Reports from Experiments in Masked, Socially Distanced Teaching at Rollins College

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Contributors: Nancy Chick, Ellane Park, Lee Lines, ___ …..

Note: the notes and lessons learned below are based on our experiences alone.
We still need testing, input, and advice from Accessibility Services to be fully inclusive.

Description	Lessons Learned & Further Action Needed
In an Indoor Classroom	
Communicating through Masks	
Comfort ● I experimented with a mask (pleated fabric that fit snugly against my face) and a bandanna, and I found it was much easier to **breathe** with the bandanna. It was much harder to breathe in my snug mask, and since I was pacing and talking a lot, I got uncomfortably hot and distracted by the breathing difficulty. When I switched to the bandanna, I could get some air, and it was significantly better. (Nancy)	*Make sure you have a good mask. Try out a few. Bring several with you.*
● I'd read this report from a F2F experiment in which the person expresses concern about not being able to **drink** water or coffee while teaching, so I brought a covered cup (to protect the drink) with a straw, and I could slip the straw behind my mask without lifting the mask. (Nancy)	*If you need to drink while you teach, use a covered cup with a straw.*
● I was talking and pacing (and in person with other people, a rarity after 3 months in isolation, so a bit nervous), and I'm not gonna lie: I got **hot** and sweaty. (Nancy)	*Pace less, and take more cooling measures (e.g., drink cold water, dress for heat). I thought about a handheld fan but remembered that the virus spreads through respiratory droplets, and there are concerns about air ventilation, so a fan seems like a bad idea.*

### Hearing Each Other through Masks ● In the classroom experiment (CSS 230), we only had four people, so we played death metal at full volume on my laptop across the room to simulate a noisy class. Without the death metal, **we could hear each other fine at normal voice levels.** It was a little more challenging with the extra noise, but it was still possible with just a little more effort. (Nancy)	*More testing needed: We were in parallel rows, though, so we wondered about strategically positioning pairs and groups to face different directions, so our voices weren't always competing with each other.*
### Facial Expressions While Masked ● This report from a different campus experiment advises us to "Learn to **talk with your eyebrows**" because "You can tell by the eyes and eyebrows a lot about what someone is saying and feeling." There's some truth here, but as someone who frowns when I'm listening carefully, I wouldn't want anyone to rely on my eyebrows too much. :-) (Nancy)	*Remember that your eyes and eyebrows will be "read" more when you're masked.*
### Using Technology to Communicate ● We experimented with **headphones** with smartphones and with laptops in the classroom, using Microsoft Teams. We could hear each other very well, but it takes a little getting used to the slight delay, so we could hear the person speak in the room and then more clearly through the headphones. It didn't take long to adjust, but it is an adjustment. There was great variability depending on the headphones. My regular iPhone corded headphones worked great. A colleague's high-quality bluetooth headphones broke up a good bit. (Nancy) ● We weren't familiar with the Teams app on our phones, so we weren't prepared to fully test it. (Nancy)	*Try multiple headphones. They're not all equally effective, and cost may not determine quality.* *More testing needed: try out the Microsoft teams app on a smartphone, using video, audio, and text.*
Learning While Spaced 6' Apart	

Small Groups/Think-Pair-Share • Given the above findings (we can hear each other through masks, at 6' apart, in a noisy classroom), these activities seem entirely possible for pairs and groups of 3 or 4. Groups bigger than 4 may be spread out too far to work well. (Nancy)	*More testing needed: do groups of 5+ work in a noisy classroom?*
Teaching While Masked & Socially Distanced	
• *By far*, my biggest complaint was my foggy glasses. I could hear just fine in all situations, but my glasses would get fogged up, so I ended up taking them off in all experiments. I'd experienced this problem in other situations where it was annoying, but it was a real problem here. (Nancy)	*Revisit advice on preventing foggy glasses.*
In an Outside Classroom	
Communicating through Masks	
Comfort • We were on the Bush Patio for about an hour and 15 minutes in the morning with mostly shade, and I used a mask made of pleated fabric that fit snugly against my face. I stayed seated the whole time--unlike when I was in the classroom and assuming the professor position of standing and being more physically animated. Outside, seated, in the morning shade, I was quite comfortable. As the sun rose above the trees, though, it got uncomfortably hot, unsurprisingly. (Nancy) • Teaching on the Bush Science Patio was not too bad, but it did get uncomfortably hot as we got closer to 10 AM. I walked around the patio while holding my laptop and sharing my screen to display problems or powerpoint, which was uncomfortable at times but nothing unbearable. If I wanted to just talk without my laptop, I had the option of switching to my	*With the right conditions, sitting in an outdoor classroom was tolerable.* *More testing needed: the Bush Patio was a great space in the early morning shade, but an awning or canopy would probably make it usable throughout the day.* *Roped off entrance/exit to the Bush patio with clear signs that "class is in progress" would help*

iphone with headset for the audio part only. I felt safer knowing that I was outside and had ample walking room while still maintaining 6 feet part from every sitting student. (Ellane) ● We just completed an outdoor teaching experiment in the CFAM patio space (June 25th). We started at 12:30pm and finished around 1:30pm. It was mostly shaded, but quite hot and humid. It's important to point out that by September 15th, we should see a modest drop in humidity and the noon solar angle will be significantly lower. Therefore, today's class meeting (at 12:30pm, 4 days from the summer solstice) probably reflects the most challenging comfort conditions we will face (in terms of sun, heat, and humidity). (Lee)	*with student stragglers who might accidentally walk into an outdoor classroom without knowing. (Ellane)* *Conditions should be better for outdoor teaching by mid-September (sun, heat, humidity). By mid-October, conditions should be much better. (Lee)*
## Hearing Each Other through Masks ● Using WebEx or Microsoft Teams as an audio platform where students/faculty wear their individual headsets was helpful with the ambient noise (e.g., loud leaf blower). This online tool saved the instructor from raising his/her voice and recorded the audio along with any visuals for international students/remote learners. (Ellane) ● Small group discussions (with social distancing) should not be a problem with masks. We were able to hear each other quite well, even with the surrounding discussions. (Lee) ● For a larger class discussion, it may be helpful to have an audio connection (with headsets) via WebEx or Microsoft Teams. This significantly improved the ability of everyone to hear and participate in the conversation. (Lee)	*Definitely use either platform (e.g., WebEx, Microsoft Teams) to aid with hearing each other. With everyone having their own mic/headset, we could hear each other well. The audio recording captures the sound very well. (Ellane)* *Small group discussion worked fine, even with masks. (Lee)* *A larger full class discussion will probably benefit from an audio connection where every student is using a headset. (Lee)*
## Using Technology to Communicate ● Nancy and I tested out the audio/wifi glitches on the Bush science center patio and found the "borders" where the Wifi dropped off and my audio got glitchy. The borders however, were generous in the outdoor classroom space and I didn't think it to be a huge issue for my teaching purposes. I stayed within the borders while "teaching" with Nancy. (Ellane)	*Test out the outdoor classroom Wifi "borders" and stay within or have IT check the area for Wifi strength. Bush science center patio has ample space and good wifi connection within the designated area.(Ellane)* *More testing and experience needed with*

• I think I may have to rely on pre-recorded whiteboard-based lectures (Flipped classroom model) that students will watch before coming to class so that they learn or at least familiarize themselves with all the necessary content before coming to class for group problem-solving sessions. Chemistry is very much a problem-solving heavy type course so more guided practice in class is always good. (Ellane) • The Wifi worked fine (on CFAM patio) for both WebEx and Microsoft Teams. The screen share feature also worked quite well. The only limitation that some of us encountered was the temperature of our laptops, which were running very hot (fan running continuously). At one point I shut mine down to cool. (Lee)	*Microsoft Teams: If I wanted to model how to solve a problem in class after students have given it a try, I might want to test sharing my iPad screen for problem solving "live" and figure out how it connects to Microsoft Teams audio/visual (instead of relying on a physical whiteboard which seems unrealistic for students to be able to read a board from so far away!) (Ellane)* *The WebEx and Microsoft Teams apps should probably be used judiciously, rather than trying to run them for the entire class period. Also, speaking more softly into the microphone greatly reduces the echo and voice delay effects. (Lee)*
Learning While Spaced 6' Apart	
Small Groups/Think-Pair-Share • Microsoft Teams video/audio group chat capability is amazing! Nancy and I tested it out where we started with a general class group chat and then moved to the smaller group channel with such ease. As the instructor, it helped me move from group to group without a hassle (so much better than WebEx). If my class was broken up into groups of 3 (6 feet apart) they would need help with audio as well. I assume each student will have their own mini-whiteboard with individual markers for problem solving/written work that's hard to type on a google doc, while they use the Microsoft Teams audio capability to hear each other. I also figured out I could post a Word Doc (of practice problems) in the Teams chat thread for the class or individual groups to solve during class time. Posting on the Teams platform seems to be a safer no-contact way of distributing problems/concepts "live" instead of passing out physical hard copies and risking virus spread. Pedagogically, I do prefer the element of "surprise" where students can brainstorm solutions to problems that were not provided to them ahead of time before class. That way, they have each other in small groups to brainstorm different approaches to problem-solving. (Ellane)	*I will use Microsoft Teams to help with group work both in terms of audio and distributing worksheets to students "live" in class via the chat window. (Ellane)* *Group channel audio with Teams will help tremendously with my corrections/guidance to individual groups during class while still maintaining 6 feet distance. (Ellane)*

• I will probably be using small group discussions and think/pair/share problem solving for the majority of every class meeting. This element will mostly be done F2F (in person) rather than using WebEx. There may be a map or diagram available for students to reference during the discussion, but the interactions will be in person, to reduce the issue of screen fatigue. (Lee)	*WebEx and Microsoft Teams are both powerful tools that have some utility in small group discussions; however, I will be using them judiciously to increase the level of in person interaction and to reduce the problem of screen fatigue. (Lee)*
Teaching While Masked & Socially Distanced	
• Since teaching outside reduces transmission with the constant circulation of fresh air, I've thought about just wearing a face shield and not a mask underneath. Pro: Students would be able to see my facial expressions through my face shield and still be relatively safe since we're outdoors. I would wear my mask indoors though. Con:Is there a risk of wearing just the face shield alone (without the mask) outdoors? Since there are no studies on this yet, I'm inclined to say the risk outweighs the pro here. (Ellane) • For each of my Fall 2020 classes, almost every class meeting will be outdoors, with everyone masked and socially-distanced. On some days we will be on the move, working in various spaces that relate to our course topic (Ecological Design). On discussion days, we will be flipping between two distinct modes… 1. Small group discussions and think/pair/share problem solving (in person with professor moving from group to group); 2. Full class discussion (with headphones and screen share, assisted by Microsoft Teams and WebEx). Once the semester is rolling, this process of switching between different class modes will become smoother and more seamless. (Lee)	*I will wear a mask both indoors and outdoors whether or not I have an additional face shield on. (Ellane)* *By going with a small set of relatively straightforward teaching modes, I think this will free me to focus my attention on the class discussions and student interactions, rather than getting sidetracked by the inevitable distractions arising from a more complicated approach. (Lee)*