

I: First of all I want to start by acknowledging that teaching and learning has been disrupted in the past months due to the pandemic. For any of the questions I'm about to ask, please feel free to answer with your reference to your normal teaching practice or your teaching practice that is adapted for the crisis situation or even both, ok? So, I was just checking if the recording was okay... yeah. So, I'd like to start listening about your experience teaching undergraduate students and if you could briefly describe how your teaching relates to your current or past research and in which of the courses that you teach do students work with data?

UCSB2: So how does my research affect my teaching?

I: How it relates to your teaching...

UCSB2: So yeah, so like, well, so basically, I guess that I, so the primary for undergraduate data classes, so far that I've talked, I primarily have been teaching a GIS class. And a lot of my sort of research ultimately relies on GIS in one capacity or another, to do different kinds of spatial analyses to understand the data that I produce, and analyze. And so, you know, within the, through the teaching, you know, what I try to do is I try to think about things that I wish I knew as an undergraduate, that would have kind of, like, pushed me along a little bit faster, in my own research, and explain things in such a way that I think, you know, sort of my past self would have appreciated for, you know, sort of, like some kind of teaching situation. And so ultimately, you know, kind of like, when you're the way that I sort of go about teaching things, I think about like, what are the core things that a student really needs to know. And then in order to sort of be functional, and you know, to be productive using sort of the data tools, because a lot of it, you know, it being a GIS class, it's as much about the software and teaching the software as it is also about the data. And so trying to, you know, you have to kind of combine that. And so, you know, it's sort of like thinking about, you know, how you can kind of combine those two elements to, you know, sort of create some kind of result, and you have a slight challenge. Well, I'll just sort of leave it there for now, since we have a while ago.

I: Alright, so I'd like to hear a little bit about how your students usually obtain the data they engage with. For instance, they collect and generate data themselves, if they search and identify pre existing data, or if you provide them with the data sets that they are going to use for your classes.

UCSB2: It's usually a combination of searching and identifying and I provide some data for them. Pretty rare that... only a graduate student would be able to provide their own data. An undergraduate student typically there's no way for them to have usually their own data that's truly their own.

I: Okay. So, but say that in general they identify existing data sources. What would be the primary method because you also supply them with some data sets, right? Would you say that the one that's more common to happen?

UCSB2: So usually what ends up happening, you know for these GIS classes is I'll give them a list of potential repositories for data and they sometimes... depending on their... you know, the majority of the students will just go to one of the repositories that I list for them and they just try to find something that works for them there. Every once in a while you'll get a student who is a little more gung ho and can actually - realizes how you look for data on their own and will find something a little bit different - figure out what other repositories are or some other sources... especially for GIS geospatial data set... But the vast majority of the students, you know like I said, I sort of give them a list of repositories from the word "go" in the class or even as a part of laboratory assignments. You know, part of the laboratory assignments is going and getting data to then use in the laboratory assignment. And so, I will... they will just use other data sets they might come across when they are looking for other data that they are supposed to use for the labs, things like that.

I: Would you say that you face any challenges relating to students' ability to find appropriate data sets?

UCSB 2: Not really. There's two places that I see challenges. One of them isn't a challenge, the other one is... One place there is a challenge, the other place there isn't. There isn't a challenge in the sense that there are plenty of repositories out there for students to go and get data if they want to. It may not always be like the precise data set they want, you know? Not everything exists in the world, you know, in a ready to go computer/data format that they would use. But where the challenge is getting them to understand how to actually go about finding it a little bit on their own. So even with fairly comprehensive explanations, trying to sort of give them tutorials, and walkthroughs on how you actually go about finding data and things like that when you're sometimes when push comes to shove they do not necessarily always find the data on their own. They require a little bit of extra hand holding, or they just don't do it, or something along those lines.

I: For the data sets you provide, there are cases, how do you usually make these data sets available for your students? Let's say Gauchospace?

UCSB2: On Gauchospace. Usually what ends up happening is ... the reason why... my choice is usually to try to get them to go and get the data themselves off of a repository to get them used to that idea. But, if I provide data the reason why I provide it is because the data set requires a certain amount of cleaning. This is like an intro to GIS class that I'm teaching where they potentially come in with zero experience doing any kind of data analysis whatsoever. Every once in a while there's... you know one of the labs that I like to have them do I like to have them work with New York City taxi data that's available. But those data sets it's a month's worth of every taxi trip in the city and it's like a gigabyte or a 2 gigabyte text file. It's too much for them to work with. So I slice it down a bit and try to clean it up a little bit so it's a little bit easier for them to deal with.

I: In terms of working with data, how do students manipulate, analyze, or interpret data in your courses? Would you say, could you mention some tools or software that you use for that for example?

UCSB2: The entire course is taught using Q-GIS. All the data analysis happens in Q-GIS and then there's one extra assignment that's a kind of extra credit assignment where I try to get them to use Grass. It either can operate as an extension of Q-GIS or it can operate independently. Typically I have them use it as an extension of Q-GIS rather than sort of having them learn the software out of nothing. But those are the two major software packages that we use.

I: Is it a pre-requirement for them to know these tools? Or do you expect them to...

UCSB2: No. It's all taught as part of the class.

I: You mentioned that these tools are highly important for your teaching because it connects to the data that you use. Would you say that there are any challenges relating to students' abilities to work with these platforms for your classes?

UCSB2: Well. Yes and no. The whole point of the class is for them to learn how to use the software in addition to how to use the data that they use in the software. It's a challenge in the sense that the class is a challenge and I have to learn to use the software... you know, figure out how to parse these things out, right? Some students are more computer literate than others. Part of it is more advanced software than they are accustomed to using. It's more complicated, the details of how you use it is more complicated than just using Microsoft Word or something like that. Some of them get it right away. Generally speaking, all of the students do fine. So far I haven't had a student who really broke down because they couldn't figure out how to use the software. Part of that is because, like I said before, I mean the whole part of the design of the class is to do both data and software hand-in-hand.

I: Would you say there are challenges in terms of students abilities to actually interpret or kind of explore the data using these tools - not connected to literacy with the tools, but actually dealing with the data and understanding what they are getting from these data sets.

UCSB2: There are some challenges...In terms of really getting...Usually they do ok with getting something out of it. They are able to export and create maps, I mean so it is all mapping software, right? So they are able to, there haven't been any significant challenges in terms of the core functionality of the software and the core goals of the software.

I: How do the ways in which you teach with data relate to the learning goals in your field. Let's say, if you can talk a little bit about how you teach your students to think critically about the sources and uses of data they encounter in everyday life and how it connects to the field that's covered in the classes.

UCSB2: Ultimately the class is sort of understanding spatial analysis as it relates to human behavior. In the class I end up having all of these different lab assignments, which is the core work they end up doing in those core assignments as they are building up their knowledge in software they are also building up... dealing with more complicated data sets that help... or more complicated data sets that include more and more synthetic analysis. That has to do with how people behave within their lived environment and then also with just things you can locate in space. So, how do you think about human behavior happening in a spatial way? And so, ultimately the way that the classes are designed, the kind of data sets they end up interacting with, like I say, kind of build up over time to begin to...force them to think about some of those kinds of questions about - how the landscape or space affects people's behavior and sort of being able to interpret synthetically a lot of that information. The key thing is, all social sciences - being able to think synthetically with some of the data and take in data sources from a bunch of different places that may not necessarily have obvious connections or sometimes have very obvious connections but, just getting them to create some a new conclusion data set or explanatory data set that allows them to make some kind of conclusion.

I: Would you say that these are specific data skills you prepare students for their future careers?

UCSB2: Yeah. Ultimately the goal with it, within research, certainly within archeological research, but then just more broadly anthropological research, you end up using GIS all the time. So, if one of these students was going on a field project, part of the skills that they are actually developing as part of their everyday work allows them to function - begin using GIS or begin being able to use the software in a productive way, as part of a field project, if necessary.

I: Have you observed any policy or cultural changes at UCSB that would influence the way in which you teach with data?

UCSB2: Can you repeat the beginning of that?

I: Have you observed any policies or cultural changes at UCSB that would influence or affect the ways you teach with data?

UCSB2: No. I wouldn't say that there is anything that is UCSB-specific.

I: Ok. Would you say that other than on our campus, but outside, have any of these changes influenced your teaching?

UCSB2: The one thing I'll say... So, right now, one of the things that I'm working into my class is some subject matter that has to do with or is related to Black Lives Matter teaching and trying to highlight how we might use some of these data sources to understand social inequities and things like that in an anthropological way. In the past I typically, what I was doing was pretty plain or vanilla...data analysis for the sake of learning the mechanics of it. But, with everything that is going on in the political climate without necessarily directly teaching the message, I am including things that highlight a kind of interpretation that would be seen as... you know, like I

say, some of the things that would be in line with the Black Lives Matter stuff that is going on and racial equity and stuff like that.

I: Would you say that instructors in your field face any ethical challenges in teaching with data? Do you see any ethical challenges that affect the way you teach with data?

UCSB2: No. Right now there isn't...well there are some ethical challenges that could exist. But I avoid them. You know, where ethical challenges potentially come up really have to do with using let's say indigenous information or data that would have to do with indigenous groups that may not have been procured in an ethical way. But, ultimately what ends up happening is I simply totally avoid teaching that kind of stuff as a way to deal with it.

I: In terms of... now we are going to move to some questions of training and support. I would like to hear if anyone other than you provides instruction or support for your students in obtaining and working with data. So, for example if you have co-instructors, if you work with librarians or teaching assistants, or if you have drop-in sessions or presentations?

UCSB2: So right now I do it all myself. The nature of the class is it's only, well I think there's about 25 students enrolled in it and within the way the university does things they don't give me a TA or anything for that, so I do it all myself. To be honest, specifically for this GIS class it's so fast paced that there isn't a lot of time to bring in a lot of outside people. If it was on a semester system or something like that, I could see doing it, but in 10 weeks we barely make the objectives that I set out for the course and there isn't a lot of time for outside resource use. The only kind of resources that do come up is I do tell the students to potentially get in contact with the Geospatial Librarian at the university, or take advantage of resources that exist at the university. But, it is not, none of it is structured.

I: That ties to my follow up question about the ways in which your students are learning to work with data outside the formal coursework. You mentioned that you recommend them to talk to the GIS Librarian and also to learn about data resources that are available on campus, so how do you encourage this kind of extracurricular learning? Do you talk to students throughout your course? Do you have this listed on your syllabus? How do you usually encourage them to look for this extra help?

UCSB2: It ends up being one of these things where there's certainly a lot of just conversation throughout the course...when there are sort of things or places that there would be...it would be useful for them to consider talking to somebody outside of the class, I certainly suggest it and bring it up and make reference to the fact that there are other places to look for some of this information. I encourage it throughout the class. Part of it is, in their coursework, one of the things that I often suggest is in the syllabus I have all kinds of external resources that are both associated with the university and also just kind of wiki pages on the internet that are good for learning GIS and where people ask questions to learn how to do things. I just try to encourage them to go...or think a little outside of the box in terms of how you might develop some independent ability to find sources and information about whatever it is they are doing. Part of

that is even discussing the applicability of what we are doing beyond the scope of the coursework. Within the coursework itself I try to expose them to a bunch of different kinds of situations that would be associated with different kinds of work that would...so they sort of think about how does GIS...not just anthropologists, but if you're a urban planner, or if you are a geologist, or if you're a...I don't know, some other professions, so how different professions might deal with this kind of material. They can think about where on their own if they decide to pursue it where you would find somebody else who is using this software, thinking about the software and things like that and the data itself as well.

I: Okay, and would you say they're looking for these external resources? Do you get any feedback from them?

UCSB2: Yeah, some do. I think that it's a Oh, it's very hit or miss, it depends on how engaged the students are really, you know, some students are more engaged than others. And so if the students are more engaged, certainly are more likely to go out and look for some of that material.

I: Okay. Now we are going to move to some questions about your own training. I would like to hear if you have received any training in teaching with data, other than your graduate degree. If you have participated, like even in informal settings such as workshops, or if you get help from your peers, or even like more formal types of activities to learn about how to teach with data?

UCSB2

Yeah, that's a good question. So at academic conferences, I have dropped a lot, you know, attended different kinds of workshops that talk about how you might approach digital pedagogies, and things like that. And that's been the primary source of external experience, where I've kind of learned a little bit about how one might teach data or teach things that have to do with data.

I: What factors would you say that have influenced your decision to receive or not to receive training or assistance?

UCSB2 : Sorry, can you repeat that? It broke up a little bit.

I: What were the factors that have influenced your decision to receive or not to receive training or assistance on teaching?

UCSB2: It's ease of availability is really and even...the sort of awareness. I think that, you know, in terms of a lot of graduate school, or sort of things that are more directly associated with graduate school I haven't seen that many. So like, for instance, like at UCSB, you know, sort of, I haven't seen a whole lot of things, at least the sort of emails that I read, you know, one of these challenges where you get a million emails, so maybe there have been a bunch of emails that I've just passed over. But, you know, I haven't seen a lot of opportunities necessarily

outside of academic conferences to sort of have discussions about that kind of pedagogy, let's say.

I: Okay, and do you use any datasets, assigning plans, syllabi, or the instruction resources that you received from others, let's say from your peers, or from other schools?

UCSB2: I use other...so the basis with the class, you know, I mean, it's almost any class I teach, I always look to other syllabi, to get some ideas of how it's taught. And so I certainly use some other syllabi by of how a class like this has been taught by other people, but then, you know, everything else, so I sort of, you need to actually select the data sets are all, you know, it's stuff that I, you know, found myself, I have identified for the labs and things like that myself.

I: And do you make your own resources available to others, like openly available so that people can have access to your course materials? Or students?

UCSB2: Well, I don't have, I don't have a big public website where I post all the material, but if somebody asked for it, I certainly would make it available to others.

I: Okay, still concerning training. What would you say are evolving trends in your field, and what types of training or assistance would be most beneficial to you and other instructors, about teaching with data?

UCSB2: Well, I think that there's the trend in the field is sort of broadly one where people are interested in like anything digitally, I sort of attach the word digital to it, and people are all of a sudden, more attracted to it, you know, in one way or the other. And so there's, I mean, there's this kind of thing where people are interested in data or sort of, you know, but one of the things is that the vast majority of the sort of tenured faculty or people who are, you know, been around in one capacity or another, don't necessarily, it's certainly at UC Santa Barbara, they don't necessarily always sort of know what to do with data, they sort of like, they use data, I mean, it's sort of an interesting thing, because they, it's not that they're sort of unaware of, you know, what sort of happens with data, but the sort of this kind of more modern computational trend, where people are doing things on a larger scale with sort of bigger data, so to speak. And using, you know, sort of dataset, I guess, geospatial data sets somehow factor into this, they're sort of understood to be a little bit more complex than just, you know, sort of something that you would use a spreadsheet for something like that. Yeah, that so that, that sort of, I guess, sort of where things have been going and sort of this move away from just kind of really basic on your, on your own computer, spreadsheet analysis in Excel or something like that, you know, using, you know, some kind of older statistical package that sort of trying to use something that's a little bit more complex, in that, you know, might involve some kind of machine learning or, you know, even though that's not really what necessarily happens. Those kinds of things are what people get a little bit more, it's certainly, for instruction gets a little bit of attention, because I think they're interested in developing translational skills. Since there's this recognition that, you know, not everybody with an anthropology degree is going to end up being a university professor or anthropologists, and there aren't, you know, there's, there's not a lot of jobs out there that have

to title anthropologists. And so it's kind of, you know, sort of justifying the degree or sort of some of the skills that can come along with it in the wider workspace and sort of how you could teach anthropology to students while at the same time developing skills that are useful outside of anthropology or something like that. That's a little bit of a rambling answer, but...

I: No, it was great. So in terms of types of training, could you list or name a few things you'd like to have available on campus for instructors for teaching with data...

UCSB2: Yeah, I think I mean, to me, so I'll tell you, like my, like, where I have the hardest time or....but and this is actually I mean, this is, you know, this is what is this taking also sort of admitted this extends from a very wide definition of what is data in the sense that sort of like anytime that somebody, a student is trying to is this like, as almost as much to do with just how a student makes an argument is anything else. But you know, how it deals with data sort of, has a slightly different tack than if you were teaching it for like a writing class or something like that. So the key thing that I'd like to see is sort of more discussions on how you sort of teach students to be synthetic in their analysis. I think one of the things that often they run into, over time, as you know, sort of like students are very good at following, you know, directions in a very, you know, sort of descriptive, like a normative way where you sort of like, say, do this, do A, B, and C, and they follow, they do A, B, and C and whatever else, but then once it comes time for them to sort of take A and B and combine it with C and D, and but you don't actually give them D, that's where, you know, kind of some of the sort of challenges sort of common, so it ends up being one of these things, sort of like teaching some of these things with the aim of, you know, stoking some kind of imagination or sort of synthetic understanding of whatever is going on so that they will feel like they're really like learning the the core elements of what it is that you're teaching and then are able to actually apply it in a concrete coherent way that's a little bit more complex.

I: Great. We are actually at our final question now. And I would like to hear if there's anything else from your experiences or perspectives as an instructor, or on the topic of teaching with data more broadly that he would like to share?

UCSB2: No, think it was a pretty wide ranging conversation. I think that. Having some kinds of, you know, resources that are specific to teaching data are, would be, it is sort of like an interesting one. I'll just say that, like, sort of one of the challenges for me, even in some ways with, sort of, maybe this came across a little bit in this early conversation is that, you know, the class that I specifically have been teaching that, you know, is sort of truly this kind of, like data related class is both teaching software and the data at the same time, which has its own kind of unique challenges. Because, you know, you're sort... there's, they require two different, you know, sort of mental states in a way to, you know, fully understand and, it's the software itself is entirely very complex and then the data is also really complex. And, you know, I, in some ways, I mean, I've talked a little bit to [inaudible] about how you might separate the class that I teach into two quarters, which would maybe, like, help out that a little bit. But at the same time, I'm not sure that there's really a desire to make it a two quarter class. And so what do I think, you know, on campus, sort of one of the things that I sort of be curious to sort of, like, see more of, or sort

of understand more of is sort of like how, you know, that unique element, just sort of things where it is, I think this is probably true for if you're like thinking about teaching. I would say if you're teaching a statistics class, it's a similar kind of problem, because oftentimes, if you're really teaching a statistics class, you're also teaching something like Stata or SPSS, or R know, whatever statistical package you're using to use to process this statistical information, which requires teaching the students at the same time, that kind of thing. And I'd actually know that that's like something though, that I don't really, I'm curious, you know, sort of like how that kind of like....there's where the pedagogical elements or how these things are combined. And I think that the challenge for me is that, unfortunately, geospatial data is more complex than just a statistical dataset, just because it's, in addition to having statistical information, you also have all this geospatial stuff. And so you have to teach them about geospatial stuff on top of the statistics, and it's sort of a lot of work. And it's sort of hard to, you know, hammer in some kind of hard prerequisite that would....sort of in terms of like, what they really should know, to succeed in the class. But, you know, again, like, sort of this idea of teaching both data and software at the same time as its own kind of thing would be sort of like, also, like an interesting thing to learn about, or teach or sort of add some kind of exercises in or something.

I: Okay, so you mentioned that it was an idea to split into two quarters. And in this case, it would go about like, the explanation of the tool and how to use it, in a more general context, and the next quarter would be more engaging with data, that would be the plan, or how would you handle it?

UCSB2: In a more ideal setting, I think that I would spend more of the first quarter teaching the software and the second quarter would be more on sort of the data analysis, you know, so you're able to go from, because the challenge is, is that, you know, by the time that the 10 weeks are up, they're just really starting to feel comfortable, I think, in a serious way with software. And we're trying to end because it's a one core class and are also trying to deal with more complex datasets and more complex processes within the software, which they can usually handle on a basic function. But you if you really want them to remember what they're doing, or sort of have some kind of, you know, have this actually, have a more lasting effect, make spending more time, you know, specifically on the software, learning some of the theoretical elements of what is geospatial data...and what is like, what is how is that different from like other kinds of data sets? And you know, how is geospatial software, or software that can handle geospatial data inherently different from these other kinds of data sets? And then kind of moving on in a second quarter to like, some of the specific data elements would be certainly useful for the class that I've been teaching. And it's actually, you know, I should say that, you know, in the geography class, or geography department, they also teach GIS, but they teach it as a three core sequence. And I think they do it, you know, for that very reason for the reasons that I'm describing. But in anthropology, it's because it's more of...because GIS is more, is even more than just a tool, as opposed to the basis for...the theory, like map theory is not that important for an anthropologist what ends up being more important is that you're able to practically use the software. And so the class is very much a practice or nothing more than a theory oriented type of class.

I: Yeah. So, thank you so much. I'm going to stop recording now.