Christopher Richmann: Welcome to Professors Talk Pedagogy, a podcast from the Academy for Teaching and Learning at Baylor University. I'm your host, Christopher Richmann. Professors Talk Pedagogy presents discussions with great professors about pedagogy, curriculum and learning in order to propel the virtuous cycle of teaching. As we frankly and critically investigate our teaching, we open new lines of inquiry. We engage in conversation with colleagues, and we attune to students experiences, all of which not only improves our teaching, but enriches and motivates ongoing investigation, and so the cycle continues.

Today our guest is Dr. Scott Cunningham, the Ben H. Williams professor of economics at Baylor University. Dr. Cunningham studies a number of topics, including mental healthcare, sex work, abortion, and drug policy. He is the co-editor of The Handbook for the Economics of Prostitution with Oxford University Press, and the author of the widely-read book Causal Inference: the Mixtape, which after several years is still in Amazon's top ten books in Economics and Statistics. On his Substack, Dr. Cunningham has been sharing his adventures with ChatGPT in his work, especially his teaching. We are delighted to have Dr. Cunningham on the show to discuss using artificial intelligence as a pedagogical partner, fostering students' self-love, and much more.

CR: Scott Cunningham, thank you so much for joining the show today.

Scott Cunningham: Thank you for having me.

CR: Well, I wanted to invite you onto the show because I've heard from multiple sources that you do some interesting things in your classes related to AI. So, you seem to be more adventurous and open about artificial intelligence in your teaching than, I think, most instructors are, at least at this point. So, can you just kind of open up for us what you do in your classes and maybe like what motivates you or animates you to incorporate AI in your teaching?

SC: Yeah, so I'm a professor in the Economics Department at Baylor and been here since 07. My class…I teach this semester a class called the History of Economic Thought. And I teach another class that's called Issues in Economics, Econ 1305. And last spring, I was teaching Issues… Issues Econ 1305. And it was the first semester where I decided that I wanted to do something different with that class. So, historically the way that class is taught, it's a class for non-majors, non-econ majors. And I think it satisfies some kind of social science requirement. So, it kind of pulls from all over campus outside of the business school.

CR: Okay.

SC: So, the way that people typically teach that class is they basically take their normal intro econ class and then they just teach it. And so, I… or they'll kinda do the stuff that they like. I had…they do it that way for lots of reasons. But I decided, you know, what I wanna do is …I wanna do a class on books. I want to do books to read together. So, I picked four books. Well, in the middle of the semester, ChatGPT 4 came out. That was probably March. And immediately I could see there was gonna be a problem because part of the class was to write an essay for each of the books. And I just kinda felt like I could immediately tell we were gonna have a problem. So, all summer, nothing really happened, but it just got my head thinking. I ended up spending all this time on…spending time on ChatGPT. So, this summer, I just started thinking, you know,

I've got Issues coming up again, Issues Econ 1305, and then I've got this History of Economic Thought class that I really like. So, I had this idea. One of the things I noticed in the Spring when ChatGPT 4 came out was, it was unusually good at storytelling. That's what everybody kind of knows. But I had found that it would tell stories really well. I kinda started noticing that you could use it to engage in like fiction and get it to do things that were pretty interesting, like tell an entire dramatized scene. It could become a person. So, that was in my head. Then going into the Fall, I had this idea and I actually sat down with ChatGPT 4 for a solid month. I basically had this ongoing one window open on ChatGPT 4 where I was just talking to it all the time about this idea of a class. I could feel this class idea inside me, and I didn't know how quite to get it out. The idea was … it was basically here was the idea, it was economists have been concerned about machines for a long, long time. So, the Industrial Revolution would be like the first machine age.

CR: Yeah.

SC: You know, and it was a huge, huge impactful event in the history of humanity. It led to just a profound break from historical levels of poverty that were just like, you know, the levels of poverty humans lived in before the Industrial Revolution was kinda like a very, very, very poor-developing country now.

CR: Yeah.

SC: And then with these machines, you know, the steam engine and these others, there was huge increases in wealth, huge increases in living standards, but also growth in inequality. So, it kinda led to all these things. And in the 20th century, there was this other thing that happened, which was that education became tied up with those technologies. And some technologies that were continuing to be invented were also affecting prosperity and inequality, primarily through like whether or not you had enough education.

CR: Yeah.

SC: So, I could kind of see this idea. So, I started talking to ChatGPT, and I was like, look, I think that the idea for this class, you know, it's called Issues in Economics, and in my opinion, artificial intelligence is an issue in economics.

CR: Yeah, there you go.

SC: like it's a big deal. So, that's one. and one of the things that AI is gonna do is it's probably gonna to impact what I call the labor markets. The jobs, the kinds of jobs that kids get, the kinds of jobs that all of us have. And it's probably gonna impact it differently depending on what the skills are of the worker. So, I kinda like started saying like, you know what I want to do is this class I want to do the stuff I did in the Spring which was reading books. I don't want to spend all this time in a textbook with these kids.

CR: Yeah.

SC: They're not econ majors, they're coming over here. I want them to learn enough economics so that we can engage with this issue. That was the thing I was trying to articulate and what was great about ChatGPT is like when I was designing this class, how it could be so conversational, but it had this perfect memory of the entire conversation.

CR: Right.

SC: So, I could go back and just go, all right, catch me up, where are we, summarize this, put it into a document that I could then copy and paste and put it over here. And let's just go back to that. And then I could like every time I would start over, if I thought there's a good chance it maybe doesn't remember the full story that I'd copy and paste it back in.

CR: Yeah.

SC: We went through like this all like for a solid month, and I never spend, it's kind of sad, I never have ever spent this kind of prep 'cause it was completely inventing a class that did not exist.

CR: Yeah.

SC: So usually an econ, when you teach a class, it's got a textbook. So, you just use the textbook and like, you know, it's like a coherent field. You know, it's like…it's, you know, money in banking, or it's like labor economics…

CR: Very well defined.

SC: It's well defined. And I was kind of like thinking, this is going to be a class on first and second machine age. That was kinda what I was like pitching it as like first and second machine ages. And in between this stuff about the returns to skill, which is like, you know, and how does AI affect job markets through touching upon worker skill. And so, that was kind of the idea, but the other idea of the class was, I also felt like, you know, these are probably going to be sophomores, they're not even wanting to be in this class. I don't have any pretense of believing that anybody that's forced to take an Econ class for a pre-req, of some other major, probably is super excited about being in the economics class. I love it, but I don't think everybody does. But I know that these kids are at the beginning of their adult lives. And they have dreams. And they have aspirations of what they're wanting their life to be about. And…Yet this technology could be coming in as like a real salient kind of shock that could change their labor markets. So, I like…what I decided to do was I was like, I want to build a class that simultaneously teaches them enough economics to talk about this AI and history.

CR: Yeah.

SC: It's like the machines in the Industrial Revolution. You do all those things, you really get into a lot of the stuff that economics is about, which is like prosperity and inequality. It's like, you know, people growing and then not growing at the same. We get into like, we get into five key areas of economics, and ChatGPT helped me figure it out and then we read the books.

ChatGPT helped me figure that out too, came up with assignments. But then I also was like, I want to do a big assignment where what we're doing is helping these kids think now about what does it mean, you know, there's a career, there's jobs that you get. And you get jobs in order to make money, in order to buy the goods and services that you feel like you need to live the life that you want. And it's a difference between a career and a set of values. And I wanted them even now to kinda start to realize that, you know, there's things that God has made each of these kids like really unique. And if they really reflect on it, if they can really reflect on it, they can kinda see that there's like deeply held values that they have. Things like courage or things like love and sacrifice, or family or whatever, whatever it is, it's different for every one of these people, so it's different for me too. And if they don't realize that there's these values that they have, which kinda touches into these elements of like the skills.

CR: Yes.

SC: So, it's like if they don't realize that these values that they have and that that's different from a job, then they can really make some core mistakes. If you think that because the values really are not, they can't be compromised without causing major distress. But the job, you can quit a job, it doesn't matter how much you love your job, but you just, that one humans have…

CR: You can quit a job and you can develop skills. But like there's something core.

SC: If you've got to go do something where you're no longer, you're at your core, feel like you're a loyal person, and you're not able to figure out what that still means. That's gonna be… that could be harmful. You know, and I think like so I could see a class. ChatGPT helped me figure out the class. And so, what we're doing in that class is two things. There're two key AI assignments in the class. First assignment is what I call critique or crit. What I gave them, I was thinking to myself, I was like, you know, what is it that every professor is terrified of? And it's like some version of what you would just call plagiarism.

CR: Yeah.

SC: Right? So, I was like, well then I'm just going to have them plagiarize. So, what I'm going to do is the assignment, I'm going to have it as the assignment. Here's an article every week. It's a top newspaper article, so it's not like an academic article. I'll say like, here's an article about ChatGPT. It's usually about ChatGPT. I want you to… first part of it is copy and paste the article into ChatGPT 4. Ask ChatGPT 4 to summarize and explain the article, copy and paste that into a document, which is the thing everybody's afraid that they're going to do.

SC: So, then now the second part of the assignment: ask ChatGPT 4 to critique the article and provide two sources, copy and paste that into it, which is again the thing. Then I just go ahead and get that over with. They do that, they put it in. And then the second thing they have to do… that's like one document. And then the second document is, okay, now read the original and read what ChatGPT did. Score it, on a score of one to five of accuracy. How accurate was ChatGPT 4? Second, how creative was it? Score it one to five. Then third, what I call the hallucination score. Find each source and confirm if it's real and appropriate. If it's real and it's appropriate, give it two points. If it's not real, if it's not real, give it zero. And if it's something in between,

give it one. So, the assignment was basically to just get them doing this stuff and then essentially to get them to stand above ChatGPT and like… to judge it, to see if it was doing it. But my feeling was you're just never gonna be able to teach someone what ChatGPT can do until you just make them do it every week for 14 weeks. And so, what ended up happening has been pretty fascinating. At the end of the semester, I'll have all this data because I'll have all these numerical scores. The first thing that's happening, students are regular, first of all, they're just playing with it. I actually think that a lot of the Baylor students were… I've been really surprised that they're not more enthusiastically already adopting it. But they are in my class, you know, everybody in my class, it's like we talk about it all the time. But so, one of the things that they've said is, you know, they're learning how to use it. And then the second thing is, they're noticing that they are getting better at ChatGPT.

CR: Yeah. Yeah.

SC: Which I think they thought it was just like, you know, Like a hammer.

CR: Yeah. Like an answer machine.

SC: Yeah. It was just like, you just plug it in, and it would do it, and they didn't really think that it had that… they didn't really think of it as a guitar.

CR: Yeah, yeah.

SC: It's like you give somebody a guitar, they're going to be horrible at it until they learn how to play guitar and then they're going to get better at it. And then they might get really good at it.

CR: If we were doing this interview in my office, you'd see the guitar.

SC: See the guitar? Yeah. Yeah, exactly.

CR: So that's something to point too.

SC: So, then that's one. But then the other thing that's been interesting is they've seen firsthand that it hallucinates and nothing they do can get it to stop hallucinating. So, I needed them to see that. I needed them to see that like whatever it is that makes ChatGPT very, very good at what it does is exactly what makes it make up…

CR: That's well said. Yeah. I have frequently, when I talk with faculty and graduate students about AI, I said the word hallucination was actually kind of sold to us along with the product itself. And I feel like it gives a little bit too much of a benefit of the doubt. No, it's lying. I like to say it's not hallucinating, cause hallucinating is like, oh, a person is like duped or there's something, there's like a disease or, you know, some dissociative disorder or something like that. No, this thing is programmed to spit out information even, and in spite of any kind of truth claims, that's, it's not like a, you know, giving it some kind of like benefit of the doubt that it's oh, I'm sorry that you got that wrong here. Let me fix that. No, it's going to keep lying.

SC: I think, I mean, it's like the reason it's good at what it does is exactly why it hallucinates source. I don't know if it can really, I mean a lot of when you look at what open AI and other companies are trying to do to make it stop hallucinating is they do not try to fix the model. They try to force it, they try to put things inside of it that forces it to come up against the fact that it just made something up. So like, they'll do things like they'll stick, they'll have it interact with a computer program called Python. Python will spit out an error. So, they'll get an error and then it'll know, oh, okay, that's what I just did isn't correct, then it'll back up and do it again.

CR: Okay.

SC: So, there's things that they seem to be trying to do but I don't know if they can really fix the large language model because that is what it does.

CR: Right.

SC: So, like the other thing I did, the other thing I have them doing is this podcast. And the podcast, big assignment. It's worth 40% of the grade, but it's like five different assignments that lead up to it. Basically, what they have to do is… first assignment is called the 20-year plan. And the 20-year plan says, you know, one day you're gonna die. So that's like the end of the syllabus. On every syllabus that you have to die at the end of the…

CR: Okay.

SC: Yeah, we're all gonna die. So, I say you're gonna die, so let's do your 20-year plan. Where do you want to be in 20 years, where you want to be in 10, where do you want to be in 5, 2, 1, 6 months? And I kind of get them to just sort of articulate to me what their plan is and they turn that in. And then the second one was like this values thing that I had ChatGPT help me figure out a way like to run them through a set of prompts where they would like articulate what it was their core values were, and then ChatGPT took both of those and suggested to them a person to interview, a notable figure. So, like for me, it recommended Desmond Tutu and Brene Brown. So, the podcast idea is they've got to interview ChatGPT pretending to be that person.

CR: Okay.

SC: And that's like the big thing. And so, to show them that it works, I did this interview and I posted it today to my Substack. I interviewed Adam Smith. ChatGPT was pretending to be the first economist Adam Smith. And it is incredibly, I mean, it, I mean, it's… feels like a real conversation.

CR: Yeah.

SC: And so, you know, I'm like building to it, of just trying… this is a project that just completely might fall on its face. But I told them, I was like, you know, the bar is kind of low actually for this class because otherwise I would have just…we would have just had more. You know, so we're gonna do it this way. And this kinda fits with my long-term goal of like I want you to be thinking about your labor markets plan. I want you to be thinking about how

economics is helping you think about how technology could be disrupting these labor markets that you're wanting to go into. And thinking about your values and talk to someone who maybe is in this career that you've had. So that's kinda what…that's kinda what I've been doing in this class.

CR: That's fascinating, there's so many layers to that. What I'm really curious about is just how the process of using AI itself as the brainstorming tool. It seems to be like the real nugget of this that you had kind of a gut feeling about a direction you want to take a course, but you used ChatGPT to really hammer it out. So, what did you learn from that process? I mean, you said it took a long time.

SC: Yeah, but it took a long time because of how successful it was going.

CR: Yeah. Yeah.

SC: You know, it was like I would have never even attempted it. It was like the wheels have not come off of the class, you know, and that's usually like my big, anytime I do something ambitious, like I can't quite see the big picture of how all this is gonna hang together in a actual pedagogically impactful class that has learning objectives, that are achievable and that like know how to have assignments that will get to those learning objectives. I have never known how to do it. Because it's like to be a good teacher requires so many different skills and we never got any of that training in economics about how to design that kind of class. I mean, they're usually, you know, in economics you're…it's like very big on the chalk and talk kind of method. So, you're just like, that's it. You just sort and you have textbooks, and you just use the textbooks and you just kind of wing it and so…

CR: you hope the students are catching on.

SC: Exactly. I mean, you just basically are like, you know, you're just gonna get in there and try to fight with them to hopefully they get excited. But…so, what this was, what I learned was that first of all, you can say anything like you can, you can type… the open AI ChatGPT 4 has a very large window for words. You can type into the browser a large, a large amount of information. So, I could just…

CR: yeah, it's like tens of thousands of words.

SC: Oh yeah. I mean, you know, in each thing. So, what you can just sort of say is like, I would just kind of go look, here's the deal, I got to get in, I know I want to do this class, and this is kind of what I have in mind. I don't know how to bring this together and I don't even know what the thesis is yet. I can sort of see two or three parts, but I can't see how they fit together.

CR: Right.

SC: ChatGPT 4 constantly was helping connect the dots on stuff. And he was the one…he was the one that I think helped me begin to start to see like… he would do things to connect the dot and then I would go: oh, so you're thinking this might have an economic history part.

CR: Oh, yeah.

SC: You're thinking I should go back to Britain in 1,700s, and then, you know, of course, he didn't think anything.

CR: Right.

SC: He's not real.

CR: Right.

SC: So, he cannot… nobody is thinking…

CR: We cannot help but answer anthropomorphize it….

SC: Yeah, yeah, yeah. He's just doing the large language model.

CR: I feel like I should refer to it as she to balance here…

SC: Yeah. All right.

CR: I'm always with it.

SC: I have to do… his name is… I asked him to name himself and he named himself Cosmos. And then I put in the custom instructions from now on, your name is Cosmos.

CR: All right.

SC: So that's how we always talk.

CR: That was a little self-aggrandizing.

SC: Yeah, that's right. He… who… that was a lot. So, I mean, I just, I just, what I've realized is that you can say whatever. You can go between these like levels of just like pure brainstorming into just nitty gritty. You can go back and forth and back and forth. There's, so it's the way that ChatGPT 4 on the designing of the class. It's the way that he's able to remember everything perfectly and then just politely summarize it. You know, and constantly bring it back up to your attention and then go, okay, where are we now? I've lost the threat. Where are we? And then we can go back. And then, so I would constantly do it and I would say put all of this into a single giant summary because I'm going to copy and paste it into a Word document, because tomorrow I'm going to bring it back. And I would just do it all the time. And then, you know, the thing that I thought was fantastic was that in the training data ChatGPT 4 appears to have trained on pedagogically sophisticated, you know, like modern college level appropriate theories of education.

CR: Yeah, yeah.

SC: And so, things that I know are out there. I wish I had the time to learn them, I really do. I really wish I was a better teacher, and to have him there as a partner to help just bring it in and build the skeleton of the class around it was, it was huge. For a person like me, it was huge because I just was never gonna learn it.

CR: You've taken this to a whole other level with the brainstorming thing, but what I have spoken in a couple of venues about is using ChatGPT as a lesson planner. So, you know, just tell ChatGPT: hey, I got a 50-minute undergraduate course, you know, it's freshman level, or you know, however you want to help…help define it. And it really does many of the things that I'm always, you know, I feel like I'm the broken record. I always saying, okay, well, make sure your learning objectives have clear action verbs in them, so you know what you want your students to be able to do. And it just does without even…

SC: You could say it on the front end. You could say it on the front end: This is the pedagogical philosophy that I ascribed to. You can describe it in detail, you can use sites and stuff. And so now going forward, what we're now going to do is this. I'm gonna need you to adopt it. It'll do it,

CR: Right. Yeah. Yeah.

SC: I mean, one of the things that I teach is an area called Causal Inference. And so that's like an applied statistics area for studying, you know, trying to establish whether or not one thing causes another. The lessons are very mathematical and they're very technical. And creating the slides can take a long time. Because you have to get the equations right. Well, that doesn't take ChatGPT long. So, I can go through and I'm going to be like, all right, today we're going to do this thing on causal force. Here's the paper that we're going to do. I'm going to walk you through, and I need you to go ahead and have 15 slides about this. It needs to go through this, and it'll just populate it.

CR: Yeah.

SC: It'll put it in a Beamer deck of slides, LaTex Beamer. And I go, okay, that's great. Slide 4 though, I need it to be I need to go into more detail, here that's incorrect and it's like… it just does for what is the most tedious part of that job, part of the job is absolutely making those slides. And getting… but it's like you have to have them. And it can take you…and the thing is, before ChatGPT, I felt like the designing of the lecture and the designing of the slides were the same task. And they're not the same task.

CR: Yeah, that's incredible insight.

SC: And so being able to break it off and just go give me the slides and now I can go in and edit. I just saved myself hours. And now, so now I'm just trying to realize I'm like, finally, you know, I'm getting into the stuff that I'm actually the good part at. I don't think that my good part is making…you know, I don't think my part is like making sure the figure has the right scale right next to the left of the three bullets. I'm not good at that. You can overdo it. You can spend hour, you know, get it done immediately and move on. And with this Dall-E 3 Image Generator that

goes with it too. I mean, I'm definitely probably spending a lot of time making really, really interesting images that are perfect....perfectly fit what I'm trying to say in class.

CR: Yeah, so what have your students said so far about this? What they're...well, I mean, you could take that a couple ways. What have you seen in their work and then what are they just saying to you in class or outside of class about this process?

SC: Well, I don't know what they think about this kind of touchy feely interview. You know, it's like the athletes in class, when I see who it is ChatGPT recommended that they interviewed for their lifetime, for their podcasts like Tim Tebow, John McEnroe. You know, I have no idea what, how that's going. That could be a complete disaster. I don't know if these kids are like, I mean, I've basically had to ask permission from the kids and just be like, look, is it okay if we just kind of for this semester, you just humor me? Yeah, humor just, we're just going to see if this works. This podcast thing, I mean, it might be a disaster and it may not work. But really it fits everything I'm trying to do in this class, and I really want you to try. So, I think they're all in on it. I think that the Crit assignment I think has been really valuable. I think that has been really valuable. I don't know if in the long run the Crit assignment works conceptually like...I don't know in five years. When ChatGPT...when... if artificial intelligence does become pervasive, then I don't really know if in five years like okay, this week we're going to do a thing where we have ChatGPT, summarize a deal, and you're going to judge if ChatGPT is good at this. I think everybody's kind of got to know at that point. Everybody knows that ChatGPT hallucinates, or we're not even using ChatGPT at that point. It's like doing something different.

CR: Right.

SC: So, I don't know...I don't know if this assignment works in the long run, but I do think in the short run it's working because it's forcing them to recognize what this thing can and can't do. It's forcing them to do it repeatedly. I'm not asking them to read about all the cautionary tales of ChatGPT, rather I'm forcing them to recognize that it is hallucinating. It would be way better that they're realizing that in my class, then they go and do it for a history class and they're pulling up some fake reference that's not real. So, I wanted them to be at the earliest point to realize it's a feature and a bug that it does this and you can't have one without the other. And frankly, I don't know what the right use of this tool is. But it's probably the case that I wasn't trying to help you prepare for your graduation and what's coming. There's...somebody's got to be doing it at Baylor. Somebody's got to be talking to them about, you know, what these technologies are doing for society and simultaneously teaching them some stuff.

CR: Yeah. You had mentioned that you were a little bit surprised that the students weren't more enthusiastic about about using AI or that maybe they're not using it very much already. So, do you get the sense that they're wondering at all about how AI will impact their future careers or the work that they're planning on doing? I mean You're talking about the 20,10, 5-year plans too, so...

SC: Yeah. I mean, I, well, first of all, I think we really just don't even know what it's gonna do. Like I was, I was interviewing a guy from my podcast this morning who, who works in this area, and he just was saying right now there's no data. So, all that we have right now is hypotheses

about what it's going to do. And so, you've got all these people in econ and non econ that are making proclamations and predictions about what it's going to do. But literally, they've been doing this for a long time. They thought that the Internet was gonna do certain things that did and didn't. They thought that earlier kinds of prediction stuff was gonna do it and it did and didn't. It's clear like that there's never been this level of adoption of something.

CR: Yep, so quickly and so many.

SC: So many. I mean, and it does appear to be coming from ChatGPT 4. There's been artificial intelligence for a long, long time. But what this guy told me is that ChatGPT 4 is causing not just people to use ChatGPT 4. It's causing firms to look at all of the AI. And they're now, whereas it had always kind of been there and was kind of like, you know, it's like… he said, basically Edison had a patent for the light bulb way before it got adopted in these factories. And so, you know, he was saying, you know, there's this thing. But right now, I think nobody really knows. So, it's kind of hard, I think a little bit to convince…It's a little bit like false goods, even to swear to them. I know this is the most important thing that they could be doing. You know, I don't know that. Which is why the class still has to be like economics.

CR: That's the same approach that I've been trying to take too with both my own students and with faculty that I work with is to kinda try to dissuade faculty from, you know, you can have a policy and if you want to take a hard line prohibition kind of policy about AI, that's your pedagogical decision, and that's fine, but try not to give the students the impression that you've got it all figured out like where all the lines are or where the line between like im…morality and immorality or ethical and unethical is here. Because we are all still figuring it out.

SC: that's why I made the assignment. I thought to myself, you know, it's only immoral in the class if it's on the syllabus and says don't do it. That's why I took it. That's why I said the syllabus will require that you copy and paste this article in the ChatGPT and have ChatGPT summarize it. 'Cause I needed all that stigma to be taken away. So that we could just start to figure out what the heck this thing does. And I… 'cause I just kind of think it's like, it's like if somebody…Again, it's like the guitar. I'm sure there had to be someone, when they first saw the guitar invented, somebody had to go. That looks like the stupidest thing. It's not a piano or I don't know. It's… like, it's like there's got to be things like that in history and I thought this was one. But like, I guess…like I don't think the students are hysterically interested in it the way that I am, which could be, you know, that's where I do wonder, well I wonder what…what is going on out there but, but all signs are that firms are adopting AI in large numbers in a way that they were not before ChatGPT. Before it, AI had a very low penetration rate in 2018, 6 to 8% of firms were doing anything with AI. Nobody knows what it is right now, but it just does not look like it could possibly not be exploding, given what I see on linked in all the time. I mean, just the sheer amount of venture capital going into these firms is just gigantic.

CR: Yeah, yeah. When we got… I don't know if you heard about this, but when we've got a new Beatles song. That's, you know, now you know, it brings all, all four of the Fab Four together from …

SC: Somebody's made one?

CR: Paul Mccartney was involved in it. So, there's, you know, they had a John Lennon demo from like the late '70s, and I guess, you know, he and Ringo like, you know, put all the pieces together and Peter Jackson designed some AI to, you know, lift out the piano, the vocals from this, you know, the early '70s, the late '70s kind of, you know, awful sound quality kind of thing, you know. So yeah, apparently…

SC: So, there's a new Beetle song.

CR: I heard there's a new Beetle song.

SC: If it's good?

CR: I…I have not heard it yet.

SC: Is that nostalgia for someone wanting to see? Yeah. I mean, it's, that's what was weird with that Adam Smith interview. You know? Adam Smith interview. I thought to myself, this whole interview is a hallucination. Whole interview is a lie. He's not Adam Smith. But it was kind of weird. I was like, yeah, there's like, that's true, he's not Adam Smith. I've interviewed this robot pretending to be a dead economist from 200 years ago. It's not Adam Smith. That said though, there are worse versions of this Adam Smith that could happen. So, it's kind of weird, like in this interview that I did with him that he could hallucinate correctly.

CR: Sure, Yeah, yeah.

SC: You know…

CR: Play a part.

SC: Yeah, he plays a part, but that's the weird thing is like this literally is not this person. He never said these things and he never answered these questions. So, what does it mean to be right?

CR: Right. That's a very good point. Baylor just had was a week or two ago, a panel on AI, just kind of, you know, helping the community just think about this from a couple of different angles. And one of the questions in the Q and A after was, is AI gonna to take our jobs from a professor. Yeah, Yeah, and I think, if I remember correctly, especially, you know, like the foundational level, you know, heavy factoid kind of courses. Do you have thoughts about that?

SC: I mean, I think like with technology, the way the economist thinks this is like the verbiage of the economists, is like there's a thing called a production function, and a production function is firm takes capital and takes labor and then mixes it together with technology and makes stuff. So, human beings make their own education. They use schools. You know, if you can stick a kid in the school, they don't learn anything and that's because it does require a lot of effort on the part of the students.

CR: Sure, yeah.

SC: So, the issue is what is this technology gonna do to the production of education inside of a human's brain. And then what is that gonna do to the labor inputs that we have historically used to produce that education, which is teachers. And I think the honest answer is that I don't see how anybody could possibly know the answer to it. I mean, I just don't think the big lesson…but here's the big lesson. The big lesson is technology always comes in and helps some people and hurts other people. There is no longer a horse and buggy industry. It was destroyed by the automobile, by Henry Ford. There is no longer any typewriters. There's no typewriter repairman. And so, it's tragic if you had skills that were only tied to the typewriter industry and could not be ported out at all, or you didn't see it come in, or you were in denial or there was some kind of discriminatory elements in your life that wouldn't allow you to transition. So, but this is the general thing is what technology always does is it destroys things while it creates things, and you just from a, there's two ways that you respond to it. There's a personal level and there's like a society level. The personal level is you just want to make sure that you are not on the destruction side when you're on the creative side. And that definitely means learning to play these guitars. Learning to make, figure out what the heck they do and change in your mind if they don't do what you thought that they did. So, that's one thing is you got to figure out what this is. And you know it's not…I think everything is like that, trying your best to tie your skills to the rising part of the markets and trying to get away from the lowering part in so far is that fits the values of what you want your life to be about? Is the number one. Is that one thing. But then the second thing is the technologies. What they do, and I think this is the lesson of the part of the 20th century is that these technologies can increase prosperity and they can increase inequality.

CR: Right.

SC: And inequality specifically in the dimensions of income. And you can have people who did see there, you know, the wind catches their sail with these technologies because they're in the right place at the right time. Or they have the right skills, or they got lucky. And then there's other people that just literally see their fortunes demolished. And trying to figure out what we're going to do as a society in terms of the rules that we're going to use, so that those gains to society are distributed in more fair and equal ways. That's different, that's a different thing. I think that you have to have both…you have to have both kind of mindsets all the time, because if you have a sense of calling that your life is, you've got to, do you have a sense of calling about what you're supposed to be doing with these 90 years that you have on this planet, okay? And you've got some strong sense of mission that it comes with it. It could be anything, could be raising children, it could be, you know, something giving away all your money, it could be whatever. Whatever that is though, trying to figure out where those wins are going and making smart judgment is a part of it.

CR: Yeah. Yeah.

SC: But then when you are thinking about the good society, the fair and good society, where that prosperity doesn't just accumulate at the further ends of the right tail of the income distribution. You know, I think that that's again part of the reason this class exists. Part of the reason of the class is about machines and their effect on labor markets, both prosperity and inequality. And trying to figure out what rules that we're going to need in order to hopefully get that gains to be spread more equally is… well, that requires tapping into, you know, things other than economics,

things like ethics. And even that actually requires tapping into far more than just an understanding of large language models. That's thinking more deeply about what do we owe our neighbor and what do we owe this…what do we think it's going to mean to harness the resources of this planet in a way that's fair. Just…

CR: Well, we can't tell the future, and I don't think education is going to be immune from disruption that's AI related. But I think there is still something that's deeply interpersonal about education. You know, you look at statistics of, you know, just something as kind of vague but important as like student success in like retention or graduation rates and things like that. And you know, the data is pretty clear, two of the five factors are interpersonal related, like a professor took an interest in me, you know, like that kind of thing makes for successful educational outcomes. So, it may very well be that there are certain things that can be offloaded, if that's a healthy term, you know, into some AI processes. But when it comes down to, is this student who is struggling going to come back next year or are they going to throw in the towel? Well, a professor who takes an interest in that student is likely to make the difference in that decision. So that deep interpersonal stuff, that's just where I see, you know, I take a very David Brooks kind of approach to this. You know, we're like… there's going to be things that AI cannot do for us. And you know, you know, you know, someone looking in your eyes and telling you you can do this. Let me tell you how we can take the next step. That's thing, you know.

SC: Totally.

CR: So maybe I'm not an optimist.

SC: I am very much an optimist on the effect it's going to have on education. I feel it is gonna have an overwhelmingly positive effect. I think it's gonna be very egalitarian. Person who's struggling in the class goes and asks ChatGPT 4 says I understand a word that happened today and then it just patiently just helps them. And helps them. Help them. Never gets tired, never gets frustrated. Now, what it's going to do to the demand for tutors. What it's gonna do for the labor market for tutors. That's a different question.

CR: Yeah, exactly. That's where the disruption.

SC: But that's the thing, is like the purpose of education is not to preserve the labor market for tutors. The purpose of education is to increase the…you know, it's to educate these kids in a way that's productive and good for them. Not they don't serve the labor, they don't serve the educator. The educator serves them is the way I see it. And so, you know, I see it as use whatever tools you have available to hit these kids.

CR: Yeah, so final question for you, what's on the horizon? You sound like a guy who is, you know, willing to, I used the word adventurous at the top of our conversation, who's willing to, you know, try some new things? Is there something else? Is it maybe it's AI related or maybe it's not.

SC: Well, I really want, you know, I think probably, I mean, I wrote a book on causal inference that published in 2021 that came out of about ten years of developing one class. And what I

learned from that experience was that the books for me that come out of a class makes sense. 'Cause I kind of like, you know, they're like, you've mastered the pedagogy of it. You kind of know you've like tried stuff, you've worked really, really hard on certain little things and then they like perfectly fit into a chapter.

CR: Sometimes students are really good peer reviewers of ideas.

SC: Exactly. When you, it doesn't work. You know, that's the feedback. I think I want to stick with this Issues class. I like the idea of this. I want to, I want all of the parts to really be humming. You know, so maybe this podcast thing is crazy. Maybe it won't work and maybe it's like, you know, I think I want to build up a coherent class. I would like it to be possibly in ten years, maybe there is a book that comes out of this. I've had success with the other one and I'd like to keep doing it. So, there's that. And… yeah, I mean, the other than that, I love teaching this History of Economic Thought class. We do in the History of Economic Thought class. The History of Economic Thought class is like a real blessing to teach. It was taught from the founding of Baylor, it was taught by Judge Baylor. It's like usually what happens is like one person teaches it for like 30 years. Baylor is one of the oldest, or the oldest, continuously operated schools in Texas. So, it's kind of got all this like aura. It's so, what I wanna do is just to continue to just make that class. Those two classes are like my exciting classes, and I want to continue to just be really good at them. So, like what we do in the History of Economic Thought classes, it's very discussion-oriented. But I have them interview ChatGPT. So, they had to interview ChatGPT pretending to be Adam Smith. They had a great experience. They had to do it with Thomas Malthus, they did not have as good as an experience. They did it with David Ricardo, for some reason that one… So, it's like we're kind of like learning a little bit about something is in the training data of ChatGPT 4, that's like unevenly distributed.

CR: Yeah, I've found it's really hard to make generalizations about areas of knowledge, like I've asked it to write multiple choice questions for me in… my field is history of Christianity, and for some reason, it could not give me good, good responses on Martin Luther and Baptism.

SC: It couldn't?

CR: It couldn't. Just, I mean, maybe I didn't spend enough time with it. I was on ChatGPT 3 and maybe 4 is much better on this, but it just had this blind spot, you know, on this. So, I was just like, alright, throw in the towel on that. Let's move to the Lord's Supper. And it did much better with Martin Luther and the Lord's Supper. So yeah, a similar kind of thing where it's like, maybe with one famous economist, you know, it really shines, and with another one… and we don't know it's the black box.

SC: Yeah. Because OpenAI has not revealed what gets…

CR: Yeah, how do we know what it read, what it scraped?

SC: Exactly. Exactly. It's like, yeah. It's because the whole purpose of it is not to give it the knowledge of the human race. The purpose of the training is to make it mimic intelligence.

Which the only way you can mimic intelligent speech is to have a body of knowledge. But that's not the same thing as saying maximized, make sure it knows everything.

CR: The body of knowledge is not the point.

SC: The body of knowledge is not the point. Yeah, exactly. So, it's got weird stuff in there. It's got all of the Enron emails, so there's all kinds of, there's a few clues of stuff that's out there. And it's like, you know, heavily trained Wikipedia, PubMed. But then there's like weird random stuff. Tons of social media.

CR: Yeah, of course. Anyway, All right. Well, we could talk about this for hours. But I think we'll stop there for the sake of time. Thank you so much, Scott Cunningham for joining the show. Thanks for having me on the show.

CR: Our thanks again to Dr. Scott Cunningham for joining the show. In our show notes, you'll find links to Scott's Substack and his book, *Causal Inference*. If you've enjoyed this or any of our previous conversations, be sure to subscribe so you get every episode, and you can show your support by giving the show a five-star rating in Apple podcasts. That's our show. Join us next time for "Professors Talk Pedagogy."