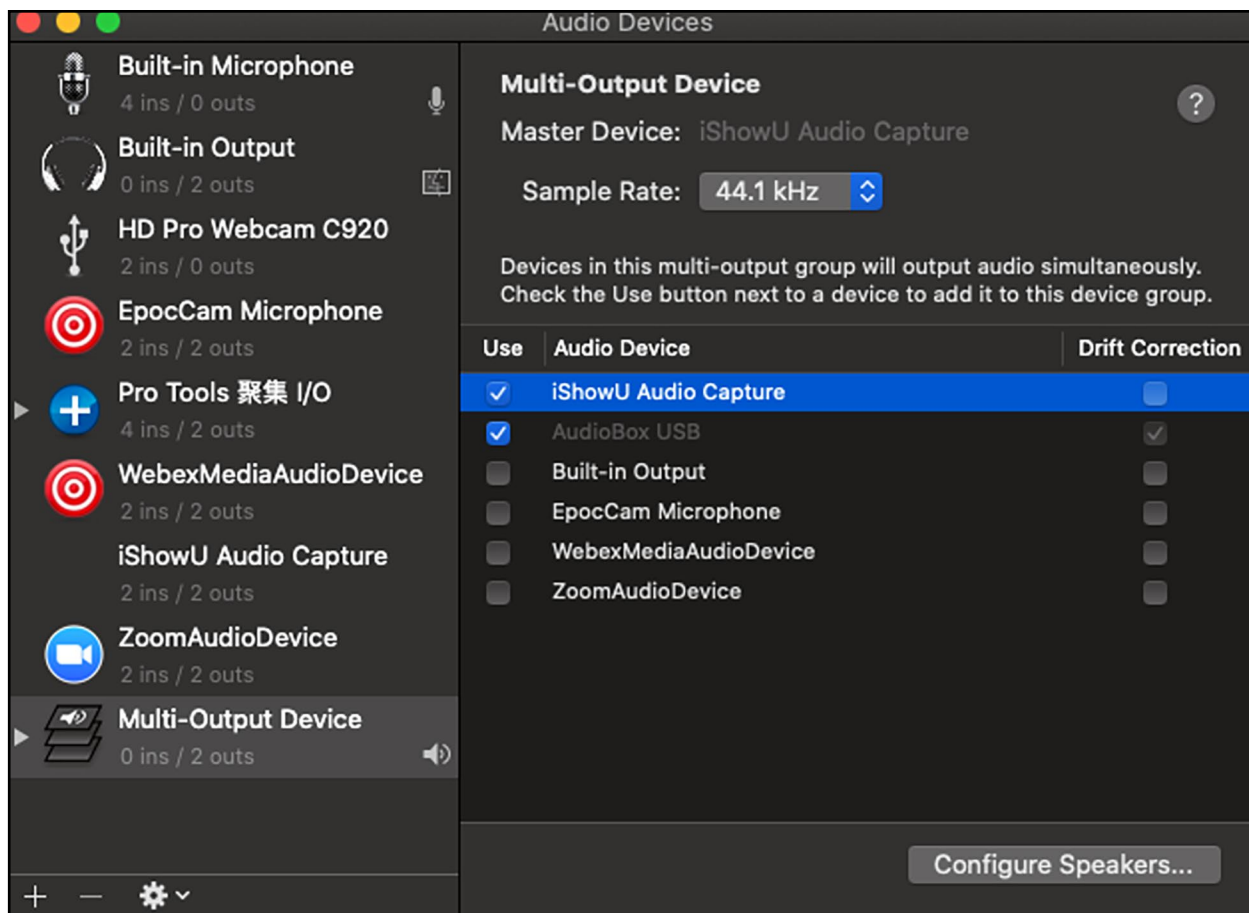


Figure 6. Audio MIDI setup.

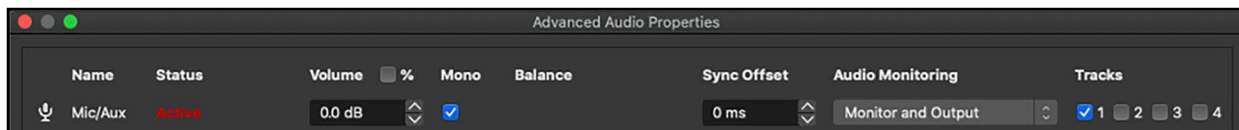


Figure 7. The mic has been set to mono. I can monitor it in my headphones while it is also being output to the recording.

The first thing I did was divide each week's content into a series of short videos rather than make one long one. Students prefer this since they can jump to the part they are most interested in and are less likely to get bored and quit watching. I made a short, casual video of what we were doing each week and why, and then made one or more intensely-produced ten- to fifteen-minute videos of the core content that I wanted them to focus on. I embedded signs of what we were going to cover, how it was going to help achieve course outcomes, and periodically where we were along the way. I hope that I will be able to reuse the content-heavy material in the future by keeping it independent of the semester's schedule and current assignments.

The next thing I did was to write concise presenter notes into the Keynote presentation to remind myself what I wanted to say for each slide. Unfortunately, the program does not let you display these while sharing the screen with OBS, but

it was still helpful to quickly review these prompts before recording in order to load them into short term memory. I found that by spending time organizing the presentation before starting the recording, there were fewer times I had to stop and repeat sections or edit them afterwards.

The main thing was to capture the presentation in as finished a form as possible in OBS so that once I was finished recording it wouldn't take a long time to post the material for students. I used the program [Camtasia](#) to edit the videos when necessary, and took the opportunity to adjust the volume level there if necessary so that it didn't play softer or louder than other videos students may be watching. Camtasia also has tools to create crossfades, wipes, zooms, and captions in case I wanted to tighten up the videos or if I thought of something vital that I hadn't said during the recording.

Once the videos were exported from Camtasia as local

.mp4 files, I compressed them with [HandBrake](#) (Figure 8) in order to reduce the size of the files, using a preset for videos optimized for YouTube with a resolution of 720p rather than 1020p, since my content isn't designed for 4K displays nor requires smooth motion. This reduces the time required to upload unnecessarily large video files to Mediasite (my institution's Canvas video host).

The final steps are to make sure that the uploaded videos are published and available for students to watch, and then to integrate the material into Canvas. It's important to frame it to be appealing, to make it clear what the video covers, why it is there, and what the benefits will be from watching it. If this is not done, the time and effort of making the videos are wasted, and students miss the opportunity to benefit from them. On a few occasions I didn't publish something or didn't make the link on Canvas viewable to students, and was dismayed to discover that students rarely let me know there was a problem, even though I referred to new videos in the weekly announcements.

Future Directions

I expect that with practice I will become better at streamlining the content in order to hold students' attention, leading them to develop a habit of watching it each week.

I will become more efficient the more I do it, making it easier to use the system whenever it seems like it would

benefit the course.

I have a teleprompter attachment for my tripod that projects the reflection of an iPad screen on a piece of glass that the camera shoots through. I may experiment in the future with writing out scripts for some pieces (like the teaser overview video for the class) that will then be auto-scrolled as I read in order to make the narration flow as smoothly as possible.

I want to intersperse active learning segments in my online teaching the same way I break up lectures in the classroom. The focus for the next round of development for this project will be to figure out a way to solicit answers from students during pauses in the video rather than trusting that they will stop and write things down in their notebooks.

Finally, I am also planning to create a video performance space at home, the way that I now have a setup for narration. Many of the same techniques and workflows discussed in this report will be useful in that environment.

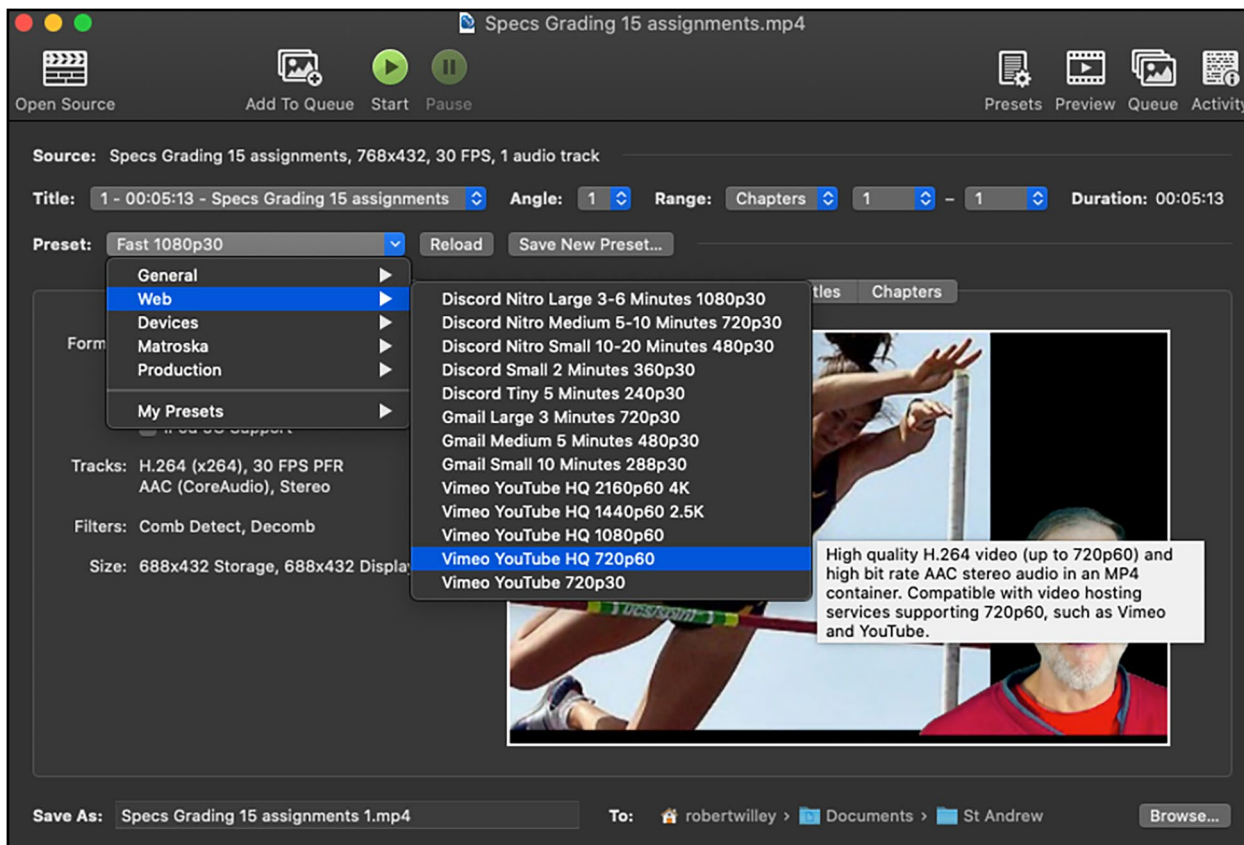


Figure 8. HandBrake is a free program used to compress files.

Resources

Video of 2021 MEIEA Summit presentation: <https://youtu.be/GWxZICg5QnU>.

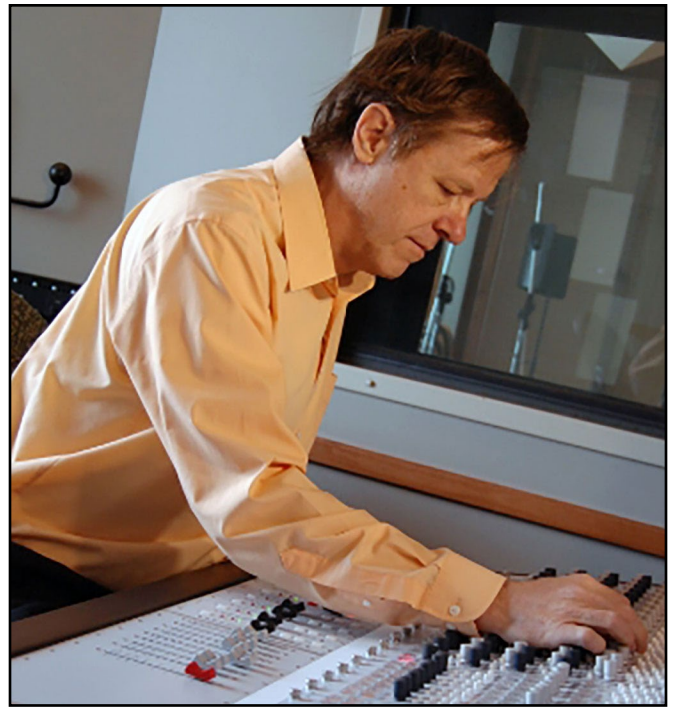
Panel discussion during the 2021 MEIEA Summit: https://youtu.be/OqoMyGB_bbs?t=1818.

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