

## ***So, You're Told to Shift to Teaching Online After Spring Break... Now What?***

2021 ICTCM – *Virtual*  
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As perhaps is the case with so many of you reading this paper, the week of March 9-13, 2020 began a time I'll never soon forget. Before this, we'd heard about concerns of a pandemic and places that were hard-hit but it hadn't yet become personal... well, it just became personal! On that Monday, March 9 at approximately 10am... I received the dreaded email from Joanne Foster:



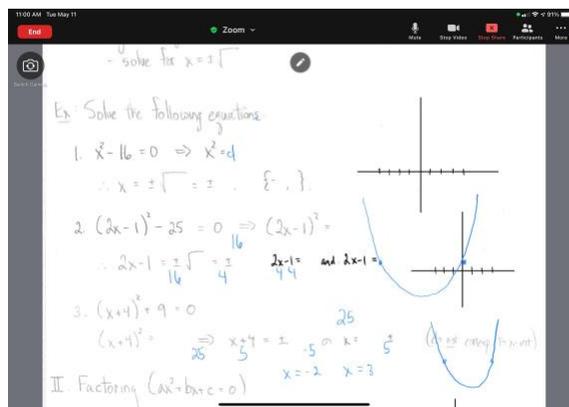
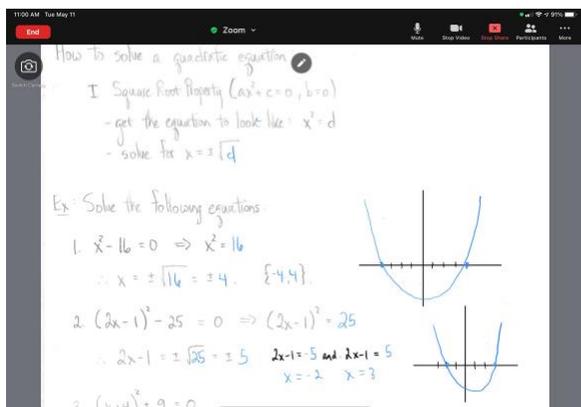
That's right...our beloved ICTCM conference had been CANCELLED! It began a furious rush to try to cancel airfare/hotel/etc, all without penalty since my university would certainly not be willing to reimburse for conference expenses to a conference I was unable to attend; it's sometimes hard enough to get reimbursement for conferences we participate in! Then cancellation after cancellation occurred... my OK-AR MAA section meeting and even March madness! So, this was all getting very serious and now very personal... Even though MANY local state/region schools had already cancelled all in-person classes through the remainder of the semester, we'd still yet to hear even one peep from our administration on how things would be handled our our school. All that was about to change...

I'd left the office on that Friday before our spring break, 3/13 for lunch with my wife and that afternoon at approximately 2pm...we got a campus email from our president saying that "*all instruction would be moved online following spring break*"! It wasn't like at some schools "*for the remainder of the semester*" but rather our mandate was "*for the next 2 weeks*"... I'm not sure if anyone believed we'd be beyond the danger in two weeks, I certainly didn't, so from the beginning I was thinking this would at least go through the end of our semester! Things were

very chaotic at this stage, and even though all learning was switched to remote it was still originally expected that we'd have to hold **in-person office hours!** Not sure what the point would've been, since there'd have been little to no students within the building during this time; thankfully this requirement was dropped and we were told *remote office hours would be fine!* This would be followed by many things, including faculty travel bans...which still have not been lifted, perhaps it's the same at your institution? But one thing was never told to us...

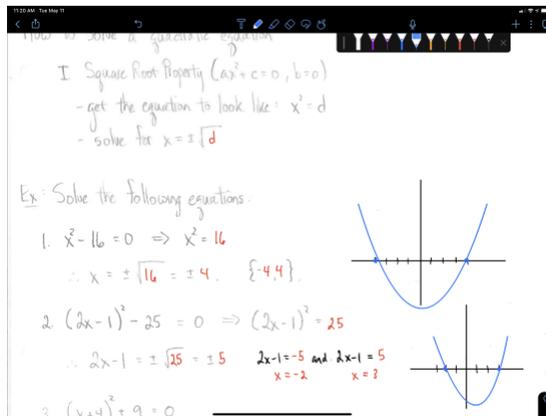
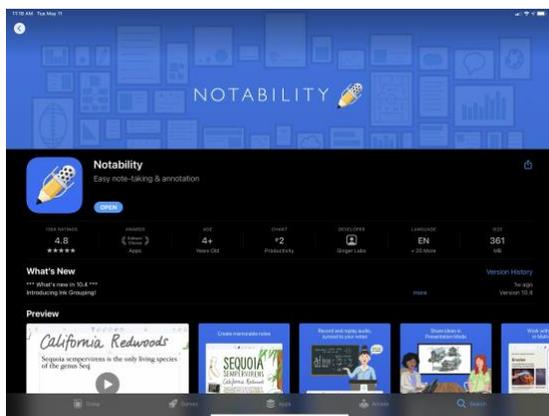
How were we supposed to go fully online with our teaching...when all we'd ever done was primarily face-to-face classes? There was not any direction in this regard, sure there was an occasional *Q&A workshop* held by our 'Center for Teaching and Learning' folks during this semester and into the next fall, but there didn't seem to be any care into whether any of us had the skills or ability to carry out this mandate? Remember, we were told around 2pm on Friday just before spring break... "*all teaching will switch to online for 2 weeks following spring break*", but how was a mostly traditional faculty supposed to pull this off? I hadn't even initiated ONE meeting through Zoom in my entire career to this point, so my mind was racing at a mile a minute... and it totally consumed my entire spring break to figure out how to set up Zoom meetings, get meeting links for classes and office hours in place for my various spring classes, etc. But still my problem persisted, "*how was I going to actually carry out my instruction in this setting which was completely foreign to me?*" Without really any direction, but many sleepless nights that week (and the months and months and months...) ahead, I developed what I thought was a fairly good strategy; at least it seemed to work well for my classes and students. I'd often inquire of my students what others classes/teachers were doing, and they always seemed very pleased with the lengths I was going to "*to make class in this setting, as normal as possible*"; so I think their other experiences were doing far less...some even just posting asynchronous videos to serve as their instruction plus assignments. To meet my goal of "*as normal as possible*", in my mind this meant only one thing... this must be a synchronous learning experience! Let me try to explain what I came up with; I don't claim it's the best possible or better than everyone else...it's just what I found and seemed to work:

My initial plan was to get my class notes scanned as PDF, break these PDFs into daily-sized chunks... remove portions of the notes that we'd fill-in during our class discussions, and then post these PDFs (at least by the night before class was to take place) on our blackboard page. Since I knew I'd want to write upon these PDF note packets, my thinking went immediately to trying to do this completely on the iPad... I use it for most all of my daily tasks anyway, so why not? I also posted the links to each Zoom class (and office hours) on every course-specific blackboard page. I quickly discovered that Zoom has a built-in *annotate feature* and tested it upon some notes just before spring break finished and all seemed good... boy was I wrong! I'm not sure how many of you'd tried or anticipated using this feature in your live classes... it was totally unusable for me. In basic testing it worked fine, but in the load of an actual class with 30+ students participating it was just way too sluggish/latent to be any good; I spoke with our CTL folks and they didn't believe it at first/blamed it on my internet speeds (until we did a mock meeting between us) and they saw how sluggish the annotate feature was even from their end on campus! Another major problem with the *annotate feature* was that after a screen's worth of writing/scrolling the next...the annotation stays stationery while the background page scrolls:



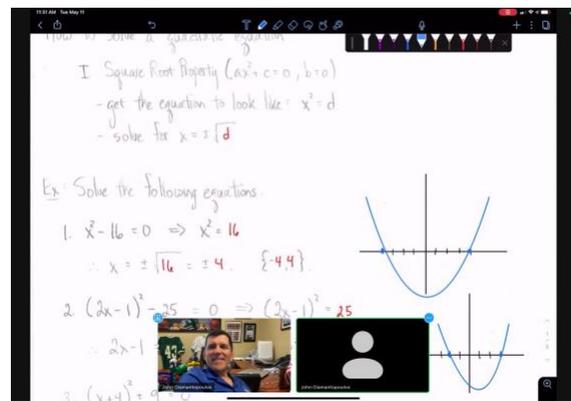
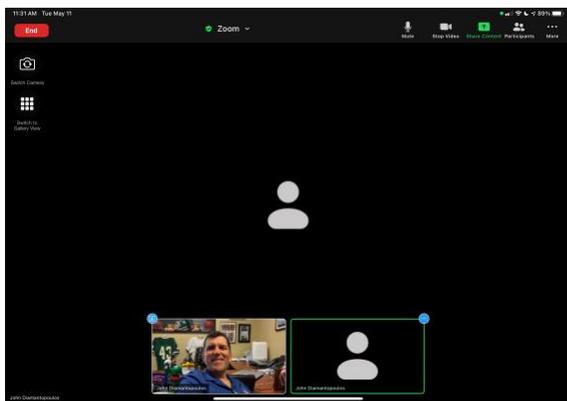
I know you can erase the entire screen of writing before moving on... but what about that certain student question “*can you go back and explain that problem from before?*”, not really possible if all the writing was long since *erased!* As such, these first couple of “Zoom days” didn’t go too well... but the students were always very understanding, for which I am forever grateful! Ok, so my initial plan to get my classes through these 2 weeks was trashed...there was no way this was going to work. What am I going to do now?

Well, turns out there’s an app I was already used to for grading assignments that students would email to me...called *Notability!* In my opinion, it’s **the best** note-taking app for the iOS experience...bar none! My question was going to be two-fold: *would it also be sluggish during an actual live Zoom class as the annotate feature had proven and...since the meetings were within Zoom, how would I get the students to see my writing on Notability?* Turns out, the secret was *screen sharing!* I had a very willing test-class, a wonderful group of trigonometry students, who were my first *guinea pigs*...and at the beginning of the next class I asked if they were willing to try something that should work a lot better and they happily agreed! It must have come across as pretty nice, because on my end I could take advantage of the nice drawing functions (straight lines, moving shapes around, ... lots of colors to choose from, etc.) and on their end there was no sluggish behavior and the annotations stayed in place!

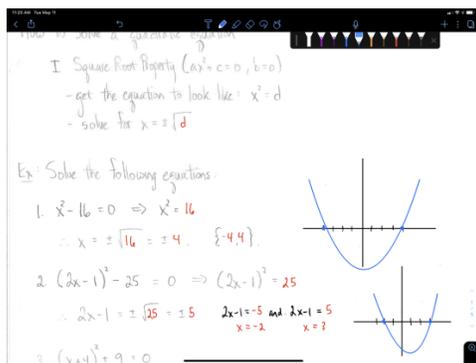


However, in my testing I discovered that the Zoom app turns off the camera so the students could only see my writing/hear my voice... but for how much better this method was, they still wanted me to use it! There was an even bigger problem which was about to make my world a whole lot more complicated... I could no longer see the students or even read their chat comments, screen sharing to another app completely turns this off, so I asked the students for that class period if they could please say any questions/comments or even help by reading those in chat that I couldn't see; they were eagerly willing to help in this way!

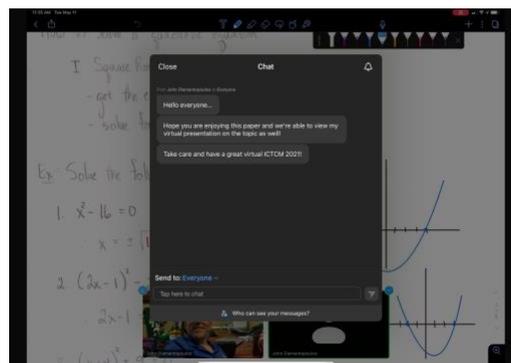
Ok, so we're getting closer... I had a system of notes for class use, I have an annotating system (using the Notability app!) which was not sluggish at all during live Zoom meetings, but how can I solve the issue of the students not seeing me nor me being able to see them/read their chat comments; not sure about your classes, but my students were always far more eager to *type* their questions/comments than they were to *speak* those same words! I had to find a solution but with my setup it was not possible... since my abilities were limited to what the *Zoom screen share* feature was allowing me to do! Then it came to me, as if in a dream... except I had so many sleepless nights around this time, I doubt I was sleeping long enough to dream anything! I have another iPad, why not log into the Zoom class as "*another me*" and use that iPad to capture my video, see any students with their cameras on and... keep a constant chat board up and able to read/respond to comments. And guess what... *this worked!*



One screen (shown below) is where I'd view my projected annotations to the class, see any students who had their cameras on... and keep an eye on the chat feature... and my main writing would be on another iPad screen (projected to them through *Zoom screen share/usingNotability*)



(my main writing screen)



(2nd screen for camera/follow chat)

This seemed to be the “*sweet spot*”... the perfect mix of stability in the annotations and keeping track of the students/chat comments and they could see my live reactions to their comments and questions. Yes, this was close to my goal of making Zoom class... *feel as normal as possible!* I experimented briefly trying a third screen into the mix, I logged into the class meeting with my iPhone and projected that to my large TV at home, thinking I could read the chat comments even easier...but then I found I was facing the TV screen to follow the chat comments too much, and their camera view mostly showed the side of my face! So, I stuck with the two iPad setup for the duration and it seemed to work for almost all students... I was pretty happy, seeing I’d had no formal training nor direction from my school but just the mandate to “*make all learning fully online after spring break*”.

Now, as you might’ve guessed and... as might’ve happened to you all as well, we did not go back to face-to-face after these two weeks! It was extended to be the remainder of the spring term and through summer as well. We didn’t know about the format for fall classes until about the week before classes began...but with cases on the rise everywhere, thankfully our Academic Affairs allowed any faculty with concerns to remain teaching remotely! I already had my *system* in place, so at least I didn’t have the mad scramble/sleepless nights of testing ahead of me this time!

And yes,...this remained an option into the spring 2021 semester as well for any faculty with continued concerns. So, not wanting to put myself nor my students at any needless risk, I adapted my system once again to the slate of spring courses I’d been assigned. One interesting twist that this brought about, I’d been assigned a “*dual course*” for the spring... a regular Trigonometry course that meets at the same time as our Teaching Mathematics course. The Teaching Math course is all Math Ed students, usually getting their first classroom teaching experience, and they deliver the daily lessons to a “*live class of students*”...it’s normally quite exciting, but imagine the stress and planning to have myself and all students remote, but the teaching students are in a physical classroom (since they didn’t have the technology necessary to deliver the lessons remotely). Normally the student teachers come up with a lesson/visit with me at least once before teaching to discuss any difficulties, etc... and then deliver the live lesson to a classroom of students. But now they’re to do this all over Zoom, with no previous experience? I didn’t want them in the same awkward situation as I was back in spring 2020... so I explained how they could use the in-room projection, I let them use my note templates already developed for each lesson... and instead of annotating on them through using a secondary iPad... they just wrote upon the printouts and the students could see their work through the document camera. One student would keep track of student comments that came in through chat while the other would concentrate on delivering their lesson. It was a lot less freedom than student teachers usually have in this class, but I thought getting their lessons ready/approved along with getting note templates available to the students at least the day before class **and** learning the remote delivery method from ground-zero...was too much to put upon them! So, we went with this approach and it seemed to go pretty well...especially for the students taking the traditional class.

Overall, my experience with the mandate to “*go online*” for all of my teaching was rocky at first...no matter how much I’d planned, but smoothed out nicely over time; yes, having two available iPads really helped the process! I’d post notes, go through them during class (utilizing this two iPad setup described above) and then post the Zoom recoding links on the class specific

Blackboard pages as soon as Zoom made them available. Numerous students during these *Covid semesters* commented on how helpful the notes (to keep the class pace at a nice level) and the Zoom recordings (to go back and catch something they missed in class or for review prior to an exam) were to them. So, it is my plan to use these note templates when we return to face-to-face learning in the fall 2021, project them on screen during class and fill them out as we have live discussion...less time wasted writing everything, easier for them to keep up, and more time for in class questions. And, this way I'll also be able to record every class to Zoom and make those recordings available to the students for the remainder of the semester! It's a lot more work than one might normally do *just walking into a traditional class/delivering a lecture and walking out*, but hopefully the benefits that the students have said they've received will bring some amount of good out of all this "*COVID chaos*" that we've all experienced this past year.