

Haley: "Of course there is no learning gene, but some would have you believe otherwise. Today's key concept is 'scientific racism'."

*****Tape cassette sound*****

Chapter 1:

Patrick: Hey, remember when the topic of scientific racism came up in class? You're not going to believe what I just found. It kind of seemed like scientific racism was this distant issue from a long time ago, like cotton plantations in the Southern United States from more than a hundred years ago. Think Django Unchained when Leonardo Dicaprio held up the human skull and talked about how the skulls of black people were different from those of white people. Turns out it's actually still prevalent in society, and its been going on during the whole 20th century. I found this case law from 1972, which isn't really that long ago if you think about it. The school board in San Francisco was placing students into developmentally delayed classes based on a super biased method.

Haley: How is that even possible? Slavery was abolished over 150 years ago and science advanced so much in the years leading up to 1972 that was the year when the mariner 9 took photos of Mars and Apollo 16 was launched. *****Rocket ship taking off sound***** these are two huge events that took place. It goes to show how advanced science was at its time and reminds of us that 1972 really wasn't all that long ago.

Patrick: Exactly, what they were doing was so appalling! They were using IQ tests to put students into classes they called Educable Mentally Retarded, also referred to as EMR programs, which was their insensitive way of labeling students who they thought were developmentally delayed. The problem was that it targeted a hugely discrepant proportion of black students. Only 28% of all the students in that school district were black, but they made up 66% of the students in that program!

Haley: "That's wild! It's hard to believe that in 1972 there were so many scientific discoveries, enough that they were able to go into space, but yet there were things like that going on."

Patrick: "I know right? The way that the IQ tests were done **[pause]** made it so that they weren't actually testing the intelligence of the students. The students were able to score way higher when the IQ tests were done by black psychologists. After they were tested by the black psychologists, they scored high enough that they weren't even placed in those EMR programs."

Haley: "So what did the black psychologists do that made their tests more accurate?"

Patrick: "What they did was **[pause]** build relationships with the students, they used language that the students could relate to, and they accepted non-standard answers that showed a higher level of thinking."

Haley: "How was something like this happening in this time and did anything ever come of it?"

Patrick: "Well, that's the whole reason that this case was taken to court in the first place, because the whole thing was just so absurd. The judges found that this racial imbalance was caused by discriminatory practices, and so they ruled in favor of the students. In addition, they recognized that there weren't and continue to be no intelligence differences between races. Ultimately, it was decided that the testing methods done disadvantaged certain groups and therefore caused unfair placement of those black students."

Haley: "Well, at least it all got resolved..."

Patrick: "Funny you should say that, because even though that ruling took place,

scientific racism is still alive and strong... But before we get into that, here's some background"

"Back in time" sound

Chapter 2- Historical timeline

Patrick: Historically we've always been trying to quantify intelligence, and not just by looking at IQ, if you go back to the late 1700s early 1800s you have--

Haley: Blumenbach- Gall- Combe- All looking at Phrenology.

Haley and Andie (sync): The Science of the Mind

Patrick: more like PSEUDOSCIENCE of the mind

Haley: False science

Andie: popular science and BAD science

Recorder clicks

Patrick: This focused on measurements of the size and shape of the skull. Finding elevations and indentations by running fingers across its surface, which would be used to determine character, criminality, and mental abilities, so this wasn't actually scientific at all!

And we're not talking about looking at personality differences; it was used to justify white supremacy. This was used to segregate people of color and other minorities-- like disabled folks-- to categorize humans into racial hierarchies by perpetuating racist ideals and colonial mentalities.

Haley: Fast forward to the 1950's....

Patrick: the Pseudoscience of phrenology has lead the way for other cases of scientific racism.

Here's an example: Modern birth control has been built on a nearly 100-year history of racism and bad science that has been swept under the rug.

That little pack of pills has a dark history.

In 2016, a scientific study was published that supported a strong relationship between depression and the hormonal birth control pill. These findings sparked a discussion, and an outrage, over the potentially adverse side effects of birth control that have been hidden from those who take them.

More importantly, these findings are only the latest in a long line of controversies between women who take birth control, and the doctors and scientists who provide it.

[Short pause]

But we're going further back than this.

Haley: At this time, birth control in any form was widely discouraged, and was believed to be immoral and controversial. Things began to change in the early 1950s, when sex educator and activist Margaret Sanger advocated for hormonal birth control. Sounds good right...? Except for the fact that she used a platform that appealed to the eugenics movement in order to endorse it.

Person 3: (Maybe Andie explaining this definition): For those who don't know, eugenics is the science that deals with the improvement of a population through the process of selective human breeding, which gained popularity under Hitler's regime in Nazi Germany.

Patrick: So...we're already not off to a great start. Let me introduce another player in this game, John Rock. He was a colleague of Sanger's, and was a gynecologist in the 1950's.

Haley: So this guy conducted several studies regarding the hormonal birth control pill. He conducted his studies on a basis of false information given to the patients. In short, his patients were under the impression that the pills that he gave them would increase their fertility, instead of decreasing their chance of conceiving. It resulted in dozens of women having adverse and dangerous side effects.

[Pause]

Patrick: But, it gets more fucked up than what he's doing here.

Haley: John Rock, along with his colleague; biologist Gregory Pincus, were struggling to find willing participants, largely because in the 50's and 60's, birth control was still illegal in most states, but also because people had become aware of the adverse side effects that previous participants were experiencing.

Patrick: So what was their solution...? If primarily white, middle-class American women were unwilling to subject themselves to potentially harmful drug trials; they had to find people that were willing.a.k.a. women you could *force* to participate. They decided to test on women of color who faced poverty in areas of overpopulation. Puerto Rico in the 1950's was the perfect testing grounds. So. They headed south. ****Insert plane sound effect***

Haley: The eugenics movement was already unlawfully sterilizing many Puerto Rican women without their consent. Rock and Pincus took advantage of this to conduct their clinical trials.

They specifically targeted women of color who were uneducated and impoverished, who were desperate to find a solution to their growing families that they struggled to support. These women were coerced into participation, with little to no knowledge or understanding of what the study actually was. When these women found the side effects to be intolerable, they began to drop out of the program.

Patrick: So the researchers took it one step further. They started actively searching for women that they could force to participate. The majority of participants that were targeted were women of color. We're talking women in mental asylums in the

United States, and female medical students in San Juan, who were threatened with expulsion if they refused to participate.

Haley: The next round of clinical trials involved researchers specifically targeting impoverished women of color living in housing projects in San Juan. Researchers went door to door in these pre-selected areas, signing women up for the birth control trials. Except they only informed white women that they were participating in a clinical drug trial. Women of color were instead told that it was an improved drug that was 100% guaranteed to prevent pregnancy with no side effects.

Patrick: Translation: Women of color were deemed "unworthy" of being informed about what they were putting in their bodies. Women, especially women of color, were seen to be at the bottom of racial hierarchy due to previous years of studies of IQ tests and phrenology. Which is why they were treated as guinea pigs.

Person 2: These are just some of the major controversies in the making of modern birth control. Scientific studies were conducted based on the selection of participants based on their race, with women of color having to endure adverse health effects during trial periods that were "too painful for white women to endure".

Patrick: (sarcastically) Good old birth control, founded on decades of scientific racism.

Chapter 3- Epigenetics

Tyra: Really simply related back to the case study on IQ in chapter one - why is this wrong do you think and why is this important?

Ada: Why is it important to be so horrified by how recent such practices are?

Tyra: Yeah- how scientific racism is still alive and strong even after something as productive as the judge ruling in the student's' favor?

Ada: I think what's so important about your question is that so much that we would want to describe as scientific racism passes as common sense. So the burden on

education is-is tremendous. I've been really surprised in last few years when I say just a very obvious statement that is not controversial among any scientist that there is no biology to race, I've been surprised by how- by the number of students, and they're always white students, who will be honest, and it's courageous to be honest, but they will say "wow I was surprised by that- I've never heard that" and then of course we can fill in- we can fill in that claim there's a lot of different ways to explain why there's no biology in race but there's also like what is IQ? It's nonsense.

[Laughter]. Like, what are we measuring? So that- there's spacious ideas all around us, um, and I think that both of those sentiments that IQ is something that could be measured, and that there's any kind of biological defense of, any distinction between humans that it deserves to be called, you know, race based, those assumptions are still around us, so, do we have to call them out at every turn? Yes, we do. But how do we do that effectively?

Hannah: It's interesting how something like this, this study that was done, placed in schools, it was based off the idea of science. So even to that things are trying to be explained, that are racist, and people push for that, scientists look for that. Especially in school zones, you know, in where teachers are viewed as typically the experts, the leaders, those to be trusted. What kind of agency does that give a student? And calling out.

Ada: And of course, our system is segregated too. It's not just the Americans

Hannah: Oh yeah.

Ada: So, it's a really complicated question about the problems of segregations and what enables race-base segregation to continue. And if we think about the disproportionate population of incarcerated people, the top population that's over-represented by a long shot in both Canada and the U.S are indigenous people. And so- so education is linked through surveillance and the prison in ways that we often don't think about. I think it's so nice to think that we're in a shiny campus and freedom is what the university is about [laughter] but it's connected to the () of policing and incarceration. We're not here and we have to think about who is not here. The absences and the presences.

Hannah and Tyra: Absolutely

Hannah: and I think it's quite clear, in most classes, how white washed the university is. Having that demographic and having that knowledge then having courses, like, the one we are doing right now, where a lot [pause] very radical, I guess, thinking to like the urban white student comes up and it's kind of faced. I was having coffee with a friend last night and he said he didn't even know what gentrification was. He didn't know.

Ada: and what's his major?

Hannah: He's doing a double major in finance and applied energy.

Ada: yeah, so I think the hope of programs like general education is that's going to be the place where's students you can get are specialized in professional degrees like accounting and learn about gentrification

Hannah: () exposure

Ada: Yeah! and learn about the dangers of bad science.

Hannah: Yeah

Ada: So we place a lot of hope in certain programs, but of course hope needs to be actualized pragmatically and feed back loops. So one of my hopes of this podcast is this precisely, to indicate where feedback loops aren't happening. And also to actually give with as feed back loops, like students- so you are students- saying, because this is what I've learnt, this is what I wish I was learning, this is what my friend didn't learn [laughter], and that's invaluable.

Hannah: yeah, oh absolutely. And I think it's awesome too that we're doing these podcasts because it shows students who have a platform that you can step on to, it's not just an anonymous comment on "rate my professor" or MRU secret confessions, or anything like that.

(): I think it's not a great ()

Ada: We do need to hold professors responsible and accountable but that is kind of, that's kind of liberal talk, so it's interesting to try and turn that into something that would be more radical and relational because teachers, professors at the university we rarely get formal training and teaching. Often as graduate students, were given funding, and with the funding- it's sort of like a carrot, like the carrot is the funding and then, what's the opposite of the carrot? The stick, I guess., that's actually the teaching! [laughter] (Have to teach to the sweaty grad students with no training) and then we get jobs right out of graduate school and we learn on the job. and so, it's actually- there's a burden on the students to help teachers become better teachers. Like, it happens informally. Like, how do students navigate that?

Hannah: Yeah.

Ada: Teachers bring their own prejudices into the classroom and-and how are students able to call it out or resist it?

Hannah: I think it's both. I think it's on the student and on the teacher

Ada: Yep, totally.

Tyra: So many like such limited resources for professors to kind of learn from others and I'm really just sitting back in my chair and yea, I was not expecting that. That- I find that very sad to be completely honest and it just seems so ironic to me that we're in a university filled with a bunch of really brilliant, smart, and intelligent people that something should clue[finger snap] in here that "they this isn't working" or "why don't we try and learn from other people?"

Ada: Well there's an irony there, so there's- there are a lot of resources put into teaching and learning and it's in the name of bringing in experts into teaching, experts into learning. I have often kind of some sharp things to say about people who call themselves 'experts' in teaching and learning because they rarely model good universal design principles or creative practice. Thinking about teaching and learning, that doesn't reinforce the patterns that we are together as a group already saying "okay, that's-that's problematic, that's too top-down, that's not inclusive

enough." creativity has been squelched. The answer has been predetermined and people who research teaching and learning have also predetermined what they think. They think that they have a good idea of where learning should take you and then they measure what happens [laughter] and see if they were a good teacher because they achieved those results but there's no openness then and there's no feedback loop.

Hannah: I've honestly only ever really thought about it from a student perspective. Myself going to class, interacting, not interacting, going to my next class, then going home. At the same time, the teachers, the board, clubs, Wyckham, it's all so intricate but also very separate

Ada: It's dynamic.

Hannah: It's dynamic yeah. Absolutely dynamic and maybe not so visibly so.

Ada: Right. I totally agree. Yeah, and one of the key insights from people who work on universal designs, which is where I decided to place a lot of hope for more creative, much more vibrant, much more critical classroom spaces, where they place their hope is on feedback. Because you never get it right. It's never done. It's dynamic and that's what's exciting about it, about our system being dynamic. But then where are we gonna ask the feedback to come from? And how are we going to have the ears to hear it? That is a really pressing question. We don't want to put too much of a burden on students.

Hannah: Exactly.

Ada: Because it's not your job [laughter] you're there doing the really hard work of learning and yet there needs to be a way to actively troubleshoot

Hannah: Should we jump ahead? I think that's a wonderful place to

Tyra: I agree. What role do you believe epigenetics has played in debunking bad science? What-what's at risk if it isn't taught. So when you're crafting our syllabus for this course, what made you want to bring up epigenetics? It was the first thing you talked about, that's what we dove into. And I don't know about you Hannah, but for

me I was like "wow! That was a little- that was a bit of an interesting choice for the first class of a feminist philosophy class, and we're talking about epigenetics! I-I really enjoyed it but it was not where I would've suspected it to go.

Ada: Yeah, and I'm thinking of doing the very same thing next semester [laughter]. But It's a wonderful question. Uhm, your first question "what role have epigenetic played in debunking bad science" that's still a very open question. So there are really wonderful debates happening right now about the critical potential of epigenetics. And some thinkers, like Evelyn Fox Keller a historian of science and philosopher of science, and she at times, will call [epigenetics] revolutionary. That it is actually, it revolutionizes our way of thinking about how mind and body are connected. It really helps us to think about our own bodies as dynamics system and part of broader dynamic systems, so there's enormous critical potential there. But others, like social scientists, like Margaret Lock, who really track, not just how epigenetic research is done but how its being taken up by public policy, they're beginning to be worried about the fact that very quickly it becomes about form of determinism. It's this like radical idea "wow behavior can actually be inherited in a way that goes against what we always taught Darwin had taught us about evolution, so it really changes our understanding of biological life, so it seems very radical. Also from a feminist perspective we can honor experience in way feminist always wanted to, we can honor it biologically. But then the danger is, if you want to turn that kind of experimental research into something that we can replicate out in the real world, because of the racist systems that we have in place, its not every woman's womb that's going to be surveilled, to put it very bluntly, so the environment, I know I got shivers too! It's horrifying. So the environment becomes more salient. Which is excellent, that's what we want as feminists. And if we're doing critical race theory, or disability studies, we really need to find a way to say "we always have to think about organisms in relation to their environment. So that is good and important, but then the slippage is to make it too deterministic and to privilege some environments over others. And in our anti-women society, it's the fetus who gets privilege and then the environment is a women's womb. So the fetal environment, that's a phrase that will come up a lot if you do a Google search on epigenetics, and then it's not every woman's body that's being surveilled, it's women of color. So there's a lot of danger to how, Margaret Lock calls it a new kind of somatic determinism, to how epigenetic research is being

taken up. But I agree that there is a tremendous revolutionary potential, which is why I want to keep teaching it. Also I think we don't know enough about how evolution works. And it's amazing, it's very empowering I think to know more, also to know how young our species is. I will never stop being excited to say that. Those are really quick ways to undermine very specious wrong discussions about race and science. Our species is only two-hundred-thousand years old. We have not had anywhere enough time to develop deep differences within our species. Therefore, a word like race that presumes category differences, like some say we should stop using the word but most I think critical race theorists say "no that's too quick because then think of all the kinds of injustices and violence we don't have language for!" We need to find a way to think biology in relation to social injustice. It's no longer okay, because it has been for a while that feminists kind of left nature, biology at the door but there's been this broader term backnature some say, or it's called the materialist turn, there's this turn back to biology and science, and that's good that's important. And epigenetics is a way to say " oh there is a kind of biology to race IF we're thinking about how disproportion exposure to toxins for instance, or systematic abuse, actually it's really-it's-it's inhaled, it's inherited and it's part of life so we want to think about injustice and biology and epigenetics is a really effective way to do that as long as we worry- and keep worrying about determinism , which has always been the problem, it's determinism.

Tyra: I guess so wrapping up then, as a professor, what would you say to other professors or stagnant learners about ignorant beliefs of how- of science and how it affects the accessibility of learning?

Ada: what I hear in your question is a hope that engaging with good science will actually open up the learning space to be more accessible.

Hannah: Yes

Ada: Are you willing to say a little bit more about that?

Hannah: Think of disability studies, for example, that's just a very clear example, based on statistics that someone with a disability is the abnormal. So why would we change our whole classroom to fit this one student?

Ada: Okay, right. We'll accommodate them we won't transform the space.

Hannah: Yes, and in the whole epigenetic framework of learning, there is-I think there is compassion. and there's relational beauty to other humans that it imparts.

Ada: Yeah, I think that's totally right. So if your question is " so what would you say to a professor who has not committed to working towards making their classrooms more accessible" I think you word, Hannah, compassion, is so crucial but if we were to cast it in a scientific term I think we'd want to really use some of the claims of social scientists who are working on science and philosophers of science that "don't you know that the scientific practice you're embarking upon in your classroom will get better the more you are able to draw in every learner in your space, we will all deepen our thinking, we will all- you will surprise us, students, with better questions the more you are able to actually be fully in this space." So like my favorite philosopher of sciences these day is Isabelle Stengers, right so she's completely convinced of this , that the best science happens when actually one of the people being studied, in this case maybe the learner, says "that question, that wasn't a very interesting question. Professor, I'm actually going to ask you to rephrase that question and make it more interesting." And then the professor gets to say "oh wow! I can do such better science, thank you recalcitrant student, that's her word 'recalcitrant' is like SOO stubborn that actually goes against the grain and offers a creative question or a form of descent and that's my understanding of a more universal classroom, better science is happening because more people are fully there and able to contest the terrain. So yeah, the question is a really hard question. How do we hold professors more accountable for being attentive to better practices? I feel like that's a very pressing question for every university.

Hannah: That is nice

Tyra: No this was great, thank you.

Hannah: This is amazing!

Tyra: I'm so happy with how it turned out. Thank you so much.

Ada: It was super fun!