

UCGIS Education Committee Report: Symposium 2021

The Future of GIS Education: Teaching GIS in the Post-Pandemic Paradigm

Report from the Education Committee Session, June 8, 2021
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Two sentence summary

During the 2021 UCGIS Symposium, held virtually due to ongoing impacts of the COVID-19 pandemic, the UCGIS Education Committee held a working session to discuss what futures lay ahead for GIS instruction into the next phase of the pandemic. Using a mix of collaborative work, the session considered whether hybrid instruction is here to stay across GIS learning contexts, and offered advice on how to make such courses accessible to all learners.

Format and Agenda

The agenda for the session is shared below. This session used a number of different collaborative tools, including Zoom polls, Google Document Notecatchers, Jamboards, and Zoom breakout rooms.

Agenda

- (5:15pm) Welcome, settling in on Zoom (5 mins)
- (5:20pm) Breakout Room #1: **Resiliency for GIS Education - Reflecting on Our Successes** (20 minutes)
 - The first breakout session will use a collaborative Google Doc Notecatcher.
 - Questions inspired by the Global GIScience Conversation discussions.
 - There will be four breakout rooms for this session.
 - Each breakout room will report back findings, time permitting.
- (5:40pm) Jamboard: **Well, That Didn't Go Well: Considering Anticipated and Surprising Failures** (15 minutes)
 - As a whole group, we will annotate a Jamboard considering things that didn't work or go well in Pandemic teaching.
 - Participants will annotate the board together.
 - Then, items will be organized and discussed.
- (5:55pm) Breakout Room #2: **You Can't Go Home Again, or, Teaching GIS With Pandemic Lessons** (20 minutes)
 - The second breakout session will use a collaborative Google Doc Notecatcher.

- There will be six breakout rooms for this session.
- Some breakout rooms will report back findings.
- (6:15pm) Zoom Polls: **Gathering Opinions on Various Topics** (15 minutes)
 - As a whole group, we will take some polls on Zoom
 - Results will be discussed and contextualized as they come in.
- (6:30pm) **Closing up Shop** (remainder)
 - Open discussion and ideations
 - Thoughts about what to do next for UCGIS Education Committee

Breakout Room Discussions

Breakout rooms discussed resiliency in GIS education informed by the [Global GIScience Education panels](#) held over the past year. In reflecting on successes of pandemic era teaching, the group also discussed which pandemic lessons would carry forward into the next phase of pandemic instruction. The questions posed in these breakout sessions, and the comments collected on [note catcher documents](#), are reported below.

Note catcher One: What was a teaching practice you implemented/experienced/observed during pandemic influenced teaching/learning that was successful? What would others need to learn/do/change to implement it in their teaching/learning?

- 40 person graduate course for intelligence analyst. Give students a chance to ‘chit-chat’ and to have some non-academic time
- Frontloaded the difficult work, then assigned a travel book at the end of the semester, and critiqued the non-academic book
- Also frontloaded the work to allow for a week off after university eliminated spring break
- Optional weekly meetings for asynchronous courses for some face-to-face time
- Flipped the classroom, small group meetings
- Creating a lecture “studio” at home and lecturing like I am in the class room by using a large TV screen as projection surface and Zoom camera on a moving platform.
- Informal breakout rooms of 3-5 students for the first 5 minutes. Completely unstructured - just time for students to meet each other and chat. It helps build trust and get to know each other. It helped with group formation and cohort building across grads and undergrads. Centralized hosting for geospatial infrastructure (JupyterHub, Citrix) it worked great for accessibility so that Chromebooks/underpowered laptops worked fine.
- Prerecorded lectures (worked)
- Using Amazon Web Services to host ArcGIS Desktop, had issues at the beginning
- Combination live vs. recorded worked, live was discussion, questions, “office hours”
- Working with the library to create short videos introducing software

Despite the prompt, some things that did not work were also included in the discussion,

namely:

- It was difficult to get the students to work together, because many students did not know each other and had a hard time “gelling”. Social cohesion is important for teamwork. Remote proctoring software was very useful--will continue assigning students remote proctored quizzes
- Why do I have to be live next year? Why can't it be remote?
- Forcing students to work in non-linear ways was difficult
- Extra effort to empathize, be flexible with students.
- Submit a blog post each week based on extensive readings - was “tedious” as a student.
- Students who did not participate was annoying to students.

The second breakout room focused on a different set of questions concerning forward looking futures of GIS education. Note catcher two asked: How will hybrid or online teaching be part of your GIS teaching/learning looking forward? How do you build an accessible GIS class for learners of all types?

- All on-campus and online classes have now merged as of spring 2021 into a hybrid format - meaning small lecture rooms with spaced desks with advanced cameras and recording that follows us around the room and with flexible software that allows the instructor can set who goes in what breakout rooms as well as how the screen and cameras look on the screen.
- Do not require attendance. I noticed that I get fewer regular attenders to lectures if I actually state “attendance not required” in an announcement for example. But I noticed that I get a full/high volume of students watching the lectures later. I think they are burned out on zoom this summer but want the content, most likely they speed it up on playback.
- All classes are now online. Have opened up the classes greatly and now working on what a hybrid situation will be. It's being capped. Told the students at the beginning that it was up to them if they came to lecture, but that they could get a lot more out of the class if they come to lecture.
- Dropped participation points. Designed the last 3 weeks to be project time. So the students who showed up had more individualized/focused attention and helping them work on their individual/group project. It worked out well. It also took some pressure off of me at the end of the semester, which was great because I was buried in administrative tasks as it turned out.
- (My institution) still wants us to be a brick and mortar teaching...most interest in what tech works best in hybrid/support role to in person courses
- Classes were mostly in person or hybrid since last August. We will all be in person in the Fall

- Small breakout rooms for problem solving in small groups worked well.
- Anticipating non-covid sick people who might want recordings of lectures or remote participation.
- Will need all forms of delivery for sure - international students, sick students etc
- Need flexible classroom design - to engage small group discussions, e.g., smart, flipped learning classroom structure
- Even in a GIS computer lab, the small number can encourage partnerships and collaborations
- Concern about pressure to increase size of classes by offering hybrid classes
- Accessibility - all domains (interdisciplinary) - variety of students
- Providing guidance vs. detailed instructions on how to communicate their project via a recording
- Be flexible on how they can get to the student learning objectives, not one size fits all
- Knowledge exchange with other faculty/instructors - want to continue some learning online moving forward
- Use modules as part of hybrid class, reusability and plan face to face to supplement good online materials
- Lots of time to develop online materials, should be able to utilize them for future courses
- Creating a video library for tutorials, lectures, etc.
- Using story maps for lectures, students can follow along
- Having a script is very useful in delivering lectures, can search a word document
- Can use script for quizzes and closed captioning
- It was so much work getting the course “online”!! So would definitely want to keep it that was for awhile.
- Finally flipped a classroom (pre-recorded lectures) that I intended to, and will keep that format for the future for “in person”.
- Very strongly encourage students to install software natively.
- Teaching “in-person” course online is different than teaching online course.
- Some challenges are at the instructor level, but other challenges are at the institutional level and beyond the control of instructors (LMS, course listing, etc)
- Flipped classroom and use of recorded lectures
- Use Slack or other similar communication channels, instead of email which

is overwhelming

- On campus teaching, but will incorporate online communication opportunities.
- Will suggest that remote meeting software be used for student team meetings in the future. Push from top down to have accessible materials
- How to make mapping accessible for sight challenged people, how do you teach about mapping to the one sight-challenged student in your class?
- Resource: The Spatial Community - you can send yourself an invite to their Slack community <https://thespatialcommunity.org/> could be a good place to talk about accessibility resources

Jamboard Activity

A group sticky note activity, using the Google Jamboard, invited participants to reflect on anticipated and surprising failures from pandemic teaching. This board revealed some commonalities in the anticipated failures of pandemic teaching, and a wide range of unexpected failures - from file types to platforms to student interactions. The jamboards are pasted at the end of this document for review.

Zoom Polls

The session closed with some Zoom Polls on various topics, results of which are shared below. Results indicate wide ranges of comfort and future GIS teaching environments, as well as a strong energy for discussion on difficult terminology even after a long working session!

Question: Do you use Slack (or something similar, like Discord) as a formal part of your courses?

Response	Percentage
No	72%
Yes	22%
Students started it themselves	6%

Question: Do you recommend any outside certificates, credentials, or trainings to students who are enrolled in degree programs?

Response	Percentage
Yes	72%
No	28%

Question: Are you planning to teach or enroll in your GIS courses using a hybrid method next semester? In this case, 'hybrid' means a course that will have participation from both online and in person students simultaneously.

Response	Percentage
No, I will not have any hybrid courses	33%
Yes, I will have a hybrid course/courses, and this is due to pandemic changes	28%
Yes, I will have a hybrid course/courses, but I am familiar with this format from before the pandemic	17%
I am not planning to teach or enroll in anything next semester	17%
I would like to argue about the definition of 'hybrid'	6%

Question: Do you expect that the 'GIS Lab' (a room with computers dedicated for student use for coursework, projects, etc.) will remain necessary for departments and universities?

Response	Percentage
Yes	72%
No	28%

Question: Do you feel like your GIS Program prepares learners for the 'cutting edge' of GIS Practice?

Response	Percentage
Yes	56%
No	22%
I want to argue about the definition of 'Cutting Edge'	22%

Question: Because we have to - what's your favourite place to do GIS?

Response	Percentage
ArcGIS Pro	28%
ArcMap	28%
ArcGIS Online	17%
Leaflet	6%
QGIS	6%
R	6%
You asked this question to cause trouble didn't you	11%

Concluding Thoughts

Overall, this session allowed an extended period of time for educators to spend time discussing GIS education with colleagues, while working in some novel spaces for collaboration and sharing of ideas. Future work of the education committee will continue to bring people together to share their practices, ideas, wants, and needs, for improving GIS education for all.

On this board, please create sticky notes, text, images, etc. that demonstrate things that didn't go well for your pandemic related teaching/learning that you expected to not go well.

**GIS
beginner
jitters**

This really showed me that my students have no idea about computers in general

Technology-averse students - their issues were magnified

Required support to get students computers setup for ArcGIS was terrible, as expected

Instructions to download and install ArcGIS Pro wont work

Tech support for ArcGIS Online will be too much to handle

Getting students access to GIS software

Connectivity issues

Mental health issues



Not being able to "read the room" during lectures

Students unwilling to ask questions in "public" setting

It was hard to get to know my students in an online environment, many didn't turn webcams on, etc.

No way to "walk around the room" to assist students.

Not requiring students to turn their cameras on resulted in hardly any participation

some students like learning synchronous, some asynchronous.

Anticipated Failures



On this board, please create sticky notes, text, images, etc. that demonstrate things that didn't go well for your pandemic related teaching/learning that you didn't expect to not go well.

