

Sue Nelson

Hello, I'm Sue Nelson and thanks for joining me on Create the Future, a podcast brought to you by the Queen Elizabeth Prize for Engineering.

[Music]

My guest today is the Innovation Lead for the International engineering company, Laing O'Rourke. She's also a role model for women and engineers of colour and received an MBE in the Queen's 2020 New Year's Honours list for her services to engineering innovation and diversity in STEM. Yewande Akinola got her degree in engineering design and appropriate technology from the University of Warwick, as well as a master's in innovation and design for sustainability from Cranfield University, while working at ARUP, as a design engineer, concentrating on water management systems. She's a visiting professor at the University of Westminster, has won the UK young woman engineer of the year, and has been honoured with the exceptional achiever award by the Association for Black Engineers. And if like me, you think this makes her sound like a little bit of a superhero. You'd be right, because you're one day has also been represented in cartoon form, as an engineering superhero. So, I began by asking her how this fun and rather wonderful tribute happened.

Yewande Akinola

That was Google Arts and Culture. So um, they were working on a really cool project to celebrate scientists and really celebrate the role of science and engineering in the built environment. And what they did was to select some really, really cool scientists and engineers, as part of telling the story of the role science and engineering plays in our environment. And I was asked to, I was asked to be part of it, you know, really coming from the angle of, you know, water and water consumption in our built environment, you know, where water goes, how we deal with shortage of water, and how we deal with too much water. It was it was great fun.

Sue Nelson

Yeah, it's a fabulous depiction. And I must admit, because you're British, but you were born in Nigeria, I couldn't help but think of Princess Shuri from Black Panther. I'm not the first person to say that, am I?

Yewande Akinola

No, no, you're not. She's brilliant. You know, when Black Panther came out, I was so excited about it. You know, I mean, for the first time, I was literally, you know, kind of connecting on so many levels with a character on the big screen. And just seeing other young people as well, connecting with this character that's, you know, like, extremely intelligent, like, extremely brave, like zero stereotypes as well, really playing a role in, you know, ensuring that her people were well, her community was well, defending her community as well, including all of the cool gadgetry that was that was really amazing. And obviously linked into the story of the Black Panther himself. Really amazing.

Sue Nelson

Yeah, I mean, yeah, I'm white and I felt seen. I just love the whole depiction of women there. And as you say, particularly women who normally we often think with James Bond, it's Q, it's a man who's in charge of all the cool gadgets. So, you know, obviously, that's something that really appeals to you, and this sense of community. And you've done a lot of work that's involved projects where you've really helped with water and sanitation, where does that desire to help communities come from?

Yewande Akinola

I grew up in Nigeria, and I guess anybody who, you know, anybody who's lived in Africa really would appreciate the sense of community, you know, your business is everybody else's business, and everybody else's business is your business. And I grew up in, you know, communities where I can see the direct impact of, you know, good infrastructure, as well as the lack of infrastructure. And I remember as a kid, you know, there were times we

wouldn't have, you know, water flowing through our taps and would have to think of where to get water from. And that stuck with me, you know, it really stuck with me because it was the process of, you know, coming up with a solution to a problem. For a long time, I wanted to study architecture, because I was really inspired by some by some really cool architects around me, some really cool buildings around me. But just as I started to think about University and what I was going to study, my mum kind of rekindled the engineering, passion/interest in me by suggesting I considered engineering. And I think it just happened, that the fact that I was on an engineering degree program that had a massive bias towards developing countries, you know, that helped me go back to the place where I really wanted to work on projects that had a direct impact on people's lives. And so, I worked with Thames Water, I took a year out between my second and my third year at university. And then when I graduated, I went back into the water solutions industry with ARUP, and it just grew and grew from there.

Sue Nelson

And while you were at ARUP you decided to do your masters?

Yewande Akinola

Yes, it's a story that, you know, I think I'm going to be telling my grandkids forever and ever. It really came about because I was being mentored by the most incredible creative. David George, my boss, spoke through sketches. Whenever a problem landed on his desk, he didn't just rush to just, you know, get a solution together, he thought about why the problem existed. He thought about, you know, what we could do to make sure the problem never came back. He thought about creative ways of designing a solution. And when the solution did not exist in a product, he encouraged us to create the product. And so, I had this wonderful, fresh, creative, you know, learning in the first few years of my career, and then I just became thirsty, you know, there was that thirst for more knowledge for, you know, a wider breath in terms of my perspective. And then I found this really cool program at Cranfield. It was titled innovation and design for sustainability. And when I saw it, I just thought, wow, innovation, design, sustainability, my favourite words. And so, I asked my boss if I could enrol on this program, and he was so supportive. The company was very, very supportive. And I and I did it over two years. There were some late nights and long train journeys, but it was absolutely worth it.

Sue Nelson

And when you finished that, was that the thing that made you think, "right, this is going to determine the sort of projects I want to work on in future".

Yewande Akinola

Exactly. There was what there were several lightbulb moments, you know, when I just kind of thought, "wow, the only way I'm going to be able to sustain my interest and passion, you know, in engineering and for engineering, is if I can see the direct impact of, you know, the work that I'm doing on society, if I can see my career as just not a career, but an opportunity to constantly express creativity". And so, I just decided, and actually, you know, I still have to kind of get back into that mind frame every so often. But then I decided that I would, you know, work on projects, you know, whether they were big projects, or whether there were small projects, or projects where I could, you know, learn, I could push on the boundaries of my capabilities, I could meet interesting people and projects that would expose me to other cultures of the world. And it's been an incredible journey, since it really has. You know, working on projects in different parts of the world, and really having confidence and faith in the idea of creativity and innovation.

Sue Nelson

So, give me an example of a project abroad that has incorporated all of these aspects?

Yewande Akinola

The project that comes to mind, and also really because it really pushed it really pushed me you know, really pushed me out of my comfort zone, is a project I worked on in China. Just a stunning waterpark hotel resort in southern China, with dolphin stadiums and lazy rivers, super high-rise buildings, you know, sustainable elements inbuilt in terms of the water consumption and the water reuse, best use of solar energy as well. And I moved out to China because I was really fascinated by the work that was happening there. And when I did, I couldn't speak Mandarin. I could barely use chopsticks. I had no, you know, I didn't know what the local, you know, regulations were. And so, when I landed, there was you know, there was a very, very steep learning curve. And then I was asked to work on this project, with architects from the US, with architects and engineers from the UK, and the incredible designers in China working with the clients who were based in the UAE. And this combination of, you know, first of all, global corporation, you know, towards a combined vision for a sustainable, exciting water resorts / hotel was absolutely amazing. I learned so much. And now when I go on the website for the hotel and see the videos and see people really experiencing the space, people from all over the world really experiencing in the space, it really puts a big massive smile on my face. And it makes me feel, you know, to every extent, you know, a global citizen, purely and mainly through my career as an engineer.

Sue Nelson

That's really interesting as well, in terms of bringing forward some of the skills that you need as an engineer when you're working on projects and working abroad, isn't it? It's that cultural reference and knowledge and the practicalities, as you say, of knowing Well, what are the planning laws here? What are the certain restrictions here? As well as eating, language, everything. It's the whole sort of package really?

Yewande Akinola

Absolutely. And I think that's what we need to kind of really enjoy. Well, I, you know, I try to do that as an engineer, recognizing an engineer, but you know, that comes with, you know, great excitement, it comes with culture, it comes with art, music, as well. And just seeing all the different elements that you know, contribute to, to the profession in its entirety.

Sue Nelson

I know that you've worked on projects in Africa as well and the Middle East. Have you ever had the opportunity to work in Nigeria?

Yewande Akinola

Ah, you know, what I haven't worked on a large project in Nigeria. I've done quite a bit of consultancy work in Nigeria. I worked with a great team here at De Montfort University, led by a really amazing guy called Dr Muyiwa Oyinlola and to develop, you know, sustainable solutions for building low-cost housing. And he had been researching the reuse of plastic bottles as building material for homes in rural Nigeria. And it was such a joy to work with him developing this solution. So, I worked as part of the design team, trying to work out how we could collect water as well, trying to work out how we would stack and fill the bottles. And then he and a fantastic team, with his students went out to an area just outside Abuja, which is the Federal Capital City and built a mock-up of their solution. I've done a lot of consultancy work just advising organizations, working with young people as well, to inspire them to share knowledge with them. And you know, what I'm really hopeful for the day that I can work on a you know, a big, massive infrastructure project. You know, I've got my fingers and toes crossed, I know what will happen. The question is when.

Sue Nelson

I've actually seen that video, I'm pretty sure I've seen that video with the plastic bottles filled with earth I think and then making a house. I remember it because it was so simple. And yet, in the sort of way as with most good

ideas, you just think, “why didn't somebody think of this before, this is brilliant?”. And I didn't realize that you were involved. That's wonderful. That's really cool. I love the fact that you've described yourself as an engineer, innovator and dreamer.

Yewande Akinola

Hmm. Yes.

Sue Nelson

Where does the dreaming come into, into your career?

Yewande Akinola

The dream is me staying true to, you know, everything that inspired me as a child. I remember as a child, you know, there was a song that just kind of stuck in my head. And one of the lines from it was, you know, “come with me into this world of pure imagination”, I'm not sure I've got the exact words, I'm not gonna sing it. But, um, that has been, you know, one of the things that has just kept me curious, and kept me thinking of what is possible, and even when times have gotten really hard, and it's been difficult to see, you know, beyond what is in front of me, I've always found hope, and, you know, encouragement in imagining what is possible. I think, for us as humans, right, you know, we all need something to hold on to, we all need that dream of possibilities. And I've seen dreams come to life, I've seen them become reality. And I don't want to let go of that.

Sue Nelson

That must be a nice feeling. Yeah, you know the hard work that's gone into it. But also, like you say, it is like the realization of a dream and that's so rather a wonderful feeling. Now, you gave an example of the China project, which, you know, sounds creative and interesting on so many levels. What's been a project for you, there's a sort of fulfilled a dream in terms of sustainability for you? Or where you've done something where you feel “my goodness, I've made a real difference here to people's lives”.

Yewande Akinola

Wow. That's a question that's, that's really challenging. I guess, I think more recently I am grateful for the role that I've played on hospital projects.

Sue Nelson

Would this be the Grange University Hospital in Wales?

Yewande Akinola

Yes. I'm grateful for my role there. I'm grateful for my role in another hospital project in Brighton, working with really incredible people as well.

Sue Nelson

I better explain here that the Grange University Hospital is huge. It's the first major hospital to be built in Wales in more than, you know, 20 years, with 471 beds, most of them ensuite facilities. I mean, that's a big project, but I've not heard about the Brighton one. So, explain that one.

Yewande Akinola

It's a very similar one, I guess with the Grange, it was a new project. And with the one in Brighton, what we did there was to, you know, build an extension to a fully operational hospital facility with some of the wards still in operation as we were extending parts of it. And actually, I was working on both of them about the same time. And what my role pretty much was, was to explore and be part of the design of, you know, us being able to

assemble the hospital, building parts of it in factories in controlled spaces. So, we built the bathroom pods in controlled spaces in factories in this country, and really working to hospital specifications to ensure we were providing, you know, the cleanest, the safest bathrooms for the patients and ensuring that, you know, we were designing and manufacturing bathroom pods that could be maintained quite easily throughout the lifetime of the hospital. Seeing it all come together, seeing you know, going from design to procurement of materials. Seeing supply chain involvement, seeing the guys in the factory, work incredibly hard assembling all these bathroom parts, ensuring that the finishes were to spec, and then delivering them to site as the buildings were kind of coming into themselves. Just amazing, really, really amazing. And now, you know, the Grange is open, and I'm just very proud and very grateful for, you know, for the opportunity to see something that's going to have an impact on people's lives and come together very, very well.

Sue Nelson

That's great, because, you know, if you were to just say to somebody, oh, I've just worked on a sanitation project, it wouldn't get people's imagination as much in terms of how you've described what you what you've effectively done there. And this is key really isn't, it's communicating what an engineer does, and it's something that you've become very good at, because you've presented programs, TV programs that have ranged from the Discovery Channel to children's like, CBBC, what have you learned from those experiences, when it when it comes to communicating what an engineer's job does involve?

Yewande Akinola

I think, the one thing I've learned is to just simplify stuff. You know, us as engineers, we delve into the complexities of everything, you know, we have to delve into the complexities of the concepts that we employ to design, whatever it is we're designing. Sometimes we communicate, you know, at the level of the complexities. And actually, what we need to do is find the art in engineering, and the art is the universal language, find that thing that everybody else can, you know, relate to, they can see, they can feel, and that is what I love about communicating engineering ideas. It's really the process of finding the art, and communicating the art and getting that connection between, you know, society, people, the engineering, to inspire them to even appreciate the engineering even more.

Sue Nelson

You must have enjoyed being a judge on the Queen Elizabeth Prize Create the Trophy competition then because that brings in some beautiful artwork and design?

Yewande Akinola

I really did. I really, really did. And actually, you know, the cool thing about it was, you know, seeing the art and also seeing the source of the art. And actually, what I really appreciated even more was the fact that these young people had come up with incredible designs, you know, designs that capture geometry, capture storytelling, capture the future, their interpretation of, you know, what they thought the task was, and that was wonderful. It really, really, really was. It's something that will stay with me forever and ever and ever, I think.

Sue Nelson

Now, you do a lot of things to communicate engineering to different audiences. I loved the Barbie Be job. because I think for some women not all, but for me, a Barbie is a complete turnoff. But I know that so many children and girls in particular do love Barbie dolls. And can see how it's a really important way to challenge the roles that women have, because obviously when that product started off, the Barbie dolls were just for fashion. Whereas now it's, it's changed.

Yewande Akinola

It has and I've got a three-year-old daughter and she loves Barbie, you know, she loves trains, she loves Barbie, she loves you know, just the wide range of stuff. And actually, you know this week at nursery as part of her homework she was asked to tell me what she wants to become when she grows up. Now she's got a pilot Barbie and her response was "Mommy, I want to become a pilot, I want to fly planes, I want to take people around the world, I want to see the world". And, you know, that, for me was just an accumulation of the best of all worlds, right? Because she's got this Barbie who is in a pilot uniform, right? And she travels, right? She's got, you know, Mum, and Dad, you know, as engineers, she sees trains, she understands, you know, that she can become a train driver as well. And I think, you know, just really seeing the role that every single toy can potentially have inspiring, a young child is really powerful. Just changing the narrative where it needs to be changed, expanding the narrative of the toys, where it needs to be expanded. And because children have lots very different interests. So yes, I really enjoyed being part of that. I really did.

Sue Nelson

You're so right, because when I was young, there were two outfits that were very common for presents for children, particularly Christmas or birthdays. And they were for fancy dress, and they were a doctor's outfit with a lab coat and a stethoscope and a nurse's outfit. And the doctor's outfits were bought for the boys. And the nurse's outfits were bought for the girls. And now of course Barbie, you get astronaut Barbie, you have a robotics engineer Barbie, you have a STEM kit? And it's important. it's very important. What role did you play on that? It was a workshop wasn't it, with young children?

Yewande Akinola

Yes, it was it was a campaign really to, you know, inspire young children. And I was invited by Barbie, it was hosted by an incredible woman called Poorna. And I was joined by Marla Mawkin and we had all these wonderful children just really, you know, holding on to every single word. And at the end of it, you know, just hearing them feedback what they had heard, how their perceptions had changed, you know, how encouraged there were just made every single moment of it worth it. And I think actually, we must create something that just brings that, you know, that ripple effect. You know, there are so many so many children that still need to hear that they can be anything they want to be, you know. I still speak with, you know, college students and students in year 10 and 11, who feel they can't be, you know, engineers, or they can't be mathematicians, and they can't be scientists. So, there's still quite a bit of work to be done. And it really is for, you know, organizations, companies to be part of changing the narrative.

Sue Nelson

Now as this why also in terms of changing the narrative, you set up something called Our Ingenious World?

Yewande Akinola

Yes.

Sue Nelson

Describe for those who have not heard of it, describe exactly what it is.

Yewande Akinola

Our Ingenious World is something I've been, you know, thinking of and working on and dreaming of for a very, very long time. You know, throughout, you know, my career so far, I've just, I'm actually experiencing different cultures and traveling the world. I'm just in awe of our world. You know, I'm in awe of the talent and the hard work that has gone into creating a wonderful planet to live in. I'm also a bit you know, the word is not discouraged, but a bit sad at the fact that, you know, there's still there's still a lot of work to be done. There's still young people who really should have access to education who don't. There are still people who really need

to be spending their time with creatives and great companies who don't have access to great companies and great training programs. There's still people who need to hear this message and see this, you know, vision of real life, people who are changing the narrative. Anyway, so Our Ingenious World is a, you know, combination of all these different, you know, ambitions in that. Where I'm hoping it would get to, is a project that combines storytelling and really, you know, putting people who are doing incredible work in the faces of young people to inspire them. Over the summer, I ran a work experience week for over 100, actually 500 students applied from all over the world. And they all had access to YouTube live streams. And then we worked with 100 students from 25 or so different countries to give them work experience, and to expose them to industry and all the cool engineering stuff that's happening all over the world. So Our Ingenious World is a series of projects. In short, you know, it's just a series of projects to bring about tangible impact.

Sue Nelson

And you're not just showing, look, here are engineers, this is what we do. It's also trying to open people's eyes to their potential?

Yewande Akinola

Absolutely. Because that was the greatest thing I was given. David George, my mom, and actually the list goes on and on. My professor at University, my current mentors literally gave me the perspective / vision / insight to imagine that I could do it, you know, to imagine and see that I could do it, I could be whatever I wanted to be. And when I think back on the journey, you know, that was that was the best thing that they could have given me, just sparking a "yes I can", you know, thing within me and equipping me with the inspiration was literally the best thing any of them could give me.

Sue Nelson

So, would that be your advice to people who want to get into engineering, or who or who are currently engineers if you don't have one, find yourself a mentor?

Yewande Akinola

Yeah, absolutely. Find yourself that person who inspires you, who you can go to and, you know, get as much encouragement as possible from. That person who would say "actually, you know what, don't be so hard on yourself. This is how you do it, take it in baby steps. This is how you connect it". You really have to be around people who inspire you, and if you currently don't have that, start to look for them because they're out there.

Sue Nelson

And you've been publicly recognized as well for your work in terms of an MBE. How did you feel about that when you found out?

Yewande Akinola

I was in shock, I thought the letter was a letter from HMRC when it first came through my door.

Sue Nelson

You owed them money.

Yewande Akinola

I was like "oh gosh I hope I don't owe these guys any money any more". But actually, it's been a year now and I'm so grateful for the recognition I'm you know, it's that I guess that welcome pat on the back that you know, you're doing okay, just carry on. And obviously to whom much is given, much as expected. So, there's that sense of, you've been given you know, a lot in terms of encouragement, you really have to carry on doing the

work to make sure that, you know, other people as well have the opportunity to be creative, have the opportunity to see the satisfaction and feel the satisfaction that comes from, you know, doing some really cool fun stuff. So, it's been quite cool. My mom has been, yeah, it's been really good for my mom as well because, you know, I'm just so grateful that she has that as well, because she sacrificed a lot and put a lot into raising my sister and I up. So, it's um, it's a bit of a reward for her as well.

Sue Nelson

Well, I'm glad she's bathing in your glory. That's wonderful to hear. Yewande, thank you so much for joining me on the Create the Future podcast.

Yewande Akinola

Thank you for having me. It's been a real pleasure. Thank you, Sue.