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Nate Benson: Good morning, good afternoon, and good evening whenever you may be listening and welcome to a very special episode of Latitude, the 43North Podcast. This week, the podcast is produced in collaboration with the University of Buffalo School of Management Alumni Association and UB Center of Leadership and Organizational Effectiveness. I'm Nate Benson, director of Media at 43North and I'm joined this week with my cohost Darren Treadway, faculty expert at the UB Center of Leadership and Organizational Effectiveness.

Nate Benson: CLOE is a group of researchers, scholars, and experts who worked to create more effective leaders and organizations. CLOE offers programs, training speakers and conferences that help people lead at all levels of their organization and in their community.

Nate Benson: This week on the podcast, we're thrilled to have Dr. Norma Nowak, founder of Empire Genomics. Dr. Nowak is also the executive director of the New York State Center of Excellence in Bioinformatics and Life Sciences at the University at Buffalo. She's an acclaimed researcher and leader in the world of life sciences, but you know what? I think it's better that she tells her story. So, let's jump into this week's episode of the Latitude Podcast.

Nate Benson: Dr. Nowak, thank you so much for joining Darren and I on this podcast today. How are you?

Norma Nowak: I'm doing great today, Nate. It'd be better if it was 70 degrees and sunny, but I'll take it.

Nate Benson: It was on Monday, so I mean, we got our day. I think now we're just being selfish, right?

Darren Treadway: That was spring. That was it.

Nate Benson: Now spring is over, we're now into fall, everything will be fine. There's, I don't think anyone in this community who doesn't know you, but giving to the listeners the benefit of the doubt. For those who don't know you, give us the quick pitch of who you are and what you do for Western New York?

Norma Nowak: Right. I'm currently the executive director for the New York State Center of Excellence in Bioinformatics and Life Sciences. I'm also a professor in the Jacobs School of Medicine and Biomedical Sciences. I'm the founder and chief scientific officer for Empire Genomics LLC.

Nate Benson: A 43North board member.

Norma Nowak: I'm 43North member. Yes.

Nate Benson: You've got plenty of free time on your hands to just, you know have leisure -

Norma Nowak: Among other boards. Right.

Nate Benson: You're quite involved in the Western New York Life Sciences community and startup community, huh?

Norma Nowak: Absolutely. I mean, the life sciences has been my life, but as you go through your life, you begin to learn that you integrate that into the community and that means actually reaching back and enabling students to also look at you and say, "I can do that too." That can be something that can enrich my life and I can chase that dream and actually realize that and that goes all the way back to our Buffalo Public School students here in the city.

Nate Benson: Looking at the tail of the tape, so to speak, you've co offered 145 research articles, obtained more than \$70 million in research funding, founded Empire Genomics, role model for women entrepreneurs in western New York and around the world. Was this always a dream of yours was life sciences and being kind of a superstar, so to speak, locally in the life sciences community. Was that something you've always wanted to do or did you want to be a gardener? How'd you get to life sciences?

Norma Nowak: I do like to garden but I was thinking about the microbes in the soil and all that.

Nate Benson: Of course, you are.

Norma Nowak: But now actually, so, I had very inspirational grandmothers, so my grandparents were, my grandfather actually came over from Poland. He was an immigrant. My grandmother was a child of immigrant parents who had a farm out and what's now called Swormsville. But my grandmother never was able to go to college, go beyond that secondary school education, and when I was a child, she basically would sit there with books from the library and her own books and we would walk through those books, and a lot of them were talking about what different diseases were and how the body worked.

Norma Nowak: She died when I was, I think six or seven years old from cancer. She was someone that I spent a lot of time with and whether it be looking, reading books about the human body, talking about disease, we did jigsaw puzzles together, we did all of that and it was really, form that foundation for, well, this is ... the body is a really cool organism. When she passed away from cancer, that was a devastating blow to me as a child because we were so close.

Norma Nowak: I ended up having this sparkling by my grandmother all those years ago and it just kept growing as I went through school. So whether it be her influence, and then when I went to ... I'm a graduate of Buffalo Public Schools, and there were teachers along the way who I can still close my eyes and see as if they were, it was yesterday, and name them and think about the things that they did in those classrooms that were so inspirational to me. Taking that spark and really building a bonfire.

Norma Nowak: I went on to high school. I went to old Mount Saint Joe's, which was a girl's Catholic high school, and I have to say that the sisters of St. Joseph were really women before their time, so they were very much into science and education. Sister [B. Manzela 00:05:25] was the principal there when I was there. I saw [B 00:05:31] not that long ago. She's still very much involved in tutoring kids in the city.

Norma Nowak: I have always looked at her as, again, another role model. Then, I went on to Canisius College, and had that great experience there where, again, you meet Jesuits who, they are thinkers. They make you question lots of things and had a great experience there from, at the time, Dr. Joe Thomas [Sulo 00:05:58] was a huge influence on me. I often speak about how when I was a freshman, he convinced me to take senior-level courses because he needed someone to teach the labs. I kept thinking, "You're out of your mind. I am a freshman."

Norma Nowak: It ended up being one of the best things that I had done because it, number one, built confidence, but it also further cemented what I wanted to do in life.

Nate Benson: It just seems like you've had this attraction to inspirational role models your entire life. Almost like you were destined to yourself be a role model.

Norma Nowak: I have to say so my father and mother never got to go to college. My father was a Buffalo police officer for a time and did border patrol, but he always worked in government service and my mom later did real estate, but they never had the same benefit that they gave me to go to get a college education, and then actually take it beyond a college education. What was so lucky was I honestly believe ... No. Despite what happened later on in my life, I have led a life which was day after day inspired by different people who were part of it, whether they be family members or people in the community who took the time because they saw this little girl who had this passion and helped me grow that passion and follow that dream.

Darren Treadway: Along those lines, I guess when we talk about females in STEM fields and we still see a challenge in representation, in opportunity, I guess I would ask a little bit or here a little well, maybe what you think might be some systemic reasons for that, are there societal reasons that young ladies are not encouraged in these fields and perhaps in your role or what your organization is doing? In what ways are we trying to encourage young ladies in those fields now?

Norma Nowak: Darren, STEM wasn't even an acronym when I was going to school, right?

Darren Treadway: It wasn't even a thing.

Norma Nowak: Wasn't even a thing, but I don't ... I have to say that I never felt that ... For me, it was always that inborn passion to follow that path. I think a lot of girls today may think that the STEM field is challenging because of the mathematics that's involved. But I think if you believe in yourself and really what you want to do, and if that's the path you want to become an engineer, biomedical engineer, so that you can, again, have that engineering interface with sciences, which then, again, help a patient population.

Norma Nowak: There's no reason why you can't do it. It just finding the right mentors and the right people who becomes ... I always call it, I had a wonderful village around me for my entire life, and no one gets to a great place in life without that village. I think it's just helping children find those people in the community that basically pay it forward with them.

Darren Treadway: It is an amazing story you tell about that village that helped you achieve your dreams really, right? You talk a little bit about, quite a bit about the influence of the sisters, influence of Canisius. Does that kind of experience with spiritual individuals inform you at all about your leadership or the direction of your research or ideas?

Norma Nowak: Right. Well, I think what happens is the sisters basically as very strong women ingrained in the girls that went through Mount Saint Joes, the ability to believe you can do anything you want to do. You can be a man, you can be a woman, but women can do anything that they set their sights on. It's going to take a lot of hard work and determination. Yes, you're probably going to have to overcome some barriers, but you figure out, do you go around them? Do you climb over them? Do you push them over? But you take one of those approaches and you do-

Darren Treadway: There's another question about which one of those you've done the most? No. I'm just kidding.

Norma Nowak: We'll get there. But the bottom line is it's really having that confidence in yourself that you can do this, and that's where that village becomes so important. Yes, so I went from Canisius, which was a very small school to getting my PhD at the University of Buffalo, which is a very different experience, but I have to say at the same time had great, again, encountered great mentors there, and really that gift of education to me is the greatest thing we can give a child in this country, and every child, no matter where you're born, to whom you're born, deserves to have that roadmap laid out and the ability ... we're all leaders in this community. We owe it to those children in our community to make sure that they have the same opportunities.

Nate Benson: You mentioned early on in the earlier question regarding your grandmother and kind of getting involved with science and reading and whatnot. What was it though just about science, in particular, kind of when you're in your college years that was so enticing, especially getting into the field of genomics, which is a hyper niche of science itself?

Norma Nowak: We think in part, I have to say, so when I was doing my graduate work, I met a doctor at the UB Medical School who taught a course in basically hematopathology, and I was totally fascinated by what happens when blood cells develop. I can remember him sitting there helping us define what those blood cells were by looking at them under a microscope.

Norma Nowak: In the old days, how did you define a disease? It was by like what a pathologist would see when they look down that microscope. Well, today, we have technologies which allow us to not only look at the cells, but then to look at the DNA within the cells and look at how their DNA then gets read out and then the impact on health. So, if there's a mistake, you end up with disease and sometimes that's really what happens with cancer.

Norma Nowak: If you think of DNA as a series of letters and those letters form words and the words form sentences. If one of the words is misspelled, then you have what's called a mutation and being able to take it from that visual and really understand then what happens at the deepest sense within that cell to me was just fascinating.

Norma Nowak: Then, if you compound that with the fact that so I went to college, I met my husband at Canisius College. It was a great love story. Then, when we were 36 years old, he was diagnosed with the type of cancer that we were told, "You know what? If you're going to get cancer, this is the one to get." He was diagnosed with Hodgkin's lymphoma, and at the time the great hockey player of Mario Lemieux was diagnosed with the exact same stage and grade.

Norma Nowak: I remember saying to Tom, "Oh, don't worry. We've got this beat. I'm at Roswell Park, we know all these great people. We'll get through this." To this day, I still think about saying that because he passed away two years later during a bone marrow transplant. I have two boys who are, who've turned into wonderful young men despite having me as their mother, but wonderful young men.

Norma Nowak: But I do remember the younger one in one of our little, he and I are a lot of like, a lot of like in that ... I don't know, I've often said to him, "You will never beat me when it comes to stubbornness so don't even try." But getting into something where I remember him looking at me saying, "If you're so smart, why couldn't you help my daddy?" That talk about having something just go at you.

Norma Nowak: So, here I was at the Roswell Park Cancer Institute with, it was one of the top cancer centers in the country and we couldn't help the one person that I needed to help. That was really, in part, the inspiration for Empire Genomics and the

work that I was doing in the human genome project. It all just kind of came together. I mean, I was part of like one of the greatest, greatest achievements in science, and it was all really serendipity and, again, meeting the right people.

Norma Nowak: I did my research at Roswell Park, meeting the people there that I met people like [Ming Chu 00:13:49], who developed PSA. He was part of my graduate degree. I then went on to meet [Tom Shows 00:13:57], who trained me in human genetics. I mean, leader in the human genome organization.

Norma Nowak: Again, it was just those people along the way who encourage you, who believe in you and at no point in time did I ever think I can't do this. Did we ever, like back when we started sequencing the human genome, there was not the technology out there to actually achieve that goal but it was built through a huge collaboration of people, not only within this country, but internationally that worked together, not against one another like we did in the old days.

Norma Nowak: Scientists worked in their little lab and they're competing against Professor X out in some other country. We worked together. That is how great things get accomplished no matter who you are, where you are, big problems get solved by people collaborating and putting their minds together. Again, not thinking about the me, but thinking about the we.

Nate Benson: As a fairly new parent myself, I have a five-year-old and a two-year-old, just when my five-year-old has a little tantrum and tells me like, "Daddy, I don't love you." Like that in itself is heartbreaking so that must've had such a profound segmentation in your brain when your son said that regarding your husband. It must [crosstalk 00:15:10]

Norma Nowak: Oh, it was like a knife in my heart.

Nate Benson: I know, right?

Norma Nowak: Yeah.

Nate Benson: But on the flip side of it, profound impact and a motivator, right?

Norma Nowak: Absolutely.

Nate Benson: To do the work that you're doing now at Empire Genomics.

Norma Nowak: Absolutely. The idea is to actually be able to use that information within DNA to better take people and what's called stratify them. Be able to figure out which patients will best respond to which treatment, and that is really the goal because I kept thinking, "Well, how can you and Mario Lemieux have the exact same disease with all the same predictive markers that the pathologists look at and say, 'You know, you should be in the 90% of people that are going to go on

to be fine." He ended up being in the 10% and that's ... I know it's all ... I've said to people, "Statistics, all that matters is what happens to you."

Nate Benson: I always kind of have this very simple outlook on health and I'm certainly not the model of a physical fitness and/or health, but I always look at, everybody's health really is unique and different and especially with the work you're doing where you are seeing things at the molecular level, you see that firsthand I imagine, right?

Norma Nowak: Oh, absolutely. I think we're all born with certain risks in our genome. We are also born with certain benefits in our genome and it's figuring out how to manage the risk and really maximize the benefits. So, I think about people who smoke every day. Like I had a grandmother who lived in-

Nate Benson: We all had that grandmother.

Norma Nowak: ... [inaudible 00:16:34] who smoked unfiltered cigarettes and she lived until-

Nate Benson: 99, yeah.

Norma Nowak: ...early ... well, early 80s but never had cancer, died of emphysema. Then, you think about people who have never smoked a cigarette, yet are diagnosed with lung cancer in their 40s. It's your information is encoded in that DNA and it's how do we look at that information and from the time you're a child, can we leverage that information to ensure you to have the healthiest life possible?

Darren Treadway: You're dealing with these incredibly complex problems that affect every single person. There's not a person, as you were talking, I think of my grandmother, I think of my mom just recently and I couldn't talk for a little bit there so, and then you talked about that these big prime problems require collaboration and teamwork. I want to ask you, and I don't have a I don't want to constrain you with a question, but can you talk a little bit about how you choose collaborators or are people drawn to the project?

Darren Treadway: In other words, do you choose certain people who are part of that team, not just based on expertise but on perhaps the way you guys interact or the style or is it that these big names or these big ideas of these big thinkers come to the problem and it's that expertise that makes you work together?

Norma Nowak: Well, I think that's part of it, but I think at the same time when you have a passion for solving a problem and whether that be a big problem in science or thinking about how you conquered a big problem in science to conquering a problem even within our society. I often look at the work that I did as part of that human genome program and how we all did work together. You set aside your own personal goals to really, okay, make this thing happen, make this genome become evident to the rest of the world.

Norma Nowak: I mean, what really kills me is that what took us 15 years, I can now do overnight at the Center of Excellence.

Nate Benson: Right.

Norma Nowak: But we're not going to talk about that right now but I think the experience really showed me is a scientist as just a human being that when the right group of people get together, amazing things can happen. None of it's easy. It all takes hard work and sometimes you have to work with some other folks who perhaps aren't as interested. But can you make them understand why, what you're chasing is so important?

Norma Nowak: At the end of the day, if they just take a little time, it'll make their lives better and the lives of their children and the world around them better. Some people, Darren, are never going to because they're just not about ... all they care about is the me. They don't care about the we. So, it's finding the people that are willing to say, "You know what? Look at where I am, how did I get here? I'm going to make sure that I can inspire and continue to solve big problems by bringing the right people in the room."

Darren Treadway: It is amazing the folks who you've been in contact with and worked with and what you've accomplished-

Norma Nowak: I don't think it's such a big deal, honestly.

Darren Treadway: [inaudible 00:19:39] I know you don't. I'm sitting here going, as somebody who does a little bit of research themselves, I'm sitting going, "That's pretty cool." I think it's... The next point I'd like to talk about in terms of the interface between what we do as academics and these pretty buildings and one's ability to navigate that interface between academic research and its quality and its importance and how do we get the business leaders and the industry leaders to understand that because most faculty members are not as dynamic as us, but you know they like to sit in their office and do their work.

Norma Nowak: But that's okay, right? So, you're not going to be able to take someone who really believes that, as you said, they're sitting in their office but if I look at the younger generation, I think there is a much greater interest in pursuing, taking that entrepreneurial path.

Norma Nowak: Now, that doesn't mean that the professor who basically makes a discovery and discloses it, somebody can still pick up that disclosure and run with it. So, that's still a good thing. Sometimes you can't force things on people. But I think when I look at the people that I interact with, the students, they ... It's funny because they're very interested in, do you want to go work for someone or do you want to be the someone? Right? Kids today actually believe that they can do it, and we're providing an environment through what I do at the Center of Excellence,

through Business and Entrepreneur Partnerships, which is an office at the university.

Norma Nowak: Again, how do we create that culture? How do we create that mindset? From the time a student walks in the door at UB, they should be exposed to all, to these types of opportunities, to programs. Again, being able to participate so you have an idea, let's help you look at that idea. Is there a market out there for the idea? When I was in school, that wasn't part of it, right? So, even when it came to creating my company, and I remember [Marnie Levine 00:21:41] saying to me, "Well, you're going to have to write a business plan and do a pitch." I was like, "Business plan? I can write a grant. I can't write a business plan."

Norma Nowak: But it got to where you began to learn that, "Okay, if I didn't have that skill set, then Marnie would help me find people who could work with me and do that." Again, figuring out how do you bring those people together? At the university, what we're trying to do is, again, bringing those types of folks into the university so that even though a lot of people don't think that that's part of the university's goals in today's world, those public-private partnerships are very much a part of a university's goals.

Darren Treadway: Yeah. Just in the 15 years I've been in the field myself, that public/private partnership has totally changed the demands on faculty.

Norma Nowak: Absolutely.

Darren Treadway: The demands on even doctoral students has totally changed to bring in grants, to bring in partnerships that'll advance, not just their career, but the whole university in the field.

Norma Nowak: It opens up opportunities for them that before just weren't there.

Nate Benson: Institutions that capitalize on that 15 years ago, Pittsburgh with Carnegie Mellon, Penn State, I mean, those areas are way ahead of other areas because they figured that out 15, 20 years ago-

Norma Nowak: Absolutely.

Nate Benson: ... and they are now the kind of staples in entrepreneurship and private/public partnership.

Darren Treadway: If I can cycle back to just when you said about today's students and how they say they want to be the change, they want to be the difference. I think that's what we bag a lot on millennials. The societal we, I think that is an interesting way to look at it. This capacity that they've been told, "Yeah, everything you say is important and put it in a tweet." But that's giving them a whole different way of managing their career, I would think. It sounds like, right?

Darren Treadway: A way of saying, "Yeah, I got something and it matters and I'm going to find a way to share it." I think that's a really interesting insight about taking these folks that we think are sometimes self-absorbed in their lives and saying, no, they really can make the change if they're given the opportunity.

Norma Nowak: Well, if you just look at, again, and I don't know where you stand on all the guns rights, but you look at what the students at Parkland were able to do. I've never been more proud to be a parent here in this country than to watch those students say, "You know what? We're not just going to sit here and be told that nothing can happen. We are going to drive change and we're going to vote and we are going to be a voice."

Darren Treadway: Forbes just named the second or third most important leader in the world that Stoneman class. That's unbelievable. Like a bunch of 15, 16-year-old kids saying, "You know what? We're not going to take it anymore." My whole life, and I'm not that young. People have been fighting that battle and they're making a difference.

Norma Nowak: They're making a difference but it very much hearkened me back to the days when ... So, I grew up during the 60s, and peace, love, yeah, maybe, but it was really ... it was the Vietnam War. It was Civil Rights. Who do I remember? I remember John Kennedy talking about the value of education and the responsibility of citizens to take care of one another, and if someone needs to be carried, we carried them.

Norma Nowak: I remember Martin Luther King standing up for every child should be able to go to a school and get an education. There should not be a difference between a black child and a white child. I remember Bobby Kennedy continuing that fight, and then watching him during that whole presidential election and run up and being devastated when he was taken down by an assassin's bullet. That I think, in addition to the fact that I grew up in a family that my uncle was a congressman here for many years.

Norma Nowak: Really, we all looked at where we came from. My parents spent their time living in Blackrock. Uncle Henry, played basketball, he ended up, he did go to college, but my dad didn't have that chance. He was five years older and Hank was the younger one. But having those two men as role models for my sons after my husband passed away, it was huge. But it's also, it's that belief, and again, I don't know if it's because we grew up, no one ever told us we couldn't do something.

Norma Nowak: I think today, the millennials, I mean, I am pathetic with an iPhone. What my sons can do on those phones. I mean-

Nate Benson: Without even looking there's like, "Okay, mommy, whatever."

Norma Nowak: Yeah. But when you think about how kids today have technology so mastered by the time they're like seven. But the bottom line is that does enable them and

empowers them. Back in the day, what did we have? We had black and white television, right?

Nate Benson: That sat on the floor-

Darren Treadway: With three stations.

Norma Nowak: Right. The three stations and there was radio, but the ability to get the word out ... children today know how to get the word out and they know how that they are empowered by their technology.

Nate Benson: Well, it's one of those things, it's the do it yourself mentality because they've grown up with the technology available to, if I don't get the answer I'm looking for, whether right or wrong, I'm going to go out and seek it on the internet and try to research it and find those myself. You mentioned how the millennials, they have that mentality of not, of being their own boss and not kind of being told what to do by a generation ahead of them.

Nate Benson: On the flip side of that though, and I'm sure you experienced this as a leader in life sciences, we're living in this era where truth in science is being questioned, and people coming out not believing science and not believing in the methods of science. How difficult is that to handle on the leadership level and from a business perspective where people are questioning the integrity of science?

Norma Nowak: Okay, Nate. Now you're getting me really angry. The pursuit of science really is the pursuit of truth, and above all, that's what we should be about. Not Spin, not what's going on today out there in the world. Actually, teaching children that it's okay to lie, and that's to me, one of the biggest crimes that's going on in this country right now.

Norma Nowak: As scientists, we always seek the truth. The EPA and what's going on there. I mean, I'm not going to even go into it because I'll go on one of my rants, but the bottom line is it is important to make children realize that knowledge is power and you deserve to have that knowledge and you deserve to, again, know what's really going on in this world and how do things work? That's part of it. But to have someone tell you that the whole fake news thing.

Norma Nowak: Well, kids today, they know how to figure out what's fake news. There are certain other people in this country that don't know how to figure that out, but I won't go into the reason for that. Bottom line is I think we have a youth that's now empowered and knows that they can get the message out and know that their votes count, whether it be like something ... as I said the collaboration that we develop in science that take that science forward or, again, changing other things that are going on in our country. We can do that because we as a group believe in our mission.

Nate Benson: Do we need more scientists in government?

Norma Nowak: I would love to have more scientists in government. I've often said-

Nate Benson: It's a loaded question.

Darren Treadway: [crosstalk 00:28:55]

Nate Benson: Loaded question.

Norma Nowak: I know. It's one of those things where I often tease my colleague Amy Schmidt, and I keep saying to her, "I'm going to run for office someday." She's like, "Let's do it." But the bottom line is I look at a country that, what did we learn from the 60s? Have we not learned anything? Did someone lose that message along the way?

Norma Nowak: I truly think that it's time to take a really hard look at what went on in that past election and how, what went down, and figure out, again, how to go back to where we do care about people, whether if someone is fortunate to have had the experience of getting a great education and has a great job, you have the same responsibility to take care of someone who doesn't have that opportunity.

Norma Nowak: No child asked to be born this world, and as an American citizen, as a human being, I look around this community and I think about the children here and how can we enable those children to have the same kind of life that I've had and that my children have had.

Nate Benson: Well, I don't think of-

Darren Treadway: Every time you look at me the way she says something and I'm supposed to ... I'm over here crying.

Nate Benson: I know. Yeah.

Darren Treadway: I ...

Nate Benson: I'm expecting her to just announce she's running right now.

Darren Treadway: I know. I'm like-

Nate Benson: I'm just like waiting for it.

Darren Treadway: I'm a politics guy. Can I ask her if you'd like ... I guess when you talk about your story, you're the granddaughter of immigrants, you're a first-generation college student, you have a family history in agriculture. A lot of that, I think a lot of folks listening to this can ... it resonates with them. It's something that we are in western New York, even when you talk about your shared stubbornness with your son, we might call that resilience to be more-

Nate Benson: [inaudible 00:30:42] resilience. Yeah.

Darren Treadway: Are there any parts of that, your upbringing or being from western New York that have really benefited you as you've gone through this journey? If so, do you see on a larger scale benefits of the people of this area in terms of the next generation moving forward?

Norma Nowak: Well, I think that if you think about just the community that I grew up in, Buffalo really is the city of good neighbors. We do take care of one another. When someone you know is down, we help them. I think that's something that sometimes gets forgotten in larger urban settings, and when I look at just like whoever thought that this little kid from North Buffalo who went to Buffalo Public Schools would end up being part of like the largest scientific achievement in my lifetime, I still think about it and go, "How'd that happen?"

Norma Nowak: But then you look at the people that were a part of my life. You look at the teachers, you look at just the family mentors, you look at the friends who were mentors. I can just name them, women and men alike, but I have to say through it all, I never doubted that I couldn't do something because there was a Joe Thomas [Sulo 00:31:59] or a Sister [B 00:31:59] B or a Marnie Levine who would be there for me. Right? Or my grandmother, who in those very early days just piqued my curiosity.

Norma Nowak: Well, if you could figure out how to stop this, then this person wouldn't get this disease. How do you do that? I mean, just questioning and always asking questions in pursuit of knowledge. Trying to figure out what are the answers. You can say people want question science, they want ... they question the pursuit of science, which is the pursuit of truth and figuring out how the world around us works.

Norma Nowak: But at the end of the day, all of us are going to have health problems, right? If you look at the world, the climate change. Oh, there is no climate change. Well, really? Really? I think there's a purpose perhaps for certain people to want to keep other folks ignorant. I think that to me is a very destructive force. If we don't raise up our voices and say, "No. That's not how it is." Then, we all should just go back and sit in a chair and let it, be a spectator because the world around us is going to change in a way that none of us are going to be happy with.

Nate Benson: As we wrap up this episode, what's your advice to students who might be listening and want to get into STEM-related fields, science, girls in particular? What's your last note for them?

Norma Nowak: I would say no matter who you are or what path, if you think about STEM-related field, so, yeah, some people haven't ... just a huge proclivity for mathematics, right? Engineering, pharmaceutical companies often will need people who are great at what we call bioinformatics and computational biology. You need mathematics for a background. Chemistry, all of those fields, there's

nothing different about them than other fields, which are perhaps more traditional, but at the same time, it just may not be your thing. Right?

Norma Nowak: STEM, I think we think about STEM in that it builds biotechnology, it build certain industries. But if you have a company, not only do you need those science experts, but you also need people who are creative. Because if you've got a great product, no one's going to care about it or buy it if you don't have a team of people that can market it for you, that can sell it for you, that can do the pitch for you.

Norma Nowak: It isn't just about the STEM piece of it, it's about how do you then take that idea that came out of a STEM education and actually make it something that impacts the world in a positive way, and that comes back to if you could think of a company, it's a collaboration. It's a team of people working together to achieve a mission, and everything in life comes back down to that working together and being able to carry a shared vision forward and not letting anything stop you. I think for girls today, as my grandmother taught me all those years ago, girl, boy, all that matters is you. You figure out what you want to do.

Norma Nowak: Sometimes along the way, there are detours. Don't be afraid to take the detours because sometimes they end up giving you the best story of all. Don't be afraid of failure. I was told, "Why did you start this company because 19 out of 20 of them fail?" I was like, "Well, yeah, but I could be the one." Believe in what you're doing and if you do fail, you're going to learn from it.

Norma Nowak: I mean, there was a science experiment that I did years ago and the end result, I remember sitting there thinking that this experiment didn't work. Then, when I looked at it closer, I realized, "Oh, my God. It really worked and it gave me one of the biggest papers that I've ever published." But at the end of my life, I don't want my story to be about papers and grants and money that I bring in. I want it to be about the people who I've interacted with and who I've helped take to the next place in their lives.

Norma Nowak: To me, Nate, that's what we should all be focused on. For all that we have, we should be reaching back and helping others around us. That's really the message so you pursue your dreams, you take that path, but always remember along the way there are a lot of people that helped you and it's your responsibility to then carry that on.

Nate Benson: Well, Dr. Nowak, I think I can speak for Darren. I can certainly speak for myself. This is a truly inspirational conversation. Thank you so much for joining us this week on the Latitude Podcast and we'll check in with you down the road.

Norma Nowak: I can't wait. You guys are a lot of fun.

Nate Benson: Cheers. I want to thank Dr. Nowak for joining Darren and I on the podcast this week. Do you want to be a better leader? Visit mgt.buffalo.edu/cloe, that's

CLOE, to learn more about upcoming programs. A few house cleaning items on my end, the 43North competition is underway and we want your startup to apply for its piece of the \$5 million in awards that we have this year. Head on over to 43north.org and apply, and if you email me that you're interested in applying, I can make sure that you get a promo code to waive the \$100 entry fee.

Nate Benson: That's right. Email podcast@fortythreenorth.org and tell me that you're interested in applying in this year's competition and I'll get you a promo code waiving the entry fee. Everybody likes to save money, right? So, you know, what are you waiting for? Head on over to iTunes and leave our podcast a five-star review. The more five-star reviews we have, the higher our ranking is in iTunes and that means more people will hear this podcast.

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