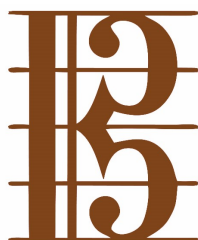## Excerpt: pre-print
companion articles

Exploring Possibilities in a New Virtual Landscape

Gabriel Lee

The Brave New Normal of Online Teaching
From Makeshift to Makeover

Andrew Filmer

The Brave New Normal of Online Teaching
From Makeshift to Makeover

Dr Andrew Filmer

Senior Lecturer, Sunway University

Introduction

Earlier this year, I wrote an article calling the challenge of online teaching the 'brave new world' of education. In many ways it continues to be both challenge and opportunity, but as with any adventure, there comes a point when the trek takes a toll even on the most intrepid.

It's worth understanding how this is unfolding, and studies are narrowing down why. A *National Geographic* article on the subject notes that the deficit of non-verbal cues is a contributing cause,[1] while in contrast, an article in *The New Yorker* notes that there's "non-verbal overload" with the impression of faces on screens being too close, and seemingly staring at you all the time.[2] Libby Sander and Oliver Bauman note that there is the additional emphasis on self-monitoring one's appearance.[3] Video conferencing leader Zoom seems to realise this, with the newest update allowing the option of turning off self-monitoring. Teaching music brings additional challenges, with visual and audio demands being crucial to effective pedagogy both from the teacher's side as well as the student's.

That being said, online teaching continues to provide new opportunities, and ironically it has been when travel has been impossible that I have collaborated more than ever with Singaporean violinist Gabriel Lee, the author of the companion article.

For those of us who are still teaching online, this article addresses how the brave new world is becoming the brave new normal. This article provides suggestions of advancements in both technological options as well as pedagogical ones, with the hope that it may alleviate some negative side effects. On a pedagogical viewpoint, this article's main thrust is that online teaching should not be seen as a version of face-to-face teaching; consider taking it on board as an entirely independent genre of education. In doing so, one may find that online teaching is not just a stop-gap measure, but an avenue to diversify an educator's toolbox.

Part 1: Technology

Hardware

1. <u>Specialised laptop stands: and risks of regular music stands</u>

Among the casualties of online teaching are the bumps and bruises some of our equipment has faced as we try to find the right angle to place a computer, tablet, or microphone. Ironically, the more expensive music stands – like my favourite, the Manhasset – pose risks for placing computers and microphones, because of the flexible shelves. They were created for easy movement, a goal at odds with the stability we need for holding costly equipment.

The less flexible the stand, the more secure it tends to be for our makeshift purpose – one of my most reliable options is a low-end Hercules orchestra stand that has a shelf designed to be fastened in place with a wrench and not adjusted, presumably to aid in stacking, as well as simply to save in manufacturing costs. For longer term use, there are specialised stands for holding laptops, with various safety features, and even (lockable) wheels, as shown in the illustration below.


A dedicated laptop stand, including safety features in case the screws fail, an attached tray for the mouse, and raised borders around the laptop platform

1. Julia Sklar, "'Zoom fatigue' is taxing the brain. Here's why that happens." https://www.nationalgeographic.com/science/2020/04/coronavirus-zoom-fatigue-is-taxing-the-brain-here-is-why-that-happens/ (accessed 23 September 2020)
2. Anna Russell "Zoom Fatigue and New Ways to Party", https://www.newyorker.com/culture/culture-desk/zoom-fatigue-and-the-new-ways-to-party (accessed 23 September 2020)
3. Libby Sander and Oliver Bauman, "Zoom fatigue is real – here's why your video calls are so draining", https://ideas.ted.com/zoom-fatigue-is-real-heres-why-video-calls-are-so-draining/ (accessed 23 September 2020)

2. Microphone stands

Similarly, a lightweight microphone stand may seem attractive at first, but it may not be particularly helpful if the weight of the microphone threatens to tip it over, and so one has to be careful in determining the placement of the arm. One might consider instead a microphone table desk mount that helps to minimise taps on the table while clearing up some desktop space and providing some flexibility in moving the microphone without dropping it, as seen in the next illustration.
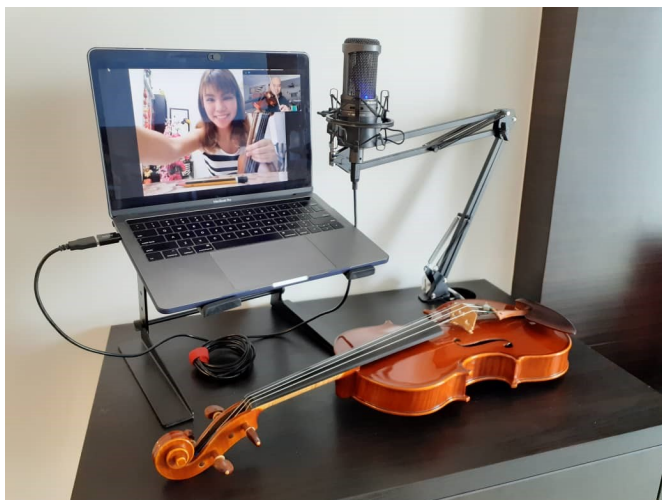
Setup with a table desk mount, with the computer on a laptop stand for a better camera angle

3. USB microphones: design and function

This brings us to a key element of online teaching: microphones. The unusual pitfall of making this investment is that in most cases we as teachers do not feel the benefits directly: it is the student who receives better audio, and thus a better education, and even this depends much on whether the student's speakers allow for the distinction.

Regardless, a decent microphone at least assures us that what we send to the student in examples and directions is as reliable as the technology will allow, and when we get to asynchronous teaching, it is particularly likely that the benefits will be evident. Podcastage has an excellent review of options,[4] and a valuable part of the approach is how it goes beyond audio quality, and into some practical aspects of design.

Too many reviews brush past these practical considerations. As an example, I own two condenser microphones: the Audio Technica AT2020 and the Rode NT-USB Mini, both with comparable audio quality. Where they diverge significantly is design: AT2020 is quite portable, moving quite swiftly from mini tripod to microphone stand, and with a pouch for travel. The Rode is significantly less versatile in this regard, but has two distinct benefits: an in-built pop filter, and a magnetic base that clamps securely to a metal surface. One should also consider different types of microphones: at times I prefer to use my Rode Lavalier microphone when only speech is involved, and when an instrument is not necessary.

## 4. Advanced options: cameras, lighting, and room treatment

Having made an investment in a microphone, what happens when the output does not seem to square with an online review? A usual issue is that reviews tend to be in intentionally sterile conditions, while our home environments have soundwaves bouncing across walls, floors, and low ceilings that may be useful for bowed stringed instruments but less so for sound recording. It takes some effort to have effective room treatment; some go with makeshift options like egg crates, with limited capabilities when put next to rockwool or Owens Corning insulation. I have found that if one is seated, a source of extraneous sound is bumping the table, and some padding here is useful. Additionally, microphone placement can make a difference, especially if the sound of a computer fan is audible.

Bottom line: keep experimenting, and monitoring the sound, whether live with headphones connected directly to microphones, or at least through recordings. Having addressed audio concerns, let us now talk about lighting. Much of our room lighting tends to be downwards, casting shadows over our faces. Some over-compensate with ring lighting, with side effects of seeing the light in reflections for those wearing spectacles, or in not considering light temperature.

Diffusion of light, variable intensity, and ease of adding filters are to be considered when obtaining hardware – not to mention portability. One might try searching for camera/videography lighting, with these search terms: LED panels, portrait, studio, and key lights.

Finally: the camera. Many of us have options for camera upgrades already in hand: the one on your phone is likely superior to the one on your laptop, but you will need software like ManyCam to connect it wirelessly. There is of course the option of upgrading to a webcam camera instead, that has the benefit of fitting neatly on one's computer, and connecting via USB. A Full HD Logitech camera has been my most recent upgrade, and it has had a surprisingly significant impact. With reference to Zoom fatigue mentioned at the start of this discussion: part of effective online teaching is self-monitoring, to see if what you are presenting to a student is effective. Hours and hours looking at a sub-optimal resolution image of yourself takes a toll in a way we may not realise.

---

4. Podcastage, "Rode NT-USB Mini Review / Test (Compared to Rode NT-USB, Blue Yeti, and More)", https://youtu.be/T5x2mdVYvSE (accessed 30 September 2020)
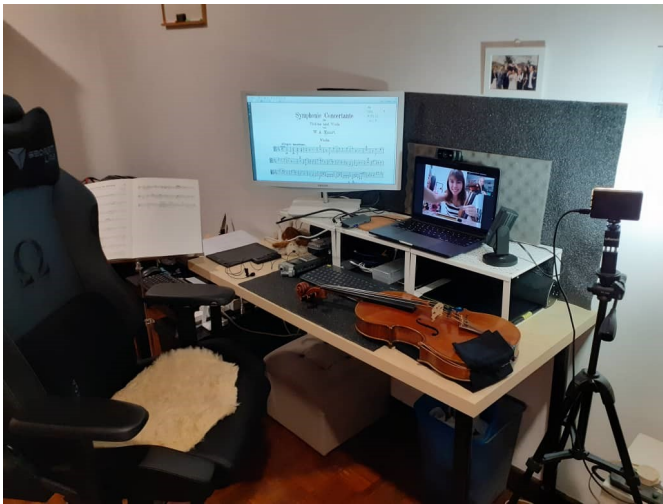
An advanced setup, with lighting, a Full HD camera (mounted on the laptop), and a Rode NT Mini USB firmly in position with its magnetic base.

Software

The topic of software is one that will continually develop. At this point in time, consider the picture-in-picture feature: if screen share is a part of your teaching, it is worth exploring ways to make this more engaging. Two programmes allow for this: OBS (short for Open Broadcaster Software) and ManyCam. They allow for adjusting the size and placement of videos/ images. It is not straightforward though: OBS is free but complex, there is limited functionality for ManyCam's free version, and complicated work-arounds for system sound for Macs (using another programme called Soundflower). Nonetheless, it can be quite a useful pedagogical tool.

Part 2: Pedagogy

In this section, we will look at redesigning our teaching. The primary premise is this: teaching online suffers if we only try to replicate regular face-to-face teaching. The brave new normal invites us to take courage in trying new strategies, and reinventing the lesson.

1. It is time for us to reconsider lessons as always being live

The hardest transition may be moving into the use of recordings, either as supplementary, or as a component of the educational process. Even with ethernet connections, Full HD cameras and high-grade microphones, the quality of the output remains dependent on factors like compression, and the student's internet connection. The best quality of video and audio will be through pre-recorded videos, that will allow the teacher to have the best chance to hear a student's playing and vice versa. This is not to say that we should do away with live teaching; rather, that it can be augmented with recordings. To add on to Lee's recommendations on recordings, here are some options and observations:

- Have the student submit a short video in advance of the lessons for use in audio confirmation. For aspects where you might not hear (or see) as well in the live session, like dynamics or intonation, this could be useful.

- Use the video and record a commentary, whether in pausing the video to speak or to demonstrate, or lower the volume of the student's submission and add in a voice-over. More ambitious teachers can even try adding subtitles, as seen in the following illustration.

Bow changes
One smooth arc, not four separated angles

Example of using voice-over and subtitles over the student's video.

The harder question is from where we find the extra time to produce these videos: does it come from one's regular lesson time? That becomes an issue for discussion amongst teachers, students, and parents, and it also depends on the quality of the videos from the teacher and the impact on a particular student. It is possible that this approach works better for more advanced students, to aid in accurately assessing the quality of sound when all lessons are online.

2. Recording in live teaching sessions

While recording has its benefits between lessons, it has benefits within live lessons as well. However, it is not as straightforward as recording an entire lesson and hoping that the student will review it. Lee mentioned recap videos, and one can initiate some role playing in these: switch roles with the student for 2-3 minutes, demonstrating errors and asking the student to identify them and prescribe solutions. This has the potential to be fun, while assessing retention of the lesson and aural capabilities.

Another approach is that of the "before and after": record the student at the start of the lesson and then at the end of the lesson, and have a discussion as to how much the student's playing has improved. The teacher can add a demonstration as well, to indicate further goals.

3. Virtual backgrounds as messaging devices

Virtual backgrounds tend to be used simply to mask one's surroundings, but they can serve a pedagogical purpose as well. For example:
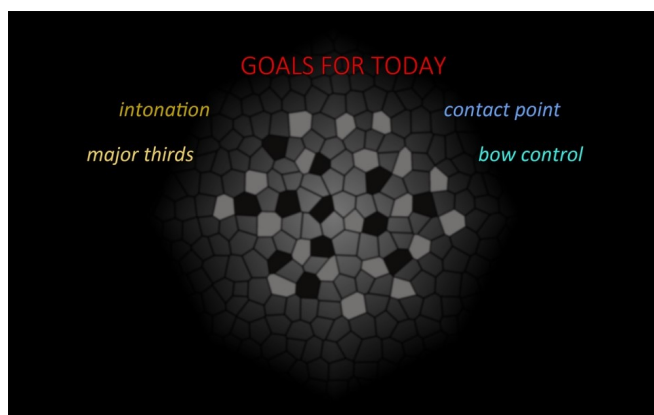
A sample virtual background with pedagogical goals

This would be the same as writing down goals on a white board in a regular face-to-face session. The illustration above does have this information organised (contact point related to bow control, major thirds to intonation) so to not be overly distracting.

4. <u>Understanding the limitations of technology: what you are transmitting and what you are receiving</u>

A significant complication of online teaching is limitations of monitoring: you cannot be entirely certain how you sound to the student, and vice versa. In addition to recordings, there are strategies to help you have reliable communication:

- Have someone help test out the system: I had my former student, prize-winning violist Danish Mubin test out a Zoom connection. He was familiar with my expectations, and we found that contrast of dynamics did not come across effectively. Ever since then, I have been cautious about diagnosing a lack of dynamic contrast with online students, relying on pre-recorded submissions to assess that element of playing.

- On the student's end: there should be a discussion on how much a student should be investing to increase the quality of the lesson. One step beyond ensuring that one's software is up-to-date and setting up an ethernet connection would be improving what the student is hearing, e.g. a Bluetooth speaker or an in-ear earphone.

- The level beyond this would be improvements to transmission from the student, such as getting a microphone – likely only if the student can see a more direct benefit than assisting the teacher. One such source of encouragement would be studio classes, as mentioned in the companion article.

Concluding Remarks

As with many things, it is perspective that matters. Is online teaching a stop-gap measure for a temporary inconvenience or a long-term opportunity? I would argue that it is at least both: even for those who are already able to return to face-to-face lessons, there are elements from online teaching that are worth incorporating, including recordings between lessons, and the ability to reschedule replacement lessons more easily. The brave new normal may be different for each teacher and each student, but what underscores all our experiences is how teaching can be continually adapted, and how technology can open new doors if we in education – just as in music – just find the right key.