

**Bonni:** [00:00:00] On today's episode of Teaching in Higher Ed number 130, Chris Gilliard talks about digital redlining and privacy.

**Production Credit:** [00:00:11] Produced by Innovate Learning, maximizing human potential.

**Bonni:** [00:00:20] Welcome to this episode of Teaching in Higher Ed. I'm Bonni Stachowiak and this is the space where we explore the art and science of being more effective at facilitating learning. We also share ways to increase our personal productivity so we can have more peace in our lives and be even more present for our students.

**Bonni:** [00:00:47] Today's guest has already joined me on the recording. Chris, welcome to Teaching in Higher Ed.

Chris: [00:00:53] Oh thank you.

**Bonni:** [00:00:54] A lot of times I record the person's bio before they get online but I thought it would be fun to have you on with me because you're the hardest guest I've ever had to track down. Did you know that? [laughing]

**Chris:** [00:01:06] Well I take a strange pride in that, actually. Yeah. I mean given that the work that I do [relates to] privacy and that my Twitter handle is @hypervisible. So, you are not the first or last person to tell me that.

**Bonni:** [00:01:20] I have been admiring your work ever since I heard about you and there's always sort of the intimidation factor of just reaching out to someone. But usually it's fairly easy to get in touch with them you know in some way. And then I think we finally ended up connecting on Twitter and you graciously said I could direct message you and then we found each other.

**Bonni:** [00:01:40] But I'm so glad that you're here. And I do I do think it's funny that you're one of your areas of expertise on privacy and somehow that just makes me want to know even more about you.

**Chris:** [00:01:51] \*Inaudiable\*.

**Bonni:** [00:01:57] Oh yeah.

[00:01:58] My career that is in public, anyway. It's too funny to stop doing it.

**Bonni:** [00:02:04] Yes. It's good. You know it's good for us podcasters to be challenged by people that we want to hear your story. It's a good thing. Well you have been teaching for 20 years and I know you teach writing literature and digital studies and tell us a little bit about sort of the diverse institutions that you have worked at because they really seem very different from one another and then where you teach now.

**Chris:** [00:02:30] Oh well I've been fortunate enough to teach at a wide range of places I started teaching where I got my graduate degree at Purdue University. I taught at a Jesuit school University of Detroit and I also for my current position I taught at Michigan State University for a couple of years and now I teach at a community college in Michigan.

**Bonni:** [00:02:54] And I know your areas of expertise as we've already said are privacy, surveillance, data mining, and the rise in our algorithmically determined future.

**Bonni:** [00:03:05] And we're going to talk about two of these things that we're going to talk about digital redlining and privacy and I almost said at one point thought oh well we'll do two episodes if you were so willing but then they really do link a lot together so we have the great challenge of addressing a lot.

**Bonni:** [00:03:21] And I'm so excited that you're here and let's just start out with black boxes of yesterday. Tell me about what black boxes were and how they first came about.

**Chris:** [00:03:32] Well OK. Well generally the notion of a black box is the one of the ways it has come about is a lot of times when you hear it say of like an airplane crash they have like a black box and it's come to being sort of like it's cyclical setting. It's come to mean some kind of mechanism that people can't see into.

**Chris:** [00:03:54] Right. It's you know that there's like a groove or program or a formula that's inside operating. But the average user is not able to see inside of that to know what's happening. And it's gained a little more popularity now in terms of algorithms with the book Black Box Society put out by Frank Pasquale.

**Chris:** [00:04:19] And in that he talks about the ways that algorithms go a long way in determining lots of different things about how people live their lives today whether it's the you know what kind of things they do through Facebook or other social media or how their credits determine who gets the job.

**Chris:** [00:04:39] And generally those formulas that help determine those things are not available to the average user or consumer and so bad that formula is called a black box.

**Bonni:** [00:04:51] And today's Internet filtering is part of this concept of a black box too, right? Can you bring a little piece of that in as well.

**Chris:** [00:04:59] Yes. So I came to a lot of this through my teaching. And so the short version is my institution used to be. And they've changed that somewhat so I need to give them some credit. But they used to pretty heavily filter the Internet on campus. And one of the problems with that is that the people being filtered don't know that they're being filtered. OK?

**Chris:** [00:05:27] And so the common example of example I've read about and I use it because it's the best example that because I have so curious interest but it was pornography. So I had my students we do a lot of work on digital issues ownership of digitally produced work there or copyright questions of agency in digital settings things like that. And I had my students and some students wound up doing some research on revenge porn which is I'm not sure if you're familiar with the term.

**Bonni:** [00:06:05] Oh yeah.

**Chris:** [00:06:06] OK. OK.

**Bonni:** [00:06:08] Feel free - just in case someone isn't, yeah. Feel free to define it.

**Chris:** [00:06:12] Well generally what that means is if there are two or two for that there are consenting adults who digitally record their activities their private activities. And at one point one of the parties decides that he or she is going to

publish this material on online without the agreement of the other parties or party. And often as a way to get back at it at the at that party for some perceived wrong then that's known as revenge porn.

**Chris:** [00:06:50] And my students are doing work on this. And I mean we all know about the other moral panics about sexting and things like that. So these are things students need to know about. And when my students search revenge porn they would find is that these search engines just turn things that just had they pretended the search engine would essentially pretend that the word porn didn't exist.

**Chris:** [00:07:19] Now my students were not looking for pornography they're looking for scholarly works where in popular works on revenge porn which started that. But if I had been there to guide them they would say Professor nothing exists on this topic. And if I hadn't been there to guide them and say, "Oh no. You look at the work of this person, or you to look at the work of that person, and it does exist but our computers on campus are not allowing you to get that.".

[00:07:47] They would have just gone on - not knowing you know or thinking that those that kind of scholarship didn't exist. I mean this is one of the pernicious effects of filtering out the case because unless you have access to unfiltered internet or unfiltered feeds or something like that or unless you have a really good understanding of how filtering works you often don't know what you're not getting.

**Chris:** [00:08:15] It remains invisible and especially in the case of it. And that's really harmful because it's essentially walls them off from information.

**Bonni:** [00:08:25] How has your work looked into how filtering is treated differently or the same depending on the type of institution that it is?

**Chris:** [00:08:35] Well that's an interesting question. So in K through 12 there for the most part there is a federal there's federal restrictions or federal mandates that there needs to be some kind of set time allowed that ties into how the Internet or broadband is funded in K through 12 institutions but that mandate does not cross over into colleges.

**Chris:** [00:09:00] And so typically a lot of institutions where I've been or that I'm aware of and my colleague Culik and I have actually looked out the acceptable use policy of quite a few colleges. Typically filtering is not in place. I

mean so you know legal things will be filtered or yeah things that are really awful I don't need to do with those typically things.

**Bonni:** [00:09:29] These are things that are things I won't be linking to in the show notes? That's what you're telling me? (both laughing) I should stop typing now. Stop taking my notes.

**Chris:** [00:09:40] But for the most part, other than that colleges tend to not filter but I have noticed that there may be the uhh... How shall I say this? Often the more prestigious the college is - or even if we want to look at in economic terms - the more money a place has the more open network is in terms of allowing a lot - of not filtering.

**Chris:** [00:10:09] But also in terms of - if we want to hink about acceptable use policy in terms of how students aren't encouraged to think of the network. And so a lot of experience again came from my institution where I and a few other colleagues were involved in a pretty pretty extended discussions with our institution about whether or not colleges should have filtering - should filter out any material that is legal and I'm on the side that says no they should not.

**Bonni:** [00:10:45] One of the other ways that you have said that this problem is compounded is just the access to paid for databases. Can you share a little bit about that and how that creates even more of a challenge?

**Chris:** [00:10:58] Yeah well it's interesting. Not a lot of people seem to know this but also again students aren't necessarily privy to this information which is that things like a JSTOR and first search and things like that - scholarly databases that often professors are really high on students using....

**Chris:** [00:11:19] Those are the scripts and services and a place like mine a community college has much different access because we have less money than in a place like Michigan State or University of Michigan would have. OK? Two institutions also in my state.

**Chris:** [00:11:37] So my wife recently started teaching at university of Michigan and that was a real thrill for me because it meant that I would have access to all of their database of services and articles that I would be able to get through my institution. But again students don't necessarily know.

**Chris:** [00:11:56] So they may something may pop up that says this article is not accessible or it may ask them to pay for the article. But again for a student

basically means there. I mean most students are in a position and I certainly wouldn't even encourage them to do this to pay \$39 for an article. So that often stops their research cold but a lot of times students don't know why this is happening.

**Chris:** [00:12:23] You know no one's explained the structure to them of why certain places have certain kinds of access and others have different kinds of access. And so if we imagine he was doing research he was trying to get work done. He was pursuing their own interests.

**Chris:** [00:12:40] They often run into walls that exist sometimes that they're aware that the walls exist - even maybe different from the filtering - but they're not aware of why they exist.

**Bonni:** [00:12:52] And I suspect although I didn't ask you this in advance - let me let me put a theory before you - but if I as a student or I as a faculty member don't know that I am being filtered I probably also don't know that I'm being tracked that what I am searching for is being tracked. In some cases by my institution right?

**Chris:** [00:13:12] And that's different in all different kinds of institutions. I mean it can bring in stuff about learning analytics and things like that. But for the most part I mean people who run networks are responsible for being able to maintain those networks.

**Chris:** [00:13:25] And if there are threats finding out where those threats originated from the level of tracking that's going to be necessary or how that's done was done by who has access to the law books how long they keep them. You know all these things are important questions. But yeah. In my experience both with the faculty and students - this awareness of how closely watched we are when we are on networks - it's not high. That awareness is not high.

**Bonni:** [00:13:56] And we can even broaden beyond the institution because my my work shows that our students don't necessarily even realize you know to what extent Google is tracking them or why when they go in search for a particular product outside of Facebook and the next time I'm on Facebook all of a sudden I'm presented with an ad for that very same product. What a coincidence - on the right hand side of my screen.

**Chris:** [00:14:16] Right. Yeah. Yeah and you know... As you can imagine - as you mentioned I'm interested in privacy. I think that those are essential - that

information is essential for students and for citizens for consumers for all kinds of reasons. Right? I mean that's the way we experience the web. I think there's some there's some ways in which that's a very problematic model.

**Chris:** [00:14:45] But it's the one that we're working with right now - so people need to understand that in terms of whether it's war in terms of how they do their work or how they do their shopping or you know how to what degree they want to have some anonymity or privacy when they when they operate online.

**Chris:** [00:15:07] And I found that lots of again lots of students aren't getting this information. We work on a lot in my classes and some and very often it's the first time a lot of people heard about it - or heard about it to the extent that we tend to discuss.

Bonni: [00:15:25] What is digital redlining?

Chris: [00:15:29] Oh well OK. [laughing at the magnitude of the question]

**Bonni:** [00:15:31] I know... You are just going to dive right in. You're like, "Ok. Set your watch it'll take two hours."

**Chris:** [00:15:40] Let me give you a little background. I am from Detroit. And one of the amazing things about Detroit that is remarkable to people who are not from here is that there are streets you can walk or drive down where you see a very different city - depending on if you look to the left or to the right.

**Chris:** [00:16:03] You know so there's a town called Gross Pointe and on one side and it's Detroit on the other and literally on one side of the road. You know there's a hole in the road and some dilapidated houses on the other side. There's a million dollar homes and all the lampposts have planters with flowers. Yeah. You know there are other areas where this is clear also. You know the eight mile which has probably been made famous or infamous by Eminem. I don't know the average age of your of your listeners - but many of them have heard of [his song] 8 Mile - you can see that as well.

**Bonni:** [00:16:38] And if they haven't I'm going to link to it in the show notes so they can go check that out to get yourself educated people. (joking)

**Chris:** [00:16:47] And so a lot of those a lot of that disparity is rooted in history. And you know if you want to really long, but high quality discussion of some of this, you can look at Ta Nehasi Coates long long form work on the topic called

The Case for Reparations. But essentially in I think in 19... The National Housing Act of 1934 would establish the Federal Housing Administration.

**Chris:** [00:17:19] What they did is they basically - how shall I say it? - At the behest of the Federal Home Loan Bank board the Homeowners Loan Corporation created maps of cities and those maps would be code color code and letter grade different areas of the city in terms of where which areas would be invested in and which areas would receive who would receive loans to build or buy houses in the area and things like that.

**Chris:** [00:17:52] So often there would be red lines through - drawn around the worst often called hazardous areas of a city. And those are - those were typically the areas where where black people lived. This practice is called red lining.

**Chris:** [00:18:13] And if we think about - throughout much of America's history - housing you know - access to housing has been one of the primary ways in which people built wealth. So if we just think about that in terms of minorities being denied that access to to building wealth in that way. And even generational wealth.

**Chris:** [00:18:38] Definitely before the 2008 crash this was true for you know the 50 years previous. We can we can see how that disparity manifests itself throughout throughout history. So I found that this is a pretty useful frame for also thinking about access to information and access to technology. And so I call that digital redlining.

**Chris:** [00:19:04] And what digital realining is. It's tech policies technology policies practices pedagogy investment decisions that reinforce class and race boundaries and so that that's how I think about it. That is the goal. That's the shortest answer I can give.

**Bonni:** [00:19:27] And I know you have other examples of how ed tech tends to digitally redlines students and especially if we are not thinking very critically about it could you give a few of those examples.

**Chris:** [00:19:40] Yeah. I you talk a little bit about filtering. I think is one of the main ways. But I also think it's important to also think about access. Right?

**Chris:** [00:19:48] So for instance there is a very prevailing myth about who has the Internet that everyone lots of people think that everyone has the Internet

that everyone goes home and they have high speed access and there's lots of numbers I could cite.

**Chris:** [00:20:07] I could point I could point you to some stuff in the show notes but there are lots of people who do not have broadband who are cell phone dependent who say maybe only have the Internet through their phones who have some form of not high speed Internet.

**Chris:** [00:20:26] And that makes a difference say in if you think about that when you're assigning things. So a lot of time professors may find students videos that they need to watch to watch a movie to do something that depends on the Internet and depends on something that would gobble up a lot of data. And that is not available to everyone. And so.

**Chris:** [00:20:58] You've essentially been giving the student a couple of choices - none of which are good. Rates - so maybe they have on the Internet on their phone and they are on a limited plan or maybe they don't have it at home and so they have to - they can only do it from school.

**Chris:** [00:21:15] And when we fail to take into account these things we're really harming our students. And I see it in the last two years I've been a lot of traveling to different conferences talking to lots of different instructors.

**Chris:** [00:21:30] Now this part is anecdotal evidence but there there are many many people who haven't thought of both at my own institution and in institutions across the country so that even something as simple as designing a syllabus we need to take into account how certain people might or might not have access to certain technology even something as basic as some consider basic as internet access.

**Bonni:** [00:21:56] I had a guest on the podcast a while back Mike Cross who teaches at Northern Essex Community College and the episode was all about how he went undercover as a professor at his - I'm sorry he went undercover as a STUDENT at his community college and just what a reality check that was for him.

**Bonni:** [00:22:14] But of course most of us are probably not going to necessarily be able to append our lives the way that he did to accomplish something like that and so I'm wondering for you - are there any ways that we can think about just how to get small doses of reality checks when it comes to these things or is

there a way of putting on some lenses to to call more attention to ourselves of ways that we are potentially doing this without even realizing it?

**Chris:** [00:22:41] One of the things I really have - I don't know how if I would call it - but when we when we think about pedagogy and especially - one of the things that kind of gets me is the desire to put some kind of technology between you and your students that works against some of the really important aspects of teaching.

**Chris:** [00:23:10] And what I mean by that is very simply talk to your students. You know I mean I have a joke about and it's not actually that funny but a lot of times I asked my students the names of the other professors and a lot of times they don't know and they don't know - not because there's some fault with them - with the students - they don't know because their professors haven't engaged them. You know the professor didn't say, "Hey how are you doing?" You know, "How was your weekend?" There's a mutual interest in sports or whatever it may be...

**Chris:** [00:23:50] And when you find out you know - I have students who are fast food managers, who are welders, who have two and three jobs you know so there's a very simple thing you could do which is engage your students a little bit more. You know there's also research out there that talks about some of these issues that students face I'm not sure I'm pronouncing your name correctly but Sarah Goldrick-Rab. She used to be at Wisconsin but she left with the Walker initiative.

**Chris:** [00:24:21] She has some really interesting work. Tresse McMillan Cottam does some really interesting work. I mean there's tons of stats to talk about the number of students college students who have had some experience with homelessness. The number who are single parents you know and these are not the experiences of necessarily people very high profile colleges but that's only a select few of us anyway.

**Chris:** [00:24:48] So if we if we take the time to look at this information that is available you know like why do colleges have food banks. I mean we can know a little better what our students are going through. And I firmly believe that this will change the way people teach because you know and I really want to bring this up.

**Chris:** [00:25:12] But all of flying around about coddled students and things like that which is nonsense. If you look at who students are the kinds of things they

have to go through to get an education. I mean we really need to consider that stuff more even making decisions about you know about the syllabus about what's required about how long people will have to do an assignment.

**Chris:** [00:25:38] All these things like what technologies we use and don't we understand better who our students are. So it will change how we do those things.

**Bonni:** [00:25:46] One of the things I sometimes like to do... I don't require this but if a student has come to my office hours and is asking a question about an assignment or something - I teach a lot of blended courses so they have their phone with them or if they have their computer with them - I like to have them bring it up on on the computer or if the student is trying to see where they stand in the class, "Oh we'll let's go look..."

**Bonni:** [00:26:09] Click on my grades and let's let's look at this. I use a learning management system called Canvas and one of the features I really like about is it lets students create projected grades for the end of the semester so I encourage them to make one for the worst case scenario and the best case scenario and save those things, but when we do it together it helps me see through their eyes how they're experiencing whatever technology I've set up for the class. I catch myself all the time - thinking that's just bad design you've got to fix that. That's not the right place for that link, or - no wonder it's confusing - now that I see from their eyes. It's it just really helps me to actually look at it together.

**Bonni:** [00:26:48] And then it also helps them be able to be more equipped than when I'm not there to go on I remember she showed me that thing now that I'm wondering at my grade I know where to go and the next time and it's not like I want to not have that conversation but but it just I guess it makes them be able to know what my intent was in setting something up so I think it's self-correcting in both cases in a positive way.

**Chris:** [00:27:10] Absolutely. And I think it's important to learn from our students. You know they are adept at technology and a lot of ways you know and this kind of gets into some of the digital native stuff. I mean that would be a different different podcast...

**Chris:** [00:27:25] But you know we often assume that students because they have technology or particular technology like most of my students have a similar fault to some of them have a better feel have but they don't you know they're adept at using it in the ways that are important to them.

Chris: [00:27:42] But they are probably not adept and get in the ways that I would you know in some different ways. So everybody's students have grown up for the most part using search engines - using Google. But you'd be perhaps amazed at some of the ways that some of the things they don't know about how certain results come up or why what comes up first comes up first the existence of Google Scholar - you know the benefits and detriments of using Google versus using databases. You know all things that we need to engage with. I mean I say we can learn from them but there there's definitely things you know tech wise that we need to work with.

**Bonni:** [00:28:31] And before we go on to the recommendation segment I wonder if you can distinguish for us between digital redlining and what's often talked about as a digital divide?

**Chris:** [00:28:45] Well good question. I tend to have a better way to phrase this so I'll just say it as I've said it before. When people say digital divide it's often looked at as sort of a natural disaster or something like that like a force of nature like something that exists but it exists outside of any context where there's somebody to blame or sort it or some way to address it in terms of being an act of will and it will do a variety divide exist.

**Chris:** [00:29:21] And then we have to you think about how to get people what technology and that's the simplified version of that narrative. But we often see that when I say digital redlining the way I distinguish it is that it's typically decisions its policies its investment decisions its pedagogy or its decisions made without thinking about questions of access or bias or how it might affect certain communities and differentially.

**Chris:** [00:29:55] And so I distinguish it from the digital divide. If you say redlining it's it's a decision that people have made. You know if you say divide you don't really know where it came from. And so it's much harder to address it.

**Bonni:** [00:30:11] Yeah and I know you've said that the digital divide as is the noun and so it sounds to me when you say that it just is versus digital redlining is an action that I am taking and as I've said whether I'm doing that intentionally or unintentionally.

**Chris:** [00:30:25] Right yeah. Digital redlining is a verb. I am eventually going to do T-shirts I think.

**Bonni:** [00:30:33] I'll be I'll be among your purchasers. Well this is the point in the show where we each get to give recommendations and I'm actually going to just quickly mention that Joe Murphy recommended on the Teaching in Higher Ed slacke channel that we all watch your talk that you gave at Boston University.

**Bonni:** [00:30:49] He really enjoyed it and I had a chance to watch it before speaking with you today and I think it's a great deeper dive into some of the things we've been talking about. That's a recommendation from Joe Murphy.

**Bonni:** [00:31:00] And then I want to recommend a very very short five minute Ted talk from Julia Sweeney. If you're not familiar with her she's a Saturday Night Live comedian. I was going to say from long ago but she's still with us. It's just I don't think she's still doing that. But this is this is from let's see 2010.

**Bonni:** [00:31:20] And I've watched it probably close to the 3 million people that have watched it on the TED talk site. It's hysterical. And I'm going to play just the very beginning because she sets it up better than I do and then I'll explain why I think people should listen. So here's a little brief intro of Julia Sweeney's TED talk called "It's Time for The Talk.

**Julia Sweeney:** [00:31:42] "I have a daughter, Mulan. And when she was eight last year she was doing a report for school or she had some homework about frogs. And we were at this restaurant and she said so basically frogs lay eggs and the eggs turn into tadpoles and tadpoles turn into frogs. And I said you know I'm not really up on my frog reproduction that much. It's the females I think that lay the eggs and then the males fertilize them and then they become tadpoles and frogs. And she says what? Only the females have eggs? And I said yeah and she goes and what's this fertilizing?

**Julia Sweeney:** [00:32:14] So I said oh is this an extra ingredient you know that you need to create a new frog from the mom and dad. And she said oh so is that true for humans too. And I thought OK here we go. I didn't know what happened so quick at 8. I was trying to remember all the guidebooks and all I could remember was only answer the question they're asking don't give any more information. So I said yes.

**Bonni:** [00:32:43] That's a little bit first minute or two of her talk. And it actually relates to today's episode a lot of times my recommendations don't but because she does a little internet filtering of her own but she's also extremely open with her daughter and it was just so fun for me to watch it because I don't think I've seen it since our daughter was born.

**Bonni:** [00:33:02] And let's see she's two and a half now and boy is she ever already asking a lot of questions for I just go oh I just know we have a lot because I really am an open parent but oh my goodness some of the things you try to figure out how to make them age appropriate and you know relevant to them. It is a fun challenge and they do ask the darndest things sometimes so that's my recommendation. Chris, what's your recommendation for today?

**Chris:** [00:33:26] My recommendation is Cathy O'Neil's book, Weapons of Math Destruction. which I have yet to read but I'm a huge fan of her work her blog and her work on Twitter. It talks in great detail about a lot of the things that we've been talking about in terms of algorithmic decision making and how these things affect people's lives in the ways that they are often not privy to.

**Bonni:** [00:33:53] I had no idea you were going to recommend this. And I just bought it two days ago and read the sample chapter and I'm hooked. I can't wait to read it so I'm so excited. I didn't even know she had a blog and I'm super excited to learn more about her. Thank you so much for that. That's great.

Chris: [00:34:06] Her blog is math babe.

**Bonni:** [00:34:10] I love that.

Chris: [00:34:11] She exists online as math babe.

**Bonni:** [00:34:13] Well I am so looking forward to learning more about her and I now you've made me want to read even more even though I already did. I mean it just looks fabulous in the first chapter was great and it should be really good.

**Bonni:** [00:34:22] Well Chris thank you so much for being willing to be less private. [laughing] You know come on come on the podcast. You've heard your expertise and for taking a risk on me I know you didn't know me and I was just so fun to have you here and get to be challenged by some of your expertise and things that you want us to really consider in our teaching.

**Chris:** [00:34:42] Thank you it has been a real pleasure. I mean I love talking about this stuff so thank you.

**Bonni:** [00:34:48] It was so fun to talk to Chris today and I really appreciate his time. Thanks to all of you for listening. If you want to comment on the show notes

from today's episode you can do that at teachinginhighered.com/130 and at the bottom of the episode notes will be a way to get in contact with us on Twitter and on his Web site.

**Bonni:** [00:35:08] And I also want to mention that if you have yet to subscribe to the weekly e-mail that comes out from Teaching in Higher Ed - that's just once a week and you get the show notes automatically coming into your inbox along with an article about teaching or productivity and you can do that at teachinginhighered.com/subscribe.

**Bonni:** [00:35:28] And I really thank those who have been giving reviews on iTunes or whatever service that you use to listen to the show it's been so fun to read your encouragement and know that other people now can discover the show through you. Thanks so much. Thanks for listening and I'll see you all next time. Bye.

Teaching in Higher Ed transcripts are created using a combination of an automated transcription service and human beings. This text likely will not represent the precise, word-for-word conversation that was had. The accuracy of the transcripts will vary. The authoritative record of the Teaching in Higher Ed podcasts is contained in the audio file.