

[00:00:00] Bonni Stachowiak: Today on episode number 318 of the *Teaching in Higher Ed* podcast, Ainissa Ramirez talks about her new book, *The Alchemy of Us*.

[00:00:12] Production Credit: Produced by Innovate Learning, maximizing human potential.

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[00:00:20] Bonni Stachowiak: Hello, and 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 improve our productivity approaches so we can have more peace in our lives and be even more present for our students. It's been five years since I had the honor of talking to Dr. Ainissa Ramirez.

She's an award-winning scientist and science communicator who's passionate about getting the general public excited about science. I have a feeling that she's about to get you excited about science with the interview that you're about to hear. As a graduate of Brown University, she earned her doctorate in Materials Science and Engineering from Stanford.

Dr. Ramirez started her career as a scientist at Bell Laboratories in Murray Hill, New Jersey, and later worked as an associate professor of mechanical engineering at Yale.

She authored the books *The Alchemy of Us* and *Save Our Science*, and co-authored *Newton's Football*. She's written for *Forbes*, *Time*, *The Atlantic*, *Scientific*

American, *American Scientist*, and *Science*, and has explained science headlines on CBS, CNN, NPR, ESPN, and PBS. Ainissa, welcome back to *Teaching in Higher Ed*.

[00:01:50] Ainissa Ramirez: Oh, thank you so much.

[00:01:51] Bonni Stachowiak: I love hearing about your childhood, and you have such vivid memories of it. Of course, I have kids that are six and eight, and some of the stories you tell about your childhood are from when you were around those ages. I want to know what are some of the questions that you remember having about the world when you were a child?

[00:02:09] Ainissa Ramirez: I wanted to know how things work in my home. Any appliance was under my investigation and I'm really glad that my parents knew that I wasn't being malicious when I was taking stuff apart, that I wanted to know what was inside, how did it work. I was one of those kids who took things apart. I wasn't allowed to touch the toaster, but any other little thing that- it were a couple of screws and I can take it apart, I was certainly allowed to do so and I just enjoyed that.

One of my favorite memories is when my father would come home, I was so excited to see him but I was actually more excited because what he was carrying was a briefcase full of tools. He worked at IBM and repaired computers. I was happy to see that briefcase a little bit more than I was happy to see him, because I wanted to get busy taking stuff apart with them.

[00:02:56] Bonni Stachowiak: There's always those funny videos of kids where they'd put something in front of them like a rotary phone and they don't understand what it is and all of that. Do you have any thoughts around the simplicity of how things are designed today? Also, how some of that is hidden away versus when you were younger and you actually could take things apart and see more of the mechanisms that made them work? Do you think that contributes at all to kids maybe not being as curious? They're so full of curiosity anyway, but what do you think about it in terms of design?

[00:03:27] Ainissa Ramirez: I was fortunate. I was in that age where things were still almost understandable to the general public. Today we're making things that are beyond our understanding. I do think it would be neat to have a class where you just get old parts, go to eBay, order some old parts that are broken, people spread them all out, put a paper towel on the table to protect it, and then you start taking stuff apart.

Start figuring out, "Oh, what does this part do?" If you can't figure it out, go on Wikipedia. "Oh, what does this do?" "I don't know. It seems like it's linked to this." This is such a wonderful way to learn about the world and mechanical engineering, which is not my field, but it's so beautiful and so clever. It's a wonderful framework to understand how the world works.

[00:04:11] Bonni Stachowiak: I have a confession to make to you, and I feel like I can do this now. [laughs]

[00:04:16] Ainissa Ramirez: We're friends.

[00:04:17] Bonni Stachowiak: When I first heard speaking of your field, your discipline, I didn't know what it was. I felt so ashamed like it was one of those impostor syndrome things where I was like, "See, this whole time I should never have had a podcast." I should know these things, but it turns out from reading your book, you say that it's actually not a usual field. That it's not one that people know about as much so what you share about it now that I could admit that I didn't know what it was.

[00:04:38] Ainissa Ramirez: Sure. We're definitely friends and look, I compare my field of materials science to my home state of New Jersey. New Jersey and materials science have been overshadowed by their neighbors. For New Jersey, that's Philadelphia and New York. For materials science, it's chemistry and physics. Materials science sits where those two overlap. It's interested in how atoms bond.

That's the chemistry part, and then it translates that information into how a material will behave in different situations. That's the physics part. You're not alone in not understanding this field. My mom doesn't know what this field is. In fact, what she

just says is I'm a writer, it makes it easier. It's a little known field but I spent time talking about it in my book, *The Alchemy of Us*, so that people can understand the impact of this little known field to their everyday lives.

[00:05:25] Bonni Stachowiak: In your book you also talk about a time in your education that you remember where that same curiosity that was so prevalent in your childhood started to fade a bit. Would you talk about that experience in school, what you remember about learning not being as fun, as generating of curiosity?

[00:05:45] Ainissa Ramirez: Sure. I was one of those kids that loved science from a very early age and what got me turned on to science was actually television. I had a lot of favorite shows back then such as *Bionic Woman*, *Six Million Dollar Man*, and *Star Trek*, of course, with Spock, only that one. I didn't like the other ones. The show that really turned me on was a show called *3-2-1 Contact*.

In it was a little African-American girl solving problems and when I saw her, I saw my reflection. That show gave me permission to geek out about science. I was very blessed because I had fantastic teachers who didn't necessarily look like me but they reflected me too because they had a love for science. I had that love all the way through high school but when I got to college, that love for science was under attack, particularly by those introductory weed out courses.

I was studying engineering and it seemed almost as if the professors were thrilled by this notion when they would tell us on the first day, "Look to your left. Look to your right. One of you won't be here." They were right. The next semester, half of us were gone, and then the next semester they would say the same thing, "Look to your left. Look to your right. One of you won't be here."

Again, they were right and it seemed like they had some honor in eliminating all these people who, like myself, were excited about science, wanted to be a scientist or wanted to understand the world through that lens and just crush their dreams. That was the reason why I actually many, many years later wrote this book, so that other people who may have had a bad journey through science could now

have a better one. I promised that when I finished my degrees, I said, "I'm going to make it easier for other people." That was the ... for my book.

[00:07:21] Bonni Stachowiak: Your story reminds me a little bit of the #BlackInTheIvory or ivories actually, I think, it's plural and a lot of people of color sharing about their experiences that this same, "Look to your left. Look to your right." It doesn't end at the college experience as a student but it's really persisting in terms of people who we want to attract and retain in this field, but who I suspect maybe aren't as boldly having people say, "Look to your left and look to your right." Certainly, the systems and the structures are set up that way to be discriminatory.

[00:07:56] Ainissa Ramirez: Oh, right. It doesn't have to be overt, it could be covert. You go into a meeting. I remember my first day when I was a professor at Yale. This is my first day, first faculty meeting and it's obvious I'm new, because I'm the only African-American woman, and no one introduced me. I think the second meeting I said, "Hey, by the way, I'm Ainissa Ramirez and I'm in mechanical engineering department." What a way to not make a person feel welcome? That's simple but there's little-- It's what I called death by a thousand cuts. It's just these little things that add up and eventually they just completely dispirit a person.

[00:08:31] Bonni Stachowiak: Yes. Fortunately, my organization has changed so much in the 16 years that I've been there. One of my first faculty meetings, I was the only woman in a small group discussion and, of course, was asked to take notes for everyone.

[00:08:42] Ainissa Ramirez: Oh my goodness. Yes, that kind of stuff. I was in the mechanical engineering department and would go to a faculty event, maybe a meal or wine and cheese. I would be introduced to someone and like, "Oh, this is Ainissa. She's from the mechanical engineering department." One person said, "Oh, I really love the HVAC in my building." The air conditioning. I said, "That's wonderful. I'm not in charge of that."

[laughter]

[00:09:08] Bonni Stachowiak: You talked about this weeding out which I am so glad is now- more and more institutions are feeling shame around their history. Not enough, but more.

[00:09:19] Ainissa Ramirez: That's good.

[00:09:20] Bonni Stachowiak: What were some other systems, practices that held back people who looked like you in terms of thriving in their academic experience?

[00:09:29] Ainissa Ramirez: It's just the assumption that this student of color is not going to do well and doesn't belong here. If you have that assumption, a student who is non-Black, you give the benefit of the doubt. Oh, he or she had a bad day or you just give them a second chance. If you believe that a person is affirmative action and they don't belong here, as soon as they make any kind of mess up, even if it isn't a mess up, you're like, "Aha, I was right. You don't belong here." If you're looking at the world through that lens, everything will fit that lens, and so people who are on the other side of that lens, they feel that, and they start to believe that, "Oh, I don't belong here." If you don't see your reflection, if you're not getting reminded that people think that you're talented, you start to believe the narrative that's coming at you. Those are the kinds of things that I experienced. I can't think of a particular one, there was something at each stage in my progression.

Even through my doctorate, when I got to Bell Laboratories, things got a little easier, and that was because Bell Laboratories had a history of many African American scientists. Very, very prominent scientists there, so that proof of principle that a person of color can be excellent, I didn't need to do that. It was already done, but when I went to the Academy, then I felt like I was set back many, many decades and was having to fight old, old fights again, to prove my worthiness. Ultimately, it didn't seem like it was the best fit.

[00:10:57] Bonni Stachowiak: In *The Alchemy of Us*, you share the story of your college professor at Brown, who said something to you that began to rekindle this

curiosity from your childhood. Would you share about that professor and how he was able to do that?

[00:11:11] Ainissa Ramirez: Sure. I had known I wanted to be a scientist for a very, very long time, and when I got to college I had to take some prerequisite courses, one of them being material science. When I signed up for the course, I just anticipated that this was going to be a very boring class, because all of my classmates thought this was going to be boring, because that's what prerequisites are. Professor ... said on the first day, "The reason why we don't fall through the floor, the reason why my sweater is blue, and the reason why the lights work, all has to do with the interaction of atoms. If you can understand how they do that, you can get them to do new things."

Now, when he said this, I momentarily stopped listening to him. Which I don't recommend, you should always listen to your professor, but I stopped listening to him because I started looking at everything in the lecture hall with a new, fresh pair of eyes. The pencil in my hand was able to make a mark because carbon atoms slid past each other. My shoes, they were flexible because the molecules are shaped like springs which brought comfort to my feet.

My glasses, they allowed my eyes to see because they bent light to my distant retinas. This guy was telling me something that made the whole world makes sense to me. It was that moment that I decided that material science was the way that I wanted to understand the world, and that's what put me on the path to becoming a material scientist.

[00:12:23] Bonni Stachowiak: The story is so moving for me to hear you say out loud, because of course, I read your words but just to think about as teachers that we have that capacity. In my experience, it's not like I've thought these things out very much in advance, it's always in the unexpected. Where I'm able to say something that a student will tell me years later on that they're thinking about, and I'm going, "I don't even remember saying that." Just that's a such a profound honor that people let us into their world like that. Anyway, I just wanted to thank you for sharing about that, and just how he was able to put a whole new lens on.

[00:13:02] Ainissa Ramirez: It just changed my life. I've reached out to him and I told him to pick up a copy of the book. I said, "Look on page so and so because you're mentioned." Professors, teachers too, they have a profound impact on people's lives. This vocation is one of the most important vocations out there. When I was at Yale, I had a bunch of students on graduation day who wanted to take a picture with me, and I didn't know them.

They said, "You know what, just knowing you are around made life better." That's the impact of a professor or a teacher. As much as work is hard, and you don't feel valued, we have to remember that that's what we're about doing. We're about touching the future by encouraging children to be more than what's in front of them, and I can't think of anything more important than that.

[00:13:48] Bonni Stachowiak: I did not expect that Madonna was going to show up in your book. What does Madonna have to do with your interest in science?

[00:13:57] Ainissa Ramirez: Who didn't have a Madonna album from my generation? Madonna had this great song where she was called the material girl. I'm a material scientist. I'm a material girl. In fact, material scientists were also a little corny, so we would have meetings and we would play that song, *Material Girl* by Madonna. The reason why I talk about her is first, I'm trying to show that the book is approachable.

I'm not a stuffy person. I want to share with you that I can relate to culture, even though this is old culture, but *Material Girl* says, we're living in a material world, and I'm a material girl. What I try and show in *The Alchemy of Us* is that we do live in a material world, but we're also in a dance with these materials. We shape them and they in turn shape us. Madonna was one of the linchpins, one of the ways that I tried to show that point.

[00:14:48] Bonni Stachowiak: When you think back to your early process and writing *The Alchemy of Us*, is there a person, or one of the inventions that you just instantly were like, "Yes, this has to be in there, there's no doubt about it." Of course, just a little preview I'm about to ask you, what surprises came out after as you just started

to work on it. What was that person or an invention where you're like, "As this meaning of this book starts to emerge, this has to be in there."

[00:15:15] Ainissa Ramirez: The first person you meet in the book is Ruth Belville. Ruth Belville had the extraordinary position where she sold time. Yes, I said that right. In the 19th century, this woman in England would go around London with her watch which she had certified to the precise time from going to the Royal Observatory. She would show her watch to different businesses, such as factories, and newspapers, and train stations, because they needed to know the exact time, but they didn't have the luxury to go to the Royal Observatory to get it, and so that was Ruth's business.

Now, when I discovered her, I was working on the chapter, the first chapter which is about clocks and how they changed life. You learn about how our sleep changed in that chapter, but I was still looking for a way to convey to people how obsessed we became with time. I'm reading some really old, and might I say dry books about timekeeping, and in one book, midway through, about halfway through the page I see this one sentence that says, "In the 19th century there was a woman who sold time."

That stopped me in my tracks, I was like, "Who is this? What?" I said that loudly and I'm in a library, and you can imagine the response that I got. I decided I wanted to investigate who that person was, and I was so excited to discover Ruth, that she is the first person that you meet and she takes you on this journey into her world where time was something that was a commodity. That was one of the people that I discovered that I said had to be in the book. Not only did she have to be in the book, she had to be the first person you meet.

[00:16:41] Bonni Stachowiak: She really captivated me as well. Especially what you said about the selling time, because I'm going, "What? You can sell time? What does this all mean?"

[00:16:48] Ainissa Ramirez: That's right. Wouldn't be a good practice right now, but back then, yes.

[00:16:52] Bonni Stachowiak: You had another mention in there that really resonated with me for the time we're living in now. You mentioned Groundhog Day, which is relevant to me because one of my kid's birthdays happens to fall on Groundhog Day. Also that I was speaking with David White recently from the UK, and he didn't realize that Groundhog Day actually exists in the United States. Like he thought it was just made up for the movie *Groundhog Day* [laughs] I was like, "No, this is actually something that we do here." [chuckles]

[00:17:18] Ainissa Ramirez: Yes, they have holidays that we don't get, bankers holidays.

[00:17:22] Bonni Stachowiak: Yes, so I was curious though your thoughts on time in a pandemic, because I'm finding Groundhog Day, but I'm also finding time seeming both fast and slow, and I just don't understand any of it. My relation to time is very confusing to me now.

[00:17:37] Ainissa Ramirez: Yes, that's because you and I live by the clock. We had meetings at certain time, we taught classes at certain time, we had appointments, and so we were on this huge grid that everyone else followed. Now we're all separated from that grid, and so time doesn't move in a continuous, it seems to be in spurts. Sometimes it's slow, sometimes it's fast, and sometimes we don't adhere to the clock, we actually adhere to our body clock.

"Oh, I'm hungry now so I'll eat." In the past it would be, "Well, it's noon I should go eat." Now it's like, "No, my stomach's growling I'm going to go eat. I'm tired. It's the middle of the day, I'm going to go sleep." Before we would just sleep at certain times at night. In *The Alchemy of Us*, I talk about how timekeeping changed life. We used to be more connected to our natural cues, the position of the sun, and how our body responded, hunger and the like.

With the clock, we started to adhere to the clock. We would do things when the clock said it was appropriate to do things. We would leave at five, instead of how else you would determine when you wanted to quit for the day. Right now here we are in the midst of this pandemic and we're losing our sense of time, because we

don't have those cues, we don't have those meetings, we're not interfacing with people. I would say that what we're doing is regressing back to how life was before the clock.

[00:18:54] Bonni Stachowiak: I could ask you a million questions about every chapter and [chuckles] maybe I'll have a chance to keep having you back, and we can keep talking about the book but I want you to pick, because it's your book. I really would love to hear either about hard drives, because with my background in computers, I love that chapter and or your choice, computer chips, micro parts, yes.

[00:19:15] Ainissa Ramirez: You choose.

[00:19:17] Bonni Stachowiak: Okay, let's do hard drives. Yes.

[00:19:19] Ainissa Ramirez: Okay, so hard drives, what do you want to know about hard drives?

[00:19:21] Bonni Stachowiak: I want to know how they changed the way that we interact with the world. I love your connection in terms of what we capture, what we see, what we share, what we discover. How does the invention of magnetic hard drive connect with, or change our culture?

[00:19:39] Bonni Stachowiak: In *The Alchemy of Us*, in one chapter called share, that's where the hard disk makes it's appearance. I understand the hard disk aren't sexy, but they changed the world because information was changed, its shape was changed. It used to be very onerous, because information was stored on punch cards, and there were so many punch cards, that they were taller than the Washington monument At one point, IBM, International Business Machines, they made 16 billion punch cards a year and this is before the age of sustainability.

They would just like, "Look, this is just too much. How do we reduce all that data?" The idea for the hard disk came from that as a way to have a smaller footprint, if you will, for information. Information became smaller and we can store more in a

smaller amount of space. As a result, it was easier for us to collect more data because we didn't have to worry about those mountain-high piles of punch cards.

What I say in *The Alchemy of Us* is that as data changed the shape and it became easier and smaller, more data could be collected. As a result, we could store things like our favorite things like music and pictures. Our cellphones and the Internet which are linked to these banks of hard disks could now start to collect information about us, where we're located, who we're talking to, who are friends are.

I named that chapter share, to talk about how the ability to reduce information to a small size allowed us to share things like music, but now, we're being shared. That is our information is being shared because our data is so easy to gather and it's so easy to collect.

[00:21:14] Bonni Stachowiak: One of the things I treasure about your book is just how much you have avoided the people that would normally be left out of a book like this. We spoke earlier about how many people get left out of the educational process. As I think about us as researchers, as teachers, I know that there's still this real possibility that-- You mentioned- you didn't use the word implicit bias, but I know that's what we were talking about.

How can we as researchers, as authors of journal articles, of books, as teachers, what is your advice to us to not have people being left out like the ones you talk about in your book?

[00:21:54] Ainissa Ramirez: That's a very good question. Why do we study history, or why do we share history? We're trying to teach lessons to the future generations. We're also trying to see our reflection. We're trying to gain something from the past so that we feel better about our present or can make informed decisions about our present. That's my thinking anyway.

If we have individuals in the past that we focus on as a way to teach lessons about how to live in the present and in the future and if they don't resemble the people who we're speaking to, they're not going to feel the present is theirs or the future because the past wasn't theirs either. In *The Alchemy of Us*, I worked really hard to

showcase individuals who aren't necessarily highlighted. There's more women and more people of color highlighted in my book than usual books about technology.

Also, the people who are of European descent, I don't make them the sole genius. I show you their humanness. I do this twofold. First, it's more interesting. Secondly, I want people to resonate with all the characters whether they're the same demographic as these characters or not. If we can learn from the past, see our reflection, we can make decisions about our present, and make better decisions about our future.

This is the importance of examining the implicit bias and who we select to highlight and to showcase because what we're doing is we're giving the message, "We don't see a place for you here and we don't see a place for you in the future." That's not right, and so I decided that in *The Alchemy of Us* I was going to take a different approach. I was going to make sure that people saw their reflection just like 3-2-1 did for me.

I knew that the power of reflection- just by seeing an image of an African-American girl on a television show put me on the path to becoming a scientist. That's the impact of representation. I was going to do everything in my power to make sure that other people felt that they saw their reflection too.

[00:23:47] Bonni Stachowiak: As we think about our students, we want them to see themselves and us and we want them to see themselves and the things that we put in their syllabi. We want them to see themselves in the videos that we show, in the stories. At least in my experience, I need to do so much of that work myself, but I also need to recognize that my students are right in front of me.

When I have them share their reflections, their connections with what they're learning with their own lives, I don't have to try to correct the ways in which my growing up was very centered on whiteness [chuckles] without me recognizing it. That's fish in water, I didn't know, but I don't have to put all of that on me. I'm close to 50 years old [chuckles] and I ... awful lot to try to do entirely.

It's not like that's the student's job, by the way, but it is my job to do the best I can to bring those things in, but also to invite them into a community of learning where they can make those connections for themselves, and I just get to have a little benefit where I become better informed about the ways in which they're being impacted by the learning and able to connect it with their own stories, their families, and their communities. Thank you for encouraging us to do that and for that advice.

[00:25:00] Ainissa Ramirez: Thank you. Well, I think teachers are great. All we have to do is we have to remind students that they're rock stars. Some of us got to do it just with our presence. That's great. Some of us just have to geek out in our own thing. When you do that, you give students permission to geek out in whatever they're interested in, by being a role model. Humility is also part of the formula.

If you can just say, "Hey, look, I know I'm not going to get this right." That is much more powerful than take it the way I'm giving it to you which is how I grew up. Students are very astute about how you approach them and they will resonate with how you approach them. Sure, we don't have all the answers, but if we go in with the intention that we're trying and we're open to adapting, then that's definitely going to put us in the right direction.

[00:25:50] Bonni Stachowiak: The first time I had the honor of speaking with you, you shared about data- sorry, about failure being data, [laughs] this information. My husband has quoted you saying that about 300 times or 3,000 times possibly.

[00:26:04] Ainissa Ramirez: Sorry about that.

[00:26:05] Bonni Stachowiak: No. It's so good because teaching is not about the quest for perfection. Our students, when they see us fail and we're willing to name that can be such a powerful thing, but it can be something that so many of us become fearful of. I think that academia at large really reinforces this that you can't admit that you failed, that you can't share about it openly. Although what you said when we first met, that perhaps maybe that's not as much in the scientist. I don't know. It feels from a distance that still permeates that area too.

[00:26:37] Ainissa Ramirez: It's a burden, to have to be perfect. You protect that position by putting other people down. Does this sound familiar? [chuckles] I don't think that's a good process. I remember in my classes when I was teaching, I realized that I was a teacher. I was also a role model for how I wanted students to consider to look at the world. When things failed, I would try and try again. They were like, "You know what, you were so chill about that." That I decided that when I fail, I'm just going to be chill and realized, "Oh, I'm learning something."

I just took a different approach based on your model and instead of saying failure equals data, I saw you doing it. I said well she really believes that because he or she is operating with that intention. Teaching is also being a role model. It's heavy, but it's very important work.

[00:27:25] Bonni Stachowiak: Ainissa, I'd love for you to circle us all the way back to the beginning of *The Alchemy of Us* and share about your glass blowing experience. [chuckles]

[00:27:33] Ainissa Ramirez: Well, I had been a material scientist for a long time and I've been looking for a way to make this field, this little known field interesting to other people. There are books out there where they profile different materials and I said well, I can't do that. I have to find another approach. I'd been on hunt for another approach. A couple of years ago, I took glass blowing classes because I wanted to just do something new. I like to sign up for new classes every year so this is part of my own professional development.

What I did not know is that when I signed up for those classes, I was actually going to get the inspiration for this book. Now, I signed up for glass blowing classes because I was so excited to learn something new. I had seen my instructor do something amazing. He pulled glass a couple of times and he made a galloping horse. I said, "This is fantastic. I want to be around this guy." [chuckles] I knew that I had to be very careful because I'm a little bit on the clumsy side because I'm a little absent-minded so I knew that hot glass and I were not going to be friends if I didn't pay attention.

I usually took a very cautious approach when I worked with the glass. There was one day that didn't- I wasn't so safe because it was just a horrible day at work. When I worked with the glass, I actually started making a bigger piece than I'd ever made before because I was putting all my frustration onto the glass. I had one more step. All I had to do is put it into the furnace for a short amount of time and take it out before I can remove it and put it into the area where it cooled, but I was still distracted.

I was talking to my friend and as I did, the piece was molten hot and hanging off the end of my pipe. I knew that all I needed to do was rotate the pipe and it would right itself. It was so hot that it just kept falling on its new lower side. I was in a dance with this hot glass. I would turn the pipe and it would go to its new lower side. I would turn the pipe. It would go to its new lower side. Eventually, the pipe was just uninterested with my limited skill. It fell to the floor and boom, there goes my beautiful vase.

My instructor came and he reattached it to my pipe, fixed it, and then eventually, I put it over to the area where it would cool. It was that instance that I realized that glass and I were in a dance. I was shaping it, of course, because I was in a glass blowing class, but it had actually shaped me because when I went to that class, I was in a very bad mood and I was actually in a pretty good mood and pretty happy about being alive.

That was the impetus for *The Alchemy of Us*. I wanted to explore how materials and humans have shaped each other over the last couple of centuries. That glass blowing accident was the birth of the book.

[00:30:02] Bonni Stachowiak: Before we get to the recommendations segment, I wanted to take a moment to thank today's sponsor, and that is SaneBox. SaneBox is a tool I've been using for years to help keep my email under control. It can use a Gmail email address, one from Office 365, an iCloud account, or really any email address and you set it up. What it does is it smartly looks at who the emails coming from and the subject line, and it smartly categorizes them into different folders.

The folders include the most common one that I use is, SaneLater. Emails that aren't very pressing, but that I do want to take a look at later, get sorted into that folder. They might include things like newsletters. There's a number of newsletters I really enjoy reading, but I don't want to read them during the day when I'm getting productive communication work in my email done with people that I need to get back to sooner than an email newsletter might represent.

There are other kinds of really smart folders, and also smart ways to manage your email. If I want to make sure I get a reply back from someone, but don't want to have to add the particular email to my task manager, I can just forward it to a sevendays@sanebox.com for example, and get a little nudge back if the person hasn't replied to me yet. The other thing I really like is the ability to not unsubscribe from an email because just in case I think it might be a nefarious party that's behind that email, I can just drag it into a box that will say I never want to hear from this person again, but it doesn't send an email back to them saying that I exist. It works nicely.

There also is an easy way of unsubscribing if you think it is from a real entity, but you don't want to hear from them again. Wonderful service, sanebox.com. I thank them so much for their sponsorship of today's episode. In fact, a series of episodes, if you've been listening for a while, and they have a great offer for the teaching and higher ed community. If you head over to sanebox.com/tihe as in teaching in higher ed, you can get a \$25 credit toward a SaneBox subscription, but even before that, you can get a free 14 day trial with no credit card required to see how quickly it can really clean up your email and make email work for you instead of you working for email.

Thanks again to SaneBox for sponsoring today's episode. This is the time in the show where we each get to share our recommendations. My first one is about someone who has shaped me, and that is you. I want to recommend your book, *The Alchemy of Us*. I don't do that for every author that I have on the show. I have proof of all those recommendations that have been tracked that- I actually I can't keep up with every book and author that comes on, but I just, you've really shaped me in so many ways.

This book is going to continue to shape so many lives out there, you're shaping future scientists and current ones. You're shaping future teachers and current ones. You're helping people see more reflections of themselves in celebrating the ways in which material science can help us understand culture and the world and the way that we are shaped. Thank you so much for this book. I also wanted to recommend an article that Chris Gilliard posted on Twitter called *How Surveillance Always Has Reinforced Racism*.

Chris has been on the show a couple of times in the past. Of course, I talk often about the ways in which technology reflects our values in good and bad ways. Sadly, mostly bad ways or the examples that we've talked about on the show in the past. I just want to read the last line of it, because I just thought it was so powerful. She's asked about technology not be neutral, that technology is biased.

The interviewer says, "The fact that it needs to be said, just shows you how comfortable people are with even the concept of neutral" She responds. "Exactly." That requires like an entire upending of a lot of white folks ways of seeing that whiteness isn't neutral, police aren't neutral. All of these things are framed by their histories to let go of the idea of a technology and perhaps that technology being used in the exercise of white supremacy of misogyny or transphobia or being ... is a lot for many people to see.

Then this is the part that really struck me. "It's an easy alibi, I think, to say that the technology made me do it." This is just a great opportunity for us to reflect on if we ever feel like, and I certainly will admit to technology is just technology, but I certainly have been able to read a lot of books like the one by Cathy O'Neil, *Weapons Of Math Destruction*. There's a lot of what goes into programming, those algorithms and building that technology. It's a wonderful reflection for us and thank you, Chris, for posting that and introducing me to it. I'm going to pass it over now to you, Ainissa, for you to make your recommendations.

[00:35:11] Ainissa Ramirez: Well, when this is over, I think we need to look at our myths and we may have to shift a lot of them. Some of them serve us and initially, they served maybe a small population because they serve as a meme, a way to

share a feeling very quickly. If I tell you that Ben Franklin and lightening, you know everything about that story. You know that that's how we discovered lightning was electricity.

That myth is very useful, but if we continue to use these myths, we're actually pushing people away from considering sciences. We need to examine our myths and make sure that they're serving us in the way that betters all of us, and not just a small population.

[00:35:53] Bonni Stachowiak: Ainissa, thank you so much for coming back to *Teaching in Higher Ed*, and educating us about *The Alchemy of Us* and even more. It's just such a gift to get to talk to you again.

[00:36:02] Ainissa Ramirez: Thank you.

[music]

[00:36:06] Bonni Stachowiak: Thanks once again, to Dr. Ainissa Ramirez for joining me on today's episode of *Teaching in Higher Ed*. I really do hope some of you will go pick up her book and have a read and renew or continue your interest and curiosity about science. As she mentioned in the interview, it is very approachable, very accessible for all of us. Thanks to you for listening and being a part of the teaching in higher ed community. I'm so thankful for the people who are working in solidarity together to ... to improve and grow our capacity, to facilitate learning for our students. Thanks so much for listening and I'll see you next time on *Teaching in Higher Ed*.

[music]

[00:37:01] [END OF AUDIO]

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