Jenna McGuire & Airyana Washington

Jenna McGuire: [00:00:00] And it's amazing because in one day, these girls are able to analyze data sets that college students are doing. And that's the thing that we stress to them is you're doing stuff college students are doing, so it's not out of reach. And we try to inspire them that way.

Annalies Corbin: [00:00:16] Welcome to Learning Unboxed, a conversation about teaching, learning, and the future of work. This is Annalies Corbin, Chief Goddess of the PAST Foundation and your host. We hear frequently that the global education system is broken. In fact, we spend billions of dollars trying to fix something that's actually not broken at all but rather irrelevant. It's obsolete. A hundred years ago, it functioned fine. So, let's talk about how we re-imagine, rethink, and redesign our educational system.

Annalies Corbin: [00:00:51] Welcome to Learning Unboxed. This is Annalies Corbin, your host. And I am excited, as always, to welcome two guests today. We are going to talk about data science, and what the heck is data science, and how do we get more women, in particular, young women interested in all that data science is and can be.

Annalies Corbin: [00:01:11] So, joining us today is Jenna McGuire, who is the Associate Director for Translational Data Analytics Institute at the Ohio State University. So, that is a mouthful. And we're going to get her to explain what all that mouthful means here in a minute. And she is also the Creator and Director of the Data Science for Women's Summer Camp, which is a weeklong free summer camp that introduces young women in grades 8 through 10 to data science. So, welcome, Jenna. We're excited to have you here.

Jenna McGuire: [00:01:42] Thank you.

Annalies Corbin: [00:01:43] And joining Jenna today is Airyana Washington, who is a student who actually participated in the data science program. And so, we've got Airyana with us today to talk about what that experience was like. And Airyana is a sophomore at Weslin High School. She plays volleyball, and she's very interested in and loves science and the questions of how and why something works in the way it does. But also, one of the things I learned about Airyana is that she's interested in politics, and advocating for minorities, and groups, and the environment in the political level, and how to take all of this interest, and turn it into some kind of career for her future. So, we're going to talk about that too. So, Airyana, welcome.

Airyana Washington: [00:02:27] Thank you.

Annalies Corbin: [00:02:29] So, as always, for our listeners, we love the opportunity to talk about programs that are innovative, and creative, and just inspire us. And when I met Jenna, I was just like completely jazzed and excited. And I think we got about five minutes into our conversation like, "Oh, my gosh. We have to do some stuff together."

Jenna McGuire: [00:02:46] Yeah.

Annalies Corbin: [00:02:49] So, let's start. Jenna, tell us, what—well, what the heck is data science? And then, we'll get into why there's an institute for this. So, what exactly is data science?

Jenna McGuire: [00:02:59] So, there's a lot of different definitions, but data science is, essentially, the use of data and analytics to study problems, right? So, before data science came along, a lot of people related computer science, and math, and statistics as data science. They really are parts of data science, but the difference is data science brings together a bunch of different people to solve a problem. So, when you think about something like global hunger, you don't just need to study crops, you need to study the insects that actually feed off the crops. You need to study, obviously, climate. You need to study people and how they actually work with the farm, right? So, data science integrates all of those people together to actually solve a problem.

Annalies Corbin: [00:03:40] So, the takeaway, and I think that's a really important one, is that people often think when you've talked about data science or big data that we're talking about folks that are going into computer sciences, and they may go into computer science, but data science is much, much more than just computer science.

Jenna McGuire: [00:03:54] Absolutely.

Annalies Corbin: [00:03:55] Awesome. Really important that everybody sort of has that sort of grounding. So, with all of that in mind, before we sort of talk about the camp itself, so tell us a little bit about why is data science such a big deal that an institution the size of Ohio State turns it into an institute? So, let's talk about that a little bit, because I think that sets the stage for the need.

Jenna McGuire: [00:04:18] Absolutely. And so, it's really interesting. You know, data has been around forever, right? People just weren't utilizing it to its full potential. And as we see more and more of the digital age come together, we're realizing that local communities don't even communicate with each other on data, right? So, if you think about Columbus, you know, COTA may have a bunch of data about its users, and how people ride, where they're being picked up, where they're going. So, people movement. They may not have the same data systems or even collect the same type of data as, say, the City of Columbus and people who are utilizing scooters, right? Well, this all goes to transportation. So, the really important thing about data science is that there's lots and lots of data out there. We just need people to come together and use it to actually solve problems. And so, Ohio State really saw potential in this, especially within the university, right? So, if you think-

Annalies Corbin: [00:05:11] Oh, yeah. How much data is it being generated by the Ohio State University in a given moment, right?

Jenna McGuire: [00:05:17] Yeah.

Annalies Corbin: [00:05:17] It's gonna be huge.

Jenna McGuire: [00:05:18] It's huge. And even Ohio State-

Annalies Corbin: [00:05:21] Yeah.

Jenna McGuire: [00:05:21] ... you know, we suffer from the same problems as any other institution where, you know, particular office may not—it may not communicate with another office in terms of its data. But if you think about even getting students involved, right, how do you target the right student population to come to Ohio State? Well, you need to think about enrollment, but you also need to think about retention. So, you need to have, not only the front end enrollment people in every single college, you have the central enrollment, you also need to talk to people who are advisors, right? So, are we getting students there? But then, are we losing them for a variety of social reasons or personal reasons? So, then, you need to think about, also, diversity and inclusion. Get our Office of Diversity and Inclusion involved, right? Then, you have to think about graduate school. So, even Ohio State data science is a huge, you know, factor in how we do business. It's also a huge opportunity to change things.

Annalies Corbin: [00:06:12] And that's the part that I love, because we—at PAST, pass we do talk about, you know, big data all the time. And we talk about with the students and just trying to help them understand there is so much opportunity. Unless you dig in and really understand what's possible, you're never going to realize the full potential of this thing. And we're creating data right now, you know, massive amounts on a daily basis in ways we've never, ever seen in the history of mankind, right?

Jenna McGuire: [00:06:40] Yeah.

Annalies Corbin: [00:06:41] We have more data than people, right? There's a lot of-

Jenna McGuire: [00:06:46] By programs.

Annalies Corbin: [00:06:46] Like truly, exactly. So, I mean, it's this massive resource that can become this great thing, or this great hindrance, or something in between, right, depending on what we do with it. So, Airyana, tell me a little bit. So, before you went to this camp, what did you know about data science?

Airyana Washington: [00:07:06] Well, I pretty much only knew what was on the sheet of paper that I saw. And it was just like data science. And I guess a lot of other girls there too saw that. And they're like, "Hmm, what's that?" and they kind of wanted to be involved in it. And at first, I thought it was just like tables, and numbers, and stuff. And like, I understood that it relate into the real world, but when I got to the camp, it kind of opened up like, "Oh, it really does relate to the real world, and that there's like people in the field actually collecting it and using it."

Annalies Corbin: [00:07:42] Well, so, tell us a little bit, Airyana, from your perspective then, we'll have Jenna come in and start with the bigger, broader overview, but—so, what exactly was this program?

Airyana Washington: [00:07:53] It was exploring data science as not just like sitting at a computer and doing like the typing part. It's exploring data science, like going to see cows, and going like catching bugs and stuff like that. And then, also, like talking with people in the data science field and what their jobs were. So, like, we talked to somebody who was doing transportation and somebody who was collecting science, I believe, to—for medical stuff, things like that. It was really interesting.

Annalies Corbin: [00:08:28] So, you, actually, not just learned about data, but you actually created data. There was a hands-on component to this like, "I am gathering [crosstalk]."

Airyana Washington: [00:08:36] Yeah.

Annalies Corbin: [00:08:37] Yeah. And so, is that the part that made it real for you?

Airyana Washington: [00:08:41] Yeah.

Annalies Corbin: [00:08:42] So, Jenna, when you were crafting this idea—and I want to, sort of, talk about the genesis of this idea a little bit. So, what was your intent? What were you trying to get at by creating this program? And it's in its second year. You've had two cohorts of three?

Jenna McGuire: [00:08:58] Two.

Annalies Corbin: [00:08:59] Two cohorts that have gone through. So, you've piloted. You've tweaked it, I'm sure, because we all do.

Jenna McGuire: [00:09:04] Yes.

Annalies Corbin: [00:09:05] And you come up with a program that Airyana went through. So, what was your intent? What were you trying to get at here?

Jenna McGuire: [00:09:11] Yeah, I get asked that a lot, especially because when we have, you know, young women like Airyana coming in, you know, the parents come and say, "I haven't found anything like this." It actually started about three years ago. There was a national report that came out that studied data science and analytics as a career and as a pipeline. It was a national report. And we were actually cited at Ohio State. And the thing that struck me in reading all the different data that they had was that men outnumber women 3 to 1 in this field. Reality is, most of us will tell you, in a room, it's more likely to 10 to 1. It's just the fact of the career, right? And if you're an underrepresented minority, it's even lower. It's just there—we do not have enough diversity in the career, in the pipeline, of women and minorities. It's just a fact.

Jenna McGuire: [00:09:59] And I was literally driving home one day thinking about this and thinking about, "I need more women. I need more minorities who are sitting around the table with us when we're solving these problems." I, literally, thought of the idea of a summer camp and started talking to colleagues across Ohio State and in industry about the need, and that there was a huge need, and basically worked with a bunch of folks both in industry and Ohio State to create this. And the ultimate goal was, let's get more women inspired to not just go into data, but if they're going to be a nurse, if they're going to be a politician, I want them to be able to see data as an opportunity, not as an obstacle. And so, our entire goal is to, not only get more women, especially at an age when we can make a difference in their lives inspired, but then, also, give them the tools to actually go to college, and then take on that career much more informed and much more as a leader.

Annalies Corbin: [00:10:55] And I think that a couple of things that really resonate for me, in particular, about that idea and the reason for doing the program, you know, one of them, you know, putting on my anthropological hat, if nothing else, right? So, most my listeners know that I'm an anthropologist by training. The reality of it is, without a diverse set of participants, we will never get at the most robust set of questions. And so, you know, it's neither here nor there because it is a reality, but the fact is that by having the mass amount of our global data set and the majority of the folks are asking questions in that data are only representing one piece of who we are, we will never, ever get at the full potential of that data because men

are going to ask very different questions than Airyana is going to ask of that data, right? No question, because you bring everything you have to that. And so, we have this opportunity of this stuff, but we're limiting what we're gonna get out of it because we don't have a diverse set of folks asking questions of it.

Jenna McGuire: [00:11:59] Absolutely.

Annalies Corbin: [00:11:59] So, there's that aspect. And the other piece of it that I really love is the fact that you very specifically said, "I can do something about this, and I can inspire people when they're really, really young to not be afraid of this, and go into it, and embrace it, and take it." So, all I can say is bravo because that is awesome.

Annalies Corbin: [00:12:18] So, Airyana, when you were working and you went to camp, right, and you're working inside of these data sets and you're having this experience. So, who are the folks that are showing up? And could you find yourself there, right? I mean, did that experience and what was going on, did it lend itself to inspire you, back to Jenna's, one of her intents? Were you inspired by that?

Airyana Washington: [00:12:39] Yeah. When I went to camp, I was kind of nervous because I went to like lots of camps before, but I struggled to find somebody who was like me. So, it was really hard to relate to them because most of the camps I've gone to are sports camps and things like that. So, when I got there, I was kind of nervous. And I ended up actually making a friend. And she really liked space science. And so she wanted to do a lot of like space data stuff. And it kind of inspired me a little bit to like think about all the different careers and things that could be science, and like how people think that science is one thing, but some like it's other things too. It also made me feel that when I get older and like going to college and stuff like that, I would want to like maybe double major in data science and political science because data science is so connected with it, and it's very useful in that field.

Annalies Corbin: [00:13:45] It's connected to everything, right?

Airyana Washington: [00:13:47] Yeah.

Annalies Corbin: [00:13:47] I mean, I assume that they'll promote things that you took away. So, I want to double down a little bit among the things that you said. So, I'll put you on the spot just a little bit here. But one of the things that is really, really important, and that we see it in the programs that we do here, and they're all by design as well, very much like what Jenna was talking about. You said that, you know, you went to other camps, and you didn't find anybody that felt like you. So, how do you define yourself out in the world as it relates to the things that you might aspire to be? So, what is it that you want people to know about you? And when you're out there looking for others to be part of your collective community, what is that for you?

Airyana Washington: [00:14:26] Well, for me, so, when I was younger, it was a lot of people not wanting to be friends with me because I wasn't fully black or white, because I lived in a community that was like black or white. You know, there wasn't a lot of mixed kids. But then, as I got older, I started realizing like, "Oh, my friends don't need to be black or white. I can make friends with anybody." And so, now, I have friends like everywhere. And I kind of look for people who are nice, and they don't really care about more like big stuff. So, I guess, a lot of trends and stuff, they just kind of come and go, and a lot of people go with them. And I guess I don't really like to go with those people. I like to go with people who have like their own interests and stuff like that.

Airyana Washington: [00:15:18] So, like, for my example, my friend, like I heard she was interested in space science, and I saw her reading a book by Stephen Hawking, I believe. And she was reading, and I was like, "Oh,

what's that about?" And she told me about it. And she started telling me about what she liked. And I was like, "Oh, I really want to be friends with her." And something about that kind of just made me feel like, "Oh, this is my kind of camp. These are my people."

Annalies Corbin: [00:15:45] And that's really, really important. And that was part of what you were hoping for, Jenna. I mean, I can see-

Jenna McGuire: [00:15:49] Absolutely.

Annalies Corbin: [00:15:49] ... that you're really moved by that.

Jenna McGuire: [00:15:52] Yeah.

Annalies Corbin: [00:15:53] As you should be, right?

Jenna McGuire: [00:15:53] [Crosstalk].

Annalies Corbin: [00:15:54] No, but that—I mean, that was one of your goals on the outset was to create a space where you could get this diversity of, not just participants, but folks thinking about the future of your science. So, the thing that you were passionate about. So, talk to us a little bit about that because you brought in all these experts. You were trying to make this experience for the students to be incredibly powerful. And obviously, it was. So, how and where do you recruit these folks? And what did they bring to the table? Because you weren't doing the all-day, everyday teaching. You were doing bugs. You were doing all these different things. So, how did you create that inclusive, diverse, really, really dynamic environment where kids like Airyana come, and they're like, "This is my home," because that's awesome.

Jenna McGuire: [00:16:41] And, you know, it's funny, as we're talking about this, I'm thinking back to a conference that I just went to, where I was sitting across the table from an African-American female, and she was telling me she was the first African-American female to go through her graduate program at her university. And she talked about the struggles that she had, and how she had no one to look up to. And that's really what I focus on when we bring together these people. I want to find women, I want to find minorities, I want to find people who are early in their career, people who are more advanced in their career, people who represent every part of data science, even if you don't expect it, because I don't want to limit these young girls in what they can aspire to do, right?

Jenna McGuire: [00:17:20] And so, the first thing I did was just go talk to people on campus and say, "I have this idea, and I want to represent not only agriculture, but I want to represent space. I want to go to the planetarium." You know, I have this one professor, Harmony Bench, who studies dance. And you don't think advanced data science, but she has a wealth of data on an African-American choreographer. And she's not only a very impactful speaker, she's very engaging and wonderful with the girls. And she teaches the girls that you can tell stories with data through pictures.

Annalies Corbin: [00:17:53] Awesome.

Jenna McGuire: [00:17:53] Right?

Annalies Corbin: [00:17:54] Wow, yeah.

Jenna McGuire: [00:17:54] Not just numbers, but telling a story. And then, I have another professor from computer science, and he uses drones, right? And he does facial recognition. But one of the things we did with the girls was on the second day, we actually got our costume props. And you wouldn't think of costume props as a data problem, but what the girl said was they voted on what they liked. And then, we went out and modeled the costumes. And then, we showed them, you didn't realize it, but you were actually collecting data at that moment.

Jenna McGuire: [00:18:20] And so, it's really about finding people who are not only passionate about this, not just data science, but people who are passionate about, you know, looking at girls like Airyana and saying, "I want to make an impact in her life." And you would be amazed at how many people have come forward and said, "I want to be part of this camp," not just Ohio State, but people like Rehgan Avon, who founded the Women and Analytics Conference here, first, as a student of Ohio State, and then as a full-on conference. And it's got hundreds of people coming. I went to Rehgan and said, "Hey, I have this idea." And she signed on and said, "Okay. Not only do I want to be your partner. Tell me how I can help. Who can I connect you to because this needs to change?" So, I think there's a general recognition among the community, especially women and minorities, that we need to do something.

Annalies Corbin: [00:19:07] Yeah. No, absolutely. And Airyana, you participated in the program in the second year or the first year?

Airyana Washington: [00:19:13] The second year.

Annalies Corbin: [00:19:16] In the second year. Okay. So, you've gone through and you completed that program. So, what are you going to do with this? Not so much for your career, but I want—I really want to get into the nuts and bolts of someone, what Jenna was talking about here, as she's crafting and bringing these really amazing folks and doing just wicked awesome science, I mean, how cool is, you know, the data tied to dance? Because you're right, you don't think about that. So, you got exposed to all these folks. And so, what I want to really sort of understand from you is, does the experience change the way you think about things or the way you're applying? I mean, you're in high school right now. You're still on your journey, on your path. Is what you learned in the summer, is it having an impact on what you're doing right now, or do you even realize that it is?

Airyana Washington: [00:20:09] Well, I kind of—sometimes, I find myself like just thinking. And when—after the summer camp, I started thinking about like, how did this impact me? Like, what is going to change in my life? And I started realizing that it was like—I don't know how to explain. It was impactful, I guess. And it just kind of resonated in a sort of way that made me feel better about the world, and that it was changing, and that there'd be more opportunities because like when I look around the world around me, I have two little sisters. And so, a lot of the time, I'm like, "Not only how this is going to impact me, but what's going to be changed for them."

Airyana Washington: [00:20:59] So, I kind of think about that a little too much, but it's really important to me because one of them is like 11 years younger than me, and that's a really big difference. And when I go through camps like this, I know that when she gets to the point where she can go to camps, she's going to have options like this one, and it's going to be impactful on her life, and how she sees the world, and how she just looks at it.

Annalies Corbin: [00:21:27] Yeah. And I think it's interesting because, literally, just a few minutes before the two of you arrived, I was having a conversation with a young woman who's now in college, who's working with me. And I met her as a freshman in high school. And she was very shy. But one of the things that we were

talking about in particular was, what happens when she walks into a room. And she said that, you know, "I have to walk into a room, and I have to put on a persona, because it's the thing that helps me get through the conversation.".

Annalies Corbin: [00:22:00] So, she is a young Muslim woman, you know, in this—living in our city. And she said, you know, that she has to—to some extent, when she walks into a conversation, she finds herself the only one. She's studying this week in crazy engineering over at the university. And, you know, it's her and 50 young men in her program and things like that. And so, she's very conscious of that. And we were having that very same conversation about how you take the things that you learned. And I was very specific with her about the journey. Like, "I met you, and you're really shy. And now, you're fearless." And I think—and the experiences that get you to that sort of fearlessness.

Annalies Corbin: [00:22:42] And so, Jenna, when you sit down with all these professionals, and you guys are talking about what you're going to do in this camp, what's the conversation around the how, or is it not even necessary? I guess that's really what I really want to know. You're inviting these folks because you see something special in (A), the work they're doing; but (B), in their ability to maybe connect with your participants. So, what's the prep look like? What's that conversation?

Jenna McGuire: [00:23:11] Well, thankfully, I'm a really strong cohort of faculty and folks in industry to work with for many years. A lot of it's trial and error. Honestly, the first year, I had no idea what I was doing. I had no idea how to prep people. After that year, sat—what we do is we sit down with every single speaker, and we talk through, "Here's how much time you have chairs, the environment, here's the background of the girls who are coming." And we have an honest conversation of, "We envisioned a particular part of this program looking like (A)." And we say, "But what do you think?"

Jenna McGuire: [00:23:44] And we ask for—it's a very, you know, back and forth exchange to make sure that I may be envisioning something very different, but they have something additive, right? And so, we adapted right then and there based off what they think. I will tell you that that has happened with many, many of our sessions. And it's beautiful because, all the sudden, you see the other person light up. And then, when they come to the sessions, they look around, and they look at girls like Airyana, and they're like, "Okay, wow! This is amazing."

Annalies Corbin: [00:24:12] Then, this is real.

Jenna McGuire: [00:24:13] It's very real.

Annalies Corbin: [00:24:14] Yeah, very real on that moment. I love the fact that you guys are, you know, definitely designed cycling on the fly, right? Yeah, all the modifications that's happening. So, that's pretty awesome. So, do you think that the process that you've used and the experience that you've created has enough universals in it that it can be applied to almost any type of experience to be created to empower these young women?

Jenna McGuire: [00:24:43] I would hope so. That's my ultimate goal is to build this program, so it can be built out in other places, right? So, not just in Ohio, but I would love to see this camps in Cincinnati, in Cleveland, in rural and Appalachian Ohio, in Toledo. And then, expand even further because we recently did look, and just to see what's available nationwide. Before—when I first started boot camp, I used to say it was one of the only. We've done research, and I can not find a single camp that's like this. Most of the camps cost money. Ours is 100% free.

Annalies Corbin: [00:25:16] You got it all underwritten.

Jenna McGuire: [00:25:17] All underwritten. And thank-.

Annalies Corbin: [00:25:17] That's awesome.

Jenna McGuire: [00:25:19] And thanks to sponsors.

Annalies Corbin: [00:25:21] That's right, that's right. Thanks. Thanks to those sponsors.

Jenna McGuire: [00:25:24] But ,then on top of that, most data science camps, not only are they exceedingly expensive, but they don't target women, and they don't target minorities. And that's a huge mess. And so, I'm very proud that we've done that, but I'm hoping we can replicate it. I want to get other, not just universities, but other companies excited about this, so we can expand across the country. That would be my ultimate goal. And I think with the adaptability that we've created with this program, we could very easily, you know, go to University of Washington, look at their faculty, and say, "Let's recreate it here."

Annalies Corbin: [00:25:55] How about one step further as I sort of push on you a little bit here.

Jenna McGuire: [00:25:59] Uh-oh.

Annalies Corbin: [00:25:59] Here it comes, here it comes. So, Airyana, if you had a data science pathway in your high school or in your middle school that said—and you got to go to this great camp experience, and you understood what it was all about. And if that were a track that you could say, "To heck with the normal things that I'm doing in my high school experience," and you could focus your learning through this lens with this type of sort of interface on an ongoing basis, is that something that appeals to you?

Airyana Washington: [00:26:31] What I've kind of realized, because my school district has career tech for all the students, I was kind of looking at and saying, "Why don't they have this for other things other than nursing and being a doctor?" And I kind of looked at it, and I was like, "If they have this for something science-like that was more like database, I would definitely do it." And I'll just take it out all the rest of this stuff and do it because it, not only supports my—like I can do my sport with it, but I also began learning something that I've been passionate about. And I go somewhere where everybody else is passionate about it and want to learn about it too. So, it's just that kind of—it's a different environment, you know. It would be like—it just feel more at home there. And other kids would be more at home there. And so, they're would be more comfortable, and willing to share, and just grow the classroom environment.

Annalies Corbin: [00:27:33] Yeah. And I think the reason I was pushing on it is because I know that, at the end of the day, when we want to take an industry and really scale it as it relates to the participants and the folks that are getting access to it, you know, whether we love it or hate it, we could argue that another day, the reality is we've got schools stretched around the globe, right, who are spending a lot of time with our future, right? And so, how could we take the aspiration that is the program that you've created and leverage it?

Annalies Corbin: [00:28:09] And so, leverage it with teachers, leverage it with communities, to your point, you know, to really push it, and see this opportunity, and for folks to understand that that becomes a sort of natural point. And we work with so many teachers here at the PAST Foundation who would love the chance. It's terrifying because, in much like Airyana's experience before she went to camps, didn't necessarily really know what that is. And teachers, sort of, have that same thing. This is really intriguing to me. And I want to do something to help, you know, move our girls into different sets of careers, but I don't know how to do that.

But this might be—someone would say it's low hanging fruit. And I don't mean that because it's simple. It's not. It's low-hanging fruit back full circle to how we started this conversation. It is everywhere. And we could use data science to teach so many things.

Jenna McGuire: [00:29:03] Absolutely.

Annalies Corbin: [00:29:04] So, to me, that gets me jazzed. That gets my juices, sort of, rolling when I imagine what could be possible with the seed that you built, what could happen with it. It's just—I think it's boundless.

Jenna McGuire: [00:29:15] Yeah.

Annalies Corbin: [00:29:16] It's amazing.

Jenna McGuire: [00:29:17] Yeah. And I see this as honestly like one step and, you know, a series of steps, right? So, there's the working backwards back into pairing, you know, kids like Airyana to enter college. But there's also creating a pipeline. You know, one size does not fit all. Not everyone wants to go to Ohio State. I didn't. I wanted to go to Columbus State. Let's create a pathway starting for kids who want to work full time, or they need to work full time because of their family background or just their interests, right? But then, let's create a pathway, so they can easily transfer to a four-year college. Or what if they wanted to graduate school, right? We need to think all the way across this pipeline, so that we're actually creating a viable pipeline and not creating barriers for anyone who wants to enter the field.

Annalies Corbin: [00:29:58] And what about where—and this is more of a query than a comment. But—so what about the folks that don't—is there a place for folks in data science who don't want to pursue post-secondary education? For a whole variety of reasons, we know college is not for ,everyone and we know we need folks who don't go to a million different things. There are such awesome careers out there. Is there a potential within the pathway that is for folks who, ultimately, don't want to do that, or want to stop after that to your opportunity? Does the field self-lend to folks at multiple spaces?

Jenna McGuire: [00:30:38] Yeah. I think, right now, the field doesn't. But the unfortunate thing is it should because the reality is there are too many jobs out there that need a data background, and they're not being filled. And that becomes the pipeline, right?

Annalies Corbin: [00:30:50] Right, right.

Jenna McGuire: [00:30:52] Okay. So, we have folks who could enter this field and require maybe a certificate, right?

Annalies Corbin: [00:30:56] Right, right.

Jenna McGuire: [00:30:57] Not a two-year or four-year degree. That's the other part that we need to think about because, certainly, with a high school education, you may not be well-equipped, but what if you had a one-year training, and it prepared you to enter the field even at the entry level? We absolutely need that if we're going to change things.

Annalies Corbin: [00:31:13] Absolutely. And I think that appeals to a lot of folks who might want to tow in, right? Or I just finished my K-12. I don't necessarily want to, but I want to be working in a field that interests me, rihgt? And then, I might go on and pursue a little bit differently. So, I would think that that would appeal.

So, as a student, Airyanna, if you had this, sort of, platter of options, that's helpful to you, yes? Or is it overwhelming?

Airyana Washington: [00:31:37] So, I've had a lot of people tell me, like, "Oh, college isn't for me," especially coming from a school that's in like a lower income area. And before, I thought like, "Oh, this is—I'm gonna go to college. Like college is a thing because everybody around me says they've gone to college." But if you go if you're in a family that didn't go to college, like my dad was, he didn't even graduate high school. And then he got a GED. So, does having that option to get like don't—you don't have to go to college because you're not good at school, but you love something, I think that that's a better option than going to college and absolutely hating it.

Annalies Corbin: [00:32:20] Absolutely, yes. LIfe is so short. Love your passion, right? Find a way to tap into that. And I think that that's one of the things about the experience that Jenna built. And I love the fact that you infused into that so many different disciplines because, you know, what inspires Airyana might not be the thing that inspired the kid sitting next to you who likes space, right? But there are all those options for those kiddos in the balance. So, how—when these experts came in—because I do want to get just a little bit into sort of the practical nuts and bolts of how the camp itself works, because people ask that question, right?

Jenna McGuire: [00:33:02] Of course.

Annalies Corbin: [00:33:02] Definitely, we will post materials, and send them to your website, and all that sort of stuff. But when folks are out there in the world thinking about, "Hey, you know, I don't have Jenna in Ohio stay, in my town. I'm, you know, in some place in Utah," or "I'm, you know, in faraway Maine, but, you know, I love the concepts that I'm hearing here. So, I want to create something similar," some of the things that they want to know is how it works. So, these experts come in, and how long is this camp? So, give us a little bit of just the nuts and bolts, sort of, pieces of it, Jenna.

Jenna McGuire: [00:33:35] Absolutely. So, the first day is really about getting the girls inspired and giving a baseline knowledge, right? So, a lot of them have taken math. They've taken baby steps. Maybe taken a couple of introductory science courses. So, we go 8th to 10th grade. They haven't taken calculus, hopefully-

Annalies Corbin: [00:33:50] Right, yeah.

Jenna McGuire: [00:33:50] And they're not going to be completely bored. Hopefully not. And we give them a baseline, right? So, the very—the fun thing that we did when they first arrived is we actually do a This or That, which is we have them go in the middle and we say, "Are you a cat or dog person? Do you like to work outdoors or, you know, watch a movie?" And they go to either side of the room. And then, we tell them, you didn't realize you were an actual data point.

Annalies Corbin: [00:34:15] Right.

Jenna McGuire: [00:34:16] It becomes very real-

Annalies Corbin: [00:34:16] Yeah.

Jenna McGuire: [00:34:16] ... but it's a fun activity.

Annalies Corbin: [00:34:18] Yeah, yeah, absolutely.

Jenna McGuire: [00:34:18] And then, we spend the rest of the day, actually, of the first day, just giving the baseline of what is data and how was it applied. So, we do a high level overview of, what is data science? What does it mean? What are the different steps and data? You know, you collect data, and you may clean it up a little bit because you have some bad data. Then, you start, you know, defining your question. And then, you start analyzing it. And then, you come up with your story, right? And that kind of pipeline is exactly what the camp is around. It's around the data lifecycle, right? And then, so, day two, we spend some time doing data collection. That's the one that we did with Chris Stewart from Computer Science on photobooth props.

Annalies Corbin: [00:34:55] Oh, photobooth props? Really? Wow! That's awesome.

Jenna McGuire: [00:35:00] And then, Chris talks about, "Okay, here's the data that we got." And he talks about some basic data cleansing, right? How do you clean it up to make it a little bit more usable? Because someone may have said red, somebody else said scarlet.

Annalies Corbin: [00:35:12] The same thing.

Jenna McGuire: [00:35:12] They're really the same thing.

Annalies Corbin: [00:35:14] Yeah,

Jenna McGuire: [00:35:14] How do you clean it up, so that's useful?

Annalies Corbin: [00:35:15] So, you don't toss a data point that doesn't need to be tossed, right?

Jenna McGuire: [00:35:18] Exactly.

Annalies Corbin: [00:35:19] Awesome.

Jenna McGuire: [00:35:20] And then, we take the girls and we have them actually talk to experts and give a very high overview of how to use big data for social good. So, he had someone this year from Smart Columbus talk about transportation, right? We had someone come in and talk about how they study geographical information, right? So, they can see kind of how things are used. And then, we take them on excursions like to the planetarium and the Waterman Farms and showed them, you know, you can pet a cow. But what else can you learn from a cow about its movement? About dairy production? How long is the gestation period? Things of that nature. And they got to catch bugs, right?

Jenna McGuire: [00:35:57] It's all interactive. So, they're not just sitting down. And then, the following days of camp are really just doing that over and over again, just in different areas. Like, how do you tell a story with data? With Harmony Bench bent, you know, through stories, through pictures. And then, the very last day, what they do is we actually pair them up with some undergraduate students and volunteers. And these girls actually go in, and they take a very big data set, and they get to choose things like Halloween candy, or Pokemon, or-

Annalies Corbin: [00:36:26] Fun things.

Jenna McGuire: [00:36:26] ... global trends, right?

Annalies Corbin: [00:36:30] Yeah, yeah.

Jenna McGuire: [00:36:30] And they actually take the data set, a raw data set, and they get to take out the data that's not mean, cleanse it. They analyze it, and they tell a story, and they present their findings to the entire camp. We invite the teachers, and their parents back, and all the speakers. And it's amazing because in one day, these girls are able to late analyze data sets that college students are doing. And that's the thing that we stress to them is you're doing stuff college students are doing. So, it's not out of reach. And we try to inspire them that way.

Jenna McGuire: [00:36:58] And then along the way, because we know that many of these girls may not come from a family that has someone who's been to college, or they may not be inspired yet, we spend a lot of time having them talk to undergraduate students. And then, we spend a lot of time over at the Office of Diversity and Inclusion, and we inspire them to show them, these are women leaders in any field. You can do it too. And then when you get to places like Ohio State, there are programs specifically to help women like you and minorities like you. And by the end, you know, I told the girls very off the cuff one day and said, "Who's less scared about college?" Every single one of my girls raised their hands. That made me cry.

Annalies Corbin: [00:37:41] That's awesome. That's the win, right? That's the win. So, that's just pretty darn exciting, at the very least. And my favorite piece of all of this is the fact that you are, in fact, helping these girls go on a journey, and you're doing it by helping them figure out how to tell a story, but also tell their story, right? Because I would assume that, you know, whatever data set—and what data set did you do, Airyana?

Airyana Washington: [00:38:08] My group did Pokemon.

Annalies Corbin: [00:38:09] Pokemon. But the reality of it is, and I assume that this is one of things that you learned along the way, right, is your interpretation. Because into the vague, you're interpreting data. It's telling you a lot of stuff, right? But the story that you pulled out of that data might be different than the story that somebody else would pull out of that data. And so, I love the fact that you've got to stand up telling you story, right, using that data. That is awesome. I don't even know if you realize how rare that is, the opportunity. It is just absolutely epic, I'll be honest with you, that you have the ability to get up and do that.

Annalies Corbin: [00:38:49] And so, Airyana, one of things I like to do as I end the program, because people are out there thinking about it, and they're hearing the story that the two of you are telling, and they're sitting in that room. Because I get the e-mails about it, you know. So, how could I do something similar? And so, I always like to leave the program by giving folks, no matter what it is that they're talking about that they're going to try, you know, sort of, the piece of advice. So, Airyana, from a student perspective, if somebody is out there who are going to try to create a camp that's similar, right, what one thing would you want a Jenna in another location to know before they spend their time trying to figure it out? You were a student in the program. So, what's the one thing you want her to know?

Airyana Washington: [00:39:34] Don't be afraid to go after things. So, we heard cows, and we thought, "Why are we going to a farm?" And we got there, and we had a lot of fun. And we even saw people collecting data all over there. So, get out there. Just if something relates, do it.

Annalies Corbin: [00:39:56] That's awesome.

Jenna McGuire: [00:39:58] It's awesome.

Annalies Corbin: [00:39:58] And Jenna, what about for you, what's your piece of advice for somebody out there contemplating doing something as wild as what you put together here?

Jenna McGuire: [00:40:08] I think follow your passion, right? So, it may not be in data science. Maybe you want to start one on, you know, water. Maybe you want to start one on climate. Maybe you want to start one on bugs, right? Actually, a lot of the girls went, "Ew, bugs." But follow your passion, right? So, I'm finding this is a personal passion for me, and what makes it easy is when you follow your passion, everything falls on line, right? The programming, finding partners, being able to expand it, making an impact. As long as you're following your passion, you can make it happen.

Annalies Corbin: [00:40:42] I love that. And I completely agree. And I can't tell you how many stories that we have been able to share on Learning Unboxed. And when you really start to dissect them, look at the data, one of the things that you will find is the common thread in almost all of these successful programs is that they are rooted in the passion of somebody, not only who founded and started it, but who shares the passion through the story, and the teaching, and learning. It's all related to that, right? We tell teachers all the time, we actually have sticky notes that we hand out professional development sessions with teachers, and it says "Teach your passion." Teach your passion and tell your story. And I think that that's the giant win. So, I say to Airyan, I can't wait to see what you're going to do, and to Jenna, Congratulations for helping her have an amazing journey. And thank you for joining us.

Jenna McGuire: [00:41:35] It was my pleasure.

Airyana Washington: [00:41:40] Mine too.

Annalies Corbin: [00:41:40] Thank you for joining us for Learning Unboxed, a conversation about teaching, learning, and the future of work. I want to thank my guests and encourage you all to be part of the conversation. Meet me on social media, @annaliescorbin, And join me next time as we stand up, step back, and lean in to reimagine education.