



TRANSCRIPT

Key Conversations with Phi Beta Kappa

Why Dr. Talitha Washington's Determined to Make Science More Equitable

Growing up in a tight-knit African-American community in Evansville, Indiana, Dr. Talitha Washington quickly understood the role that her race and racism would play in her life—always choosing to rise above it all. Amongst her Black cohort at Spelman College, Dr. Washington felt she was finally able to learn freely, and without the pressure of being the only Black student in the class. The mathematics scholar is now the Director of the Atlanta University Center (AUC) Data Science Initiative where she works with HBCUs to increase the number of minorities earning data science credentials and further develop science that advances social justice. Throughout her career as a Ph. D mathematician, she's actively challenging the assumptions of who can succeed in mathematics, and how her perseverance in the field is shaping who can and should be contributing to science.

Fred Lawrence: This podcast episode was generously funded by two anonymous donors. If you would like to support the podcast in similar ways, please contact Hadley Kelly at hkelly@pbk.org. Thanks for listening.

Hello, and welcome to Key Conversations with Phi Beta Kappa. I'm Fred Lawrence, Secretary and CEO of the Phi Beta Kappa Society. Since 2018, we have welcomed leading thinkers, visionaries, and artists to our podcast. These individuals have shaped our collective understanding of some of today's most pressing and consequential matters, in addition to sharing stories with us about their scholarly and personal journeys. Many of our guests are Phi Beta Kappa Visiting Scholars who travel the country to our Phi Beta Kappa chapters, where they spend two days on campus and present free public lectures. We invite you to attend. For more information about Visiting Scholars' lectures, please visit pbk.org

Today, I'm delighted to welcome Professor Talitha Washington. Dr. Washington is the Inaugural Director of the Atlanta University Center Data Science Initiative. She is Professor of Mathematics at Clark Atlanta University and an affiliate faculty at Morehouse College, Morehouse School of Medicine, and Spelman College. Dr. Washington is also the Director and Lead Principal Investigator of the NSF-funded National Data Science Alliance, and President of the Association for Women in Mathematics, the AWM. She works across HBCUs to expand data science research that advocates for social justice. She is a fellow of the AWM, the American Mathematical Society, and the AAAS, the American Association for the Advancement of Science. Welcome, Professor.

Talitha Washing...: Thanks, it's great to be here.

Fred Lawrence: Our students often look at the paths of our careers and they assume it's a straight line, but we know that there are many twists and turns along the way. I'm going to guess that becoming a PhD mathematician and a principal investigator on a National Science Foundation data science project was not exactly predictable to a young girl growing up in the '70s and '80s in Evansville, Indiana. Have I got that right?

Talitha Washing...: You have definitely got that right. I don't think that was on my mind at all. I hail from the great state of Indiana, and a lot of people there are engineers. So when I went to college, I majored in engineering. I didn't want to go to school for five years because they had an engineering program where you go there for three years and two additional years, so I thought five years of school was just way too much. Then I didn't want to do any of the labs because I'm super clumsy, and so I just whittled it down to something that was engineering-related and chose the easier major, which is mathematics. So that's how I fell into mathematics and it's been a journey ever since.

Fred Lawrence: Let's start back even further. Tell us a little bit about growing up in Evansville, Indiana in the 1970s and '80s.

Talitha Washing...: Well, Evansville, Indiana, it's a southwestern town. It's right there on the Ohio River, a border town. I grew up in the center city of Evansville, which is a tight-knit community, African-American community. When I was growing up, we understood race and racism in the town. In the early 1900s, David Curtis Stephenson came up from Texas to Evansville to restart the Ku Klux Klan. So growing up, if you go to certain parts of town, it would not be a positive experience.

I remember even when my older brother played on the Bosse basketball team and they went to a town to go play, and alongside on the road was a cross burning. So even though we had that close-knit community, it was very protective, which I thought was great. I still go back home and I have tons of moms and dads and all the rest of that, but we also were cognizant of the society that we lived in that really wasn't welcoming of everyone.

Fred Lawrence: The parents in that neighborhood were parents for the entire neighborhood, not just for their own children.

Talitha Washing...: Oh yes, so if you were out doing something that you weren't supposed to be doing, your mom or dad would get a call and before you even step over, you're stepping over the threshold of the house and they said, "Well, I heard A, B, and C." You're like, whoa. How did that happen?

Fred Lawrence: My rule with my parents was that if they heard about it from me first, I had half a chance but if they heard about it from somebody else, I was in serious trouble.

Talitha Washing...: Usually for me, it was the latter.

Fred Lawrence: Now, among the things that you and I have in common is that we both took AP Chemistry in high school, but neither of us went into chemistry. What possessed you to take AP Chemistry, which means as a senior in high school, you're essentially taking a college level chemistry class.

Talitha Washing...: I liked AP chemistry with Mr. Sanders, he was so great. He would just map out chemistry in a way that just made sense. My favorite part in hindsight really was the stoichiometry, where you use mathematics to kind of wrangle through all the different chemical units and converting and see how things are related and how one thing can lead to the next. Mr. Sanders at Bosse High School just really enjoyed the teaching of chemistry and just brought us along with it. It was super fun. I remember being in the lab going, Mr. Sanders, my hands are burning, because I'm so clumsy. I would always accidentally do something. He's like, okay Talitha. He's very calm and patient with us and really just helped us along the way.

Little did I know, fast-forward, I guess it was a couple decades later, he became a colleague of mine at the University of Evansville. We never know from our high school chemistry teacher to a colleague at a university setting. He was still super great, just to sit down and talk with.

Fred Lawrence: So in some ways, the pure intellectual joy of solving the mathematical problems of chemistry is what appealed to you most about the study of chemistry.

Talitha Washing...: Exactly.

Fred Lawrence: From high school, you move on to Spelman College in Atlanta, preeminent historically black college or university HBCU, and I think it's fair to say, the single most highly recognized women's HBCU. What was that like, growing up in center city Evansville to now be on the campus of the great Spelman College?

Talitha Washing...: I had a little tour in between. So I actually graduated high school a semester early and went on exchange to Costa Rica as a foreign exchange student. I stayed in the small town of Juan Vinas, didn't really know any Spanish other than si, no, banana and

taco, and learned it by brute force. I think that's really where I learned this transition of really being out of the element, having to read social cues that I didn't really understand, having just to absorb and soak up a language at an exponential rate just to keep up, and it was a great experience.

So I remember when I first went to Spelman, I was like, why are you all having so much trouble with this transition? I was like, oh, I did that when I went to Costa Rica. I learned how to transition, I learned how to navigate and knew, for lack of a better word, foreign circles, and just thrive it and have a good time with it. But when I got to Spelman, all African-American, female, women's undergraduate college, and it was a great experience to be able to just go in and learn about black women in STEM and history and have all of these role models right there in the classroom who really said, "I've been there, I've done that, and you can and you will do it too." So it was just a really wonderful learning experience.

Fred Lawrence: You've also described elsewhere the experience that many HBCU students of having the opportunity, the privilege, if you will, of being able to study and doubt and express uncertainty, all of it completely free from having to be the black student, having to represent what it means to be the black student in the class.

Talitha Washing...: Right, that's a huge weight. Most of our students that come in the classroom, they want to learn something or they're just intrigued or you can ignite that intrigue or that curiosity. But when you have that curiosity, that intrigue, and if it's overburdened by being the spokesperson for an entire race or having to justify why you're there, or having to defend your knowledge because a person who looks a certain way is not expected to possess knowledge in a certain way, that can be overtaxing and crushing to many students and professionals as well. So being able to be in an environment where you just take all of that away, you can just be that student, you can learn. You're the expectation, you're not the exception. It's a freeing that it's hard to describe unless one has been there.

Fred Lawrence: So if somebody had pulled you aside and whispered, "So this is where it's going to take you. You're going to be a PhD mathematician, you're going to wind up with a major center here." Would you have said, no, that couldn't happen or would you have said, yes, that actually starts to sound like the kind of thing that would interest me?

Talitha Washing...: Well, when we first got to Spelman, we have a fresh women week, and we were told, welcome to Spelman. Now after you're done here, which graduate degree are you going to get?

Fred Lawrence: Wow.

Talitha Washing...: The motto of Spelman is a choice to change the world. So it's not positioning for self, it's positioning to really make a positive impact on the world. So if somebody said you would get a PhD, I think I was told that. I was like, okay, sure, why not? I

started in pre-calculus two in college. I was not a student who was chartered for that high level, intense, yes, you're going to be successful in mathematics. I just started pre-calc two and just worked my way up. My second semester, I took a proof writing class, I didn't know what was going on. So instead of failing it, I dropped it. But I remember my friend saying, "Hey, why don't you just stick with the math? It's okay. Just stay with it." So I took that class a year later, made an A, and stuck with the math and just kept going.

I always say I'm a late bloomer, even though I might have started the pre-calc two, I ended up with a strong background, with Phi Beta Kappa, I became Phi Beta Kappa in 2017. So it's never too late, stay the course, stay persistent.

Fred Lawrence: It gets hard for all of us at some point or another and in some ways, I think ironically or otherwise, the people for whom it seems to be harder sooner, to get a handle on what perseverance means, there are other people for whom things come more easily for a long time. When they finally hit a real challenge, they don't have the tools to deal constructively with that challenge.

Talitha Washing...: Very well said. I built a lot of tools along the way.

Fred Lawrence: Then you leave the confines of an HBCU, and you're on the campus of University of Connecticut, where it turns out, if I have this right, you are going to become the first black woman to get a PhD in mathematics. Is that right?

Talitha Washing...: Yes. In the year 2001.

Fred Lawrence: Between Spelman and University of Connecticut, you were blessed with mentors who worked with you, advanced your work along two very important institutions in your life. One of your Visiting Scholar lectures is called, Choosing to Become a Mathematician in Spite of the Obstacles. So tell us a little bit about what that talk is about, and what are the obstacles?

Talitha Washing...: Math can be hard, not impossible, but mathematics in itself can be hard. Then also sometimes we put obstacles in our way by choosing or not choosing to do things. It also could be that maybe we just didn't put the time on the task, or maybe we weren't looped in with the proper network to propagate forward, or maybe as in my case in graduate school, you start having babies. Not saying that babies are an obstacle, they're a blessing, but at that time, I didn't have maternity leave, so I always say three kids later, can I cash in my maternity leave now? So I literally gave birth and then started working a few weeks later. I mean I made it through and it was in spite of any perceived obstacles, but sometimes life can just be hard, whether we make decisions or just propagating through learning new things and just staying the course.

Fred Lawrence: Staying the course, perseverance, is that a lot of what that talk is about, that Visiting Scholar lecture?

Talitha Washing...: Yes, and then oftentimes in mathematics, being an African-American female in mathematics, oftentimes there is a perception that mathematics is done by a certain demographic group, not by African-Americans. So negotiating somebody's low expectation or somebody's either micro or macro aggression, and being able to, I'll say, work around that and still be successful, can be challenging and difficult, and in some cases could be really wearing as far as advancing in the field. The field of mathematics is very peer driven. We review each other's papers and determine, and give suggestions for it to be accepted or not. We do the same thing with grants, we do the same thing with tenure track professors. We get reviewed by other people who look and say whether or not we're going to make a contribution. Many of that, while we do have people's track record and information, much of that can be subjective because if one doesn't get into the right research group, that could really prevent the career from going forward. I've had friends as well, who've really had a challenging time at different points in their career just because the micro, the macro aggressions, racism or what have you, intrudes on people's discernment of who can contribute to science and who should contribute to science. Hopefully with the work that I'm doing, that helps to change that narrative so that we can all bring our talents to the table and have them be valued.

Fred Lawrence: Many of us, when we think of discovering stories of people of color who became significant mathematicians, think of the movie Hidden Figures, which one of your Visiting Scholar lectures is actually about, or more specifically, you talk about how there were many, if you will, hidden figures who helped Katherine Johnson become a research mathematician in a highly racially segregated era. What are some of the stories that you tell in that lecture and what kind of response have you gotten from the students and others in attendance?

Talitha Washing...: When I went to Howard University this past fall and gave a presentation on the mathematics of the Hidden Figures, and I talked about her research mentor, William Claytor, he earned his bachelor's degree at Howard, and he was actually a part of their inaugural master's class there as well. He was the third black PhD in mathematics. When you get a PhD, you have this dissertation, which is a paper that basically shows your research contribution to the field.

Now when people came across Claytor's dissertation, it was groundbreaking, it was amazing. To be frank, some people read people's dissertations, but most of them are kind of, it's the start, but this one was great. So that's a pretty unique experience. The problem was, when people found out who he was, what race he was, it was, oh, and it was pushed aside.

So Katherine Johnson's research mentor was at West Virginia and trained her to be the research mathematician that she became. She took all of the math courses there, exhausted them. Even though Claytor, who was her math professor, his career had so

many obstacles and barriers because he wanted to do the research itself. He at least, I think, was an honor to give and instill in other students, including Katherine Johnson, to go on and do this mathematics.

When I told the story of William Claytor when I was at Howard, you can imagine this young guy, curly hair, bronze skin, driving through campus in a convertible, he liked to play tennis. He also flew an airplane, and he would fly it so close that one of the wheels nicked the president's place there. So he was a flashy guy at the start but when you look at William Claytor's career over time and how many times he got told no because of the race, because he was black, and he couldn't get into the mathematics meetings, he couldn't stay at some of the R1 research institutions, he couldn't get into the peer networks in mathematics where research is really being cultivated. It really did, I think, have a negative impact. I'm hoping somebody does a movie on him, maybe I'll do a call for Spike Lee to do a movie on William Claytor, just to show how the circle sometimes can really prevent somebody from going through it and really making the contributions.

Fred Lawrence: Shocking in so many ways, and of course, not completely behind us either. But one would have thought, one would've liked to have thought, that particularly a field like mathematics, the work would stand on its own. It's not normative in the way that sociology might be, or even political science if it's not empirical political science, so you would think that the work would simply stand on its own, and yet, as you say, the work does stand on its own until the author's race is revealed, and then other factors play a terribly destructive and debilitating role.

Talitha Washing...: Exactly.

Fred Lawrence: You are the Inaugural Director of the Atlanta University Center Data Science Initiative. Can you tell us a little bit about the Initiative and its work? How have you been able to use this position as the Inaugural Director to help build this institution?

Talitha Washing...: So the Atlanta University Center Presidents, that's President David Thomas of Morehouse College, President Valerie Montgomery Rice of Morehouse School of Medicine, and President Helene Gayle of Spelman College, and President George French of Clark Atlanta University, came together and had a vision to expand data science, not just in the Atlanta University Center schools, but across all historically black colleges and universities, really, to address the under-representation of minorities with credentials in data science and data analytics, and also to advance research in focusing on empowering it for all communities.

So United Health Group funded the initiative back in 2019 to launch it, and then I came in August of 2020. So day one was, okay, figure out how to do data science across the four HBCUs here in Atlanta. Day two was, now do it across 100 some odd and sort through what colleges and universities nationally. I was like, okay, how am I supposed

to do that? Where's the roadmap? They said, well, that's why we hired you. Okay. So as any good researcher would do, I gathered all the data I could in that first semester either through interviews, presentations, documents, everything, and just did a cluster analysis around emerging themes and things that the Atlanta University Center wanted.

So then we came and we arrived at two goals, developing talent and creating new knowledge. We've launched different programs from workshops to a mini grant program, to work group, a data science club, new courses, including data in the African diaspora, academic programs, just really been having a great time just pushing the academics and then also pushing the research. We're working with a group of social work faculty at Clark Atlanta who are bringing data-driven insights for the social work practitioner. Data science is one of those fields that works across all disciplines, which means I get to hang out with everybody with the aim of bringing something of value and some insights that data can afford.

Fred Lawrence: Everybody, I think, has a strong reaction to math going back to primary school. There are those who love it in and of itself, there are those who ultimately find it's productive for other things they wish to do with mathematical analysis, and then there are some people who are just straight up quantitative phobic, they resist math as a discipline or as an approach. Now, people who've been with us listening to this conversation, obviously are in the first two categories, maybe even some in the third category, who thought they'd give it another try.

So I wonder if you could help us build the curriculum, build the book list for some of our listeners. What are a couple of suggestions you might have for people who have some background in the field of mathematical analysis, but there's something new and noteworthy that they might do well to give some consideration to and read, and for those without much background in the field, as a good port of entry and some of the things that you've been interested in the field, mathematics and applied mathematics.

Talitha Washing...: One of the books that I think is really neat, it's by W.E.B. Du Bois, it's called, *Data Portraits: Visualizing Black America*. So Du Bois was a professor in Atlanta University back in the day, who created all of these visual portraits, these data visualizations without a computer, I might add, to talk about Black America, to say what's happening, what's not happening. They're very colorful, they're very accurate. People ask me, does data science, do you need a computer to do it? He created this whole, I don't know how he did it, but he created this whole book of data visualizations that are highly accurate without a computer, by hand. It really was a monumental, I think, an important feat in data visualizations and how we can think about data to tell a story, and to also ignite curiosity and maybe change in a deeper understanding of what's going on. So if I had to say if there's one book, it is on Amazon, I think Kindle too. W.E.B. Du Bois's *Data Portraits: Visualizing Black America*.

Fred Lawrence: We think of him for such monumental works of American sociology as *The Souls of Black Folk*, the somewhat less well-known, but equally provocative *The Souls of White Folk*. This is another one to add to our Du Bois list, so thank you for bringing that one to our attention, and I'm going to put it on my list.

When I think of the challenge put before you as a first-year student at Spelman, it seems as if two major challenges are put in front of you. What graduate degree are you going to pursue and how are you going to change the world? You have managed to do both. You got that graduate degree and you have continued through your scholarship, but also your work in education policy and accessibility of higher education in the applied sciences field of people of color, to have continued to change the world. Thank you for those contributions, for joining us this year as a Phi Beta Kappa Visiting Scholar, and for sitting down today with me on Key Conversations with Phi Beta Kappa.

Talitha Washing...: Thanks for having me.

Fred Lawrence: This podcast is produced by Phantom Center Media and Entertainment. Kojin Toshiro is lead producer and mixed this episode. Michelle Baker is Editor and Co-Producer, and Hadley Kelly is the Phi Beta Kappa Producer on the show. Our theme song is Back to Back, by Yan Perchuk. To learn more about the work of the Phi Beta Kappa Society and our Visiting Scholar program, please visit PBK.org. Thanks for listening. I'm Fred Lawrence, until next time.

CITATION:

Lawrence, Fred, host. "Why Dr. Talitha Washington's Determined to Make Science More Equitable" *Key Conversations with Phi Beta Kappa*, The Phi Beta Kappa Society, May 6, 2024. www.pbk.org.

Produced by:

