



Innovation Conversations: Dr. Wayne A.I. Frederick

March 2021

Trey Powers:

Welcome back to Innovation Conversations. Joining us for this episode of Innovation Conversations is Dr. Wayne A.I. Frederick, the president of Howard University. Before we begin our conversation, we would like to provide our listeners with a bit of background on Howard and other Historically Black Colleges and Universities. HBCUs were established after the Civil War to serve the educational needs of Black Americans. Until the Civil Rights Act of 1964, Black people were generally denied admission to traditionally white institutions of higher learning. Therefore, HBCUs were the principal means for providing post-secondary education to Black Americans. Today, there are 107 HBCUs in the U.S., both public and private, with more than 228,000 students enrolled. The most renowned of the HBCUs is Howard University in Washington, D.C. Howard is a private research university offering 120 undergraduate, graduate, and professional degree programs. The university has produced an impressive roster of alumni over its 154 year history, including the current vice president of the United States, Thurgood Marshall, and our guest, Dr. Frederick, who earned his B.S., M.D., and M.B.A. at Howard.

In addition to being president of the university, Dr. Frederick serves as the distinguished Charles R. Drew Professor of Surgery and performs operations at Howard University Hospital. He has received numerous awards for his work in academia, cancer and disparity research, and medicine. Joining me for the conversation with Dr. Frederick is Kathryn Holmes Johnson, a graduate of Howard and our firm's director of marketing and communications. Thanks for joining us today, Dr. Frederick.

Kathryn Holmes

Johnson:

To begin, let's start with your personal story. You are a native of Trinidad and came to Washington in 1988 -- actually the year that I graduated. You came to Washington to attend Howard at just 16 years old to enroll in the university's Bachelor of Science/Medical Degree dual degree program. Please tell us what led you to pursue science and to do so at Howard.

Dr. Wayne A.I.

Frederick:

Yeah, I developed an interest in science and medicine in particular because of my own personal medical history. I have sickle cell anemia. I was diagnosed at birth. My grandmother often tells a story about me overhearing her speaking about it and then telling her that I'd become a doctor to do that. And so I've always had that focus. My mom was a nurse as well. And so that exposure is important, and growing up in Trinidad and Tobago was also important in terms of that journey to Howard.

The first Prime Minister of Trinidad and Tobago, Sir Eric Williams, actually was a political science professor at Howard after graduating from Oxford. And he always referred to kind of cutting his teeth at Howard and preparing himself to lead what would be basically taking Trinidad and Tobago from being a colony of Britain to full independence. And so Howard was something that was always around me. The physicians who delivered my two younger brothers were Howard alum. And so Howard has had a really major influence, I would say, on my formative years. And so it was always going to be that destination as well as the fact that it had a sickle cell center, my mom being a nurse -- I felt it would be the safest place for me to go to school as well.

Trey Powers:

Historically, what has Howard's role been in research on a local, national, and global level?

Dr. Wayne A.I.

Frederick:

Howard has played a very significant role when you look at our research enterprise and what that has given to the world, starting with the local impact. In the areas of social sciences and humanities in particular, you look at the economics department and the Center for Urban Progress that was set up there. The research that has been done there has looked at the issues that we're facing with today: the gentrification that was taking place, the changes in how we live in this society, and the economics behind that. You also look at, obviously, medical research, and the sickle cell center that brought me here has had a national and global impact, and today continues to do that. We recently embarked on a project

with the Congo where the incidence of sickle cell anemia is extremely high, and so helping them with that from how they manage it.

So the impact of research and the role at Howard has been very important, especially when you look at healthcare disparities, you look at criminal justice reform, you look at educational disparities. Howard University has played a significant role in trying to illuminate these issues and then subsequently, obviously, provide solutions for closing those gaps as best we can. So I would say it has been a very, very impactful role in the past, and today, probably more so than in the past, a very, very critical role as we go forward.

Trey Powers:

Can you give us current overview of Howard specific to the STEM fields, from schools and areas of study to the programs and research taking place in them?

Dr. Wayne A.I.

Frederick:

Yeah, you know, Howard University's STEM profile is extremely significant. When you look at science in particular, we have very strong departments in physics, chemistry, biology. As a matter of fact, our number one subscribed major is biology at present, and as a result of having a med school as well. As you can imagine, lots of students who come to Howard are interested in pre-med, and we actually send more African Americans to medical school than any other institution in the country, so that undergrad profile in those areas in particular is extremely important.

When you look at engineering, our college of engineering has major engineering departments, as you would imagine, as well as computer science embedded in it as well. And that has been an area that's been growing significantly. We, a few years ago, started a project with Google called Howard West in which we embedded our computer science students out in Silicon Valley at their -- in Mountain View at their main site. Google engineers and Howard faculty co-taught our computer science students. As a result of that program, students being hired in the tech industry from Howard has significantly increased. And as a result our computer science program in particular has really exploded.

In the area of the STEM PhDs, we decided -- because we've sent over the past couple of decades more African Americans to STEM PhDs than any other institution, we decided that we would try to expand that experience. And the impact we've had there is a story that I think has been under told. We've sent more African Americans to STEM PhDs throughout the country from our undergrad campus than Stanford, MIT, Harvard, and Yale combined. And so when we looked at that and decided to expand, we decided that we would start a STEM scholar program. It was initially called the Bison STEM Scholars Program. It's now called the Karsh STEM Scholars Program because of an eight-figure gift given by Bruce and Martha Karsh, but we've also had support from Jeff Dean at Google

who runs their AI shop. And this is a program that brings students from high school to Howard and they commit to pursuing a STEM PhD or an MD-PhD. We put them through a fairly rigorous academic experience, which also includes them being able to do research every summer, and thus far, we've been sending them to major laboratories across the United States and globally as well. Last year, we had a student go to Vienna -- or the year before, I should say, before the pandemic -- we had a student go to Vienna, as an example, to participate and research in a lab. And this is a program that will actually help us potentially quadruple the number of students that we actually send to STEM PhDs, and these sort of roles will do that in a shorter period of time because of how we've set up the academic profile as well. So we really are going to have a major impact on the STEM disciplines as a result of this.

And then when you look more broadly in STEM, because we have a dental school, med school, pharmacy, nursing and allied health -- we also have a very significant footprint as well in those areas where we continue to attract students from across the country to those destination programs as well. So we have the only dental school in the District of Columbia at present and our med school continues to be highly selective, probably the seventh-most selective med school in the country. But it's a very, very significant STEM footprint and the research that is embedded under there is extremely broad. The student experience is also very, very wide and something that we certainly continue to encourage.

Kathryn Holmes

Johnson: Dr. Frederick, Howard has always had a global reputation for excellence and attracts students from around the world. Can you tell us a little bit about the composition of the student body?

Dr. Wayne A.I.

Frederick: Right now, our student population is around 10,300 for the spring, and the fall was about 10,800. Obviously some students graduated in December. And of that, our international student body actually is about 600 to 700 -- significantly smaller than when I was here as a student, but equally as diverse in terms of the number of countries that students are coming to us from. We have students from 46 states and about 71 countries, so we do have a very broad representation in terms of an international student body with students coming from all over the world.

Kathryn Holmes

Johnson: According to a recent article by the National Science Foundation, HBCUs have proven to be extremely effective in graduating Black students, particularly in STEM. While HBCUs enroll about 9% of Black undergraduates in the U.S., they

graduate a significantly higher percentage in critical fields, such as engineering, mathematics, and biological sciences. Can you share your perspective on why HBCUs play this unique role?

Dr. Wayne A.I.

Frederick:

HBCUs in general -- and I can speak specifically for Howard -- provide an environment that allows for self-actualization. I think students who come here are very committed to pursuing STEM disciplines, but at the same time, I think whatever apprehension or lack of confidence that they may bring out of high school is quickly dissipated because they are amongst colleagues and faculty members who look like them -- who are very, very supportive of what they want to do and where they want to go. And so sometimes, in a little bit of a [inaudible 00:11:51] fashion, I tell people if you get a D here at Howard, you've earned it. You didn't get it because somebody thought something different about you, et cetera. In the same token, when students come here and they really excel, they know that they've done it because they really have committed and put the work in. And I think the environment really promotes that. It's a nurturing environment, but at the same time, it's a rigorous -- very rigorous academic environment as well.

Trey Powers:

In 2019, *Fortune* magazine reported that in the past decade, HBCUs have seen a proliferation of new intellectual property with 30 different HBCUs owning patent rights. Can you speak to the importance that IP plays at a university and what can be done to continue the growth of IP portfolios at HBCUs?

Dr. Wayne A.I.

Frederick:

Yeah, intellectual property is extremely important to universities in general, especially in this era of innovation and entrepreneurship. It's something that has been receiving more and more focus in all of higher ed., but especially at Historically Black Colleges and Universities. I think it's extremely important that we do that because some of what is being researched and some of what is being invented and discovered is very specific to issues around the African diaspora, and specifically issues around African Americans and how we can fill some of the gaps that exist in our society on a variety of issues. A lot of the research is also mainstream and could really go to change how we live, how we work -- and especially when it comes to technology in particular, there are some very, very innovative things going on in the space.

So those intellectual property portfolios, I think, are extremely important, and at HBCUs, we're trying to enhance our resources and fortify the financial bottom line. This certainly is one of the areas that we've begun to explore more and more, and I think in the future, it would prove to be extremely critical to having HBCUs really thrive and really build out aspects of what they do, not just internally, but what they're able to take to market and commercialize. So it's one that we -- certainly

here at Howard -- have really been focused on. We've been trying to build this area out as much as we can. We've invested significantly to make sure that happens and I think it bodes well for the future in this area.

Trey Powers:

Dr. Frederick, from your perspective as a university president, what are the biggest challenges for Howard and other HBCUs in the current and post-COVID world, and what can be done to address them?

Dr. Wayne A.I.

Frederick:

I think the COVID pandemic has brought to light some significant, disproportionate issues in our society as a whole. The social determinants of health and how they disproportionately impact Black Americans negatively, I think, has really been thrown wide open – everything from living in food deserts, the lack of access to good care, to not being able to live in environments where you can quarantine easily, et cetera, and the significant number of frontline workers who are exposing themselves every day to ensure that the entire society and the economy to a great extent can function. And as a result of that, our HBCUs are, as you can imagine, microcosms of that. So the challenges have been broad. You've had a significant recession as a result of having to lock down and adversely impact the economy. Frontline workers there are the people who are sending their students -- their kids to our HBCUs, and as a result, the ability for those students to pay, the ability for those students to manage school at home in terms of Wi-Fi access and also having devices, has certainly been a challenge. And we've tried to meet those challenges by working in collaboration with corporations so that we can push out to students devices, hotspots, and help them through those challenges, which have been significant health wise as well.

Howard University, for example, employs more African American faculty than any other single institution in the country. So as a result, as you can imagine, again, getting COVID -- you're far more likely to get COVID and you're far more likely to die from it if you're African American. And so we looked at that situation as well. We offered testing very early on. We're now distributing a vaccine and we're encouraging our staff and faculty, where appropriate, to get vaccinated so that we can try to meet that challenge. Through a partnership and a gift from Thermo Fisher, we were able to stand up our own app for testing, and that has been extremely helpful.

We also have been working with the Gates Foundation on that aspect of what we do as well. And so I think as we go forward, trying to continue to close that gap in terms of resources that students may not have is a key component of what we intend to do. [Inaudible 00:17:11-12] Health and safety is the primary concern, and so we'll be having very rigorous testing in the fall and we hope to have everyone back, along with making sure that vaccines are available as well. And I think that

those are going to be important challenges that we're going to have to meet in order to make sure that our student body and faculty and staff do well.

We also did not lay off or furlough any of our faculty and staff, again, because we recognize that the COVID pandemic disproportionately affected African Americans. And so we thought, if you have a two income household, that other income source may have been in jeopardy in that household. And so we really wanted to make sure that we gave our faculty and staff, as well, an opportunity to be able to press forward. And that's something that we're going to continue to look at, and hopefully we can continue to do until this crisis is behind us.

Trey Powers:

I was reading a *Washington Post* article last night about some pretty shocking disparities in vaccination rates in Maryland -- white folks versus Black folks, and the level of vaccination. And it seemed pretty clear from the article that there's something wrong with the system that Maryland is using to distribute vaccines. And I wondered if you had any comments on that, what's wrong and what might be improved in the system?

Dr. Wayne A.I.

Frederick:

Yeah, that's a good question. Well, I live in Maryland, and while I do, I can't say that I have enough information or data on the specifics of their rollout and the logistics, but based on what we have seen at Howard and standing up our vaccination center, vaccinating our faculty, staff, students, and also going out and vaccinating the community -- and at the same time enrolling in a phase three trial and meeting those enrollment numbers fairly quickly -- I would say the single most important thing that I think is a factor right now is having a trusted messenger be at the forefront of getting people vaccinated. I think we have a lot of credibility within the community and as a trusted messenger, I think people are willing to come and hear what we have to say about a vaccine, come to us to get the vaccine, but also recognize that we've got -- we're always going to put their health front and center.

And so, like I said, I don't know the details, but one thing that I have been trying to push nationally and with the task force in particular is the fact that we should be using trusted messengers. I hope that they would engage all of the issues and all the communities where they exist and have them be the site where people can go get the vaccine or use their faculty, staff, and students alike to be the trusted messengers that take the word out into the community about why the vaccine is safe and necessary for us to take.

Kathryn Holmes

Johnson:

In your view, what is the most important legacy of Howard University with respect to innovation?

Dr. Wayne A.I.

Frederick:

That's a very interesting question, because I think that there's so many things that Howard University has done over time that I think are extremely important when you look at innovation, and broadly, most people, I think, naturally think of this in the area of STEM. There have been lots of things that Howard University has done around this as a treatment of sickle cell, in terms of oncology treatments. But I would also say one area that we're very concerned about at Howard is also social innovation. So much so that we're building out a social innovation hub that would put social sciences and humanities at the very core -- wrap it in data science and entrepreneurship. So then, the big problems of the day that Howard University has always been trying to solve for are income inequality and health disparities, educational disparities, criminal justice reform -- that students can see a viable career doing that, develop intellectual property around that, and also commercialize that while trying to solve for social issues.

And I think that social innovation has been understated. We looked at atmospheric science here at Howard and what we've done focusing on climate change and how it affects people in urban areas is very unique. But again, I think very important legacies have been left by focusing on those areas.

Trey Powers:

Dr. Frederick, and our final question that we ask all of our guests on Innovation Conversations: Please share something unique or interesting about yourself that people would find to be surprising.

Dr. Wayne A.I.

Frederick:

I would say I still operate. And I think people tend to be surprised when they hear that. I'm a cancer surgeon by training and I operate on patients mainly with GI cancers. And so I've been operating two or three times a month while being the president. And I think it's important for me to continue to do that. That's my -- actually, the operating room was my classroom. And it gives me an opportunity to interact with the students there where I'm very comfortable. And it's also probably one of the more fulfilling parts of an academic career that I've had. So I would say probably my continuing to participate in operations would probably be the most surprising.

Kathryn Holmes

Johnson:

And what do you do in your free time?

Dr. Wayne A.I.

Frederick:

I'm a big soccer fan. I play golf when I can. I'm not very good at it, but I do try to play some golf when I can. And I spent a lot of time with my kids. I have a 16-year-old son and a 14-year-old daughter. My son is a junior in high school and so he's all soccer, so I try not to miss any of his games. And my daughter is a 14-year-old freshman who plays volleyball and I try not to miss any of her tournaments as well. So I would say I probably spend most of my time doing that, but my own personal interest is simply playing golf and watching soccer -- the big points of interest for me.

Trey Powers:

Thank you, Dr. Frederick, and thanks to Kathryn Holmes Johnson for being my co-host. And thanks to all of our listeners for joining us.