

Evelyn Lamb: [00:09](#) Hello and welcome to the Lathisms Podcast, I'm your host Evelyn Lamb. In each episode we ask a Hispanic or Latinx mathematician to talk about their journey in mathematics. Today I'm very excited to have Richard Tapia on the show. Welcome, can you tell us about yourself?

Richard Tapia: [00:26](#) Oh, I would love to tell you about myself. In fact, that's one of my favorite topics is to talk about myself and my journey. I have a talk that I give to high school kids and it goes, the title of it is "From the Barrios of Los Angeles to the National Medal of Science and the White House". So that, in a nutshell, is being born and raised in Los Angeles with parents from Mexico and I think one of my greatest moments has to be winning the National Medal of science at the White House. So that was a long, long trip.

Evelyn Lamb: [01:03](#) Why don't we start with your early experiences with mathematics. As a kid if you had anything that helped you know that that was the direction you wanted to go in your life or if you kind of meandered a little more first.

Richard Tapia: [01:15](#) Yeah. Okay. No, that's an excellent question. My mother and father came from Mexico. They actually came in search of education and neither one of them really were educated because when they got here, they came for education but they had no one to take care of them. My mother was 11 years old, my father was seven, so they thought an uncle would take care of them, but the uncle who was going to take care of my mother, they didn't come together. He said, "I don't believe in women's education." So he told my mother Magda, "You have to go to work." So she did at the age of 11 and she had a 10 year old sister and she took care of her.

Richard Tapia: [01:56](#) So my mother, even though she didn't graduate from high school and my father, they valued education. See they valued education in an extremely important way. Okay. So I'm the oldest, I have a twin brother Bobby and we were born right after my parents were married.

Richard Tapia: [02:15](#) Now I was always good in mathematics. If I go back to the first grade, or the second grade, or third, or fourth, any of them, even though I spoke Spanish first and then English and I was quiet and I was shy, I've always been the best in mathematics in my class until I got to UCLA. Okay. Until I got here. So it was very easy for me.

Richard Tapia: [02:41](#) In other words, it gave me confidence, it gave me self esteem, it gave me respect. The other kids would call me, oh, genius or whatever. So I was good and it started from the very first. So I don't know if I fell love with mathematics because I was good at it, but I think so. There was never a rational point where I sat down and

said, "Oh, mathematics is such an important area that I have to go there." I don't think so. I think I just took the gradient descent path. I just took the path or ascent path. I just followed a direction that I was good at, that I enjoyed, that I learned to love. It gave me a lot of recognition and I mean, I loved it. I enjoyed doing it.

Richard Tapia: [03:35](#) In high school, nobody encouraged me or discouraged me. I had good math teachers in high school. I mean they were the best of the teachers that I had, but they never encouraged me. They never said, "Oh, you're really good at math. Why don't you continue?" And I did have counselors. One counselor told me that people of my background didn't go into mathematics. We went more into mechanics and sociology and things like that.

Richard Tapia: [04:05](#) So I went to work after high school and then I was working at a factory where we were making mufflers and that was fine, but I had one person, his name was Jim, I don't know his last name. He and I were making mufflers out in the hot sun in Los Angeles. Every day he said to me, "Richard, go to college. Go to college. Go to college. Go to college. Don't make my mistake. I'm married now with many kids. Go to college."

Richard Tapia: [04:31](#) So at the end of the summer, in September, I just went down the street to community college. Now at community college, I had two math professors who both got ahold of me and said, "You must go to UCLA." So I did and when I got to UCLA after two years of community college, they told me, "Oh, you could have gotten in out of high school and in fact, your record looks very good. Why didn't you try to come in out of high school?" And I said, "Because nobody told me. Teachers didn't, counselors didn't."

Richard Tapia: [05:05](#) And my parents, while they gave me good feelings about education, they didn't know how to implement an application procedure and such. So these two ... So look, Jim was important in my life and these two math professors, they were named Friedman and Frish at Harbor Community College, they flat out told me, "Go to UCLA." And going to UCLA was one of the most important things in my life.

Evelyn Lamb: [05:34](#) Maybe we can talk about how you decided to continue pursuing math and how you got to see that as a real viable career path.

Richard Tapia: [05:44](#) I never had any great plan. There wasn't, "I'm going to be a professor or I'm going to be this." I just simply followed the path of mathematics because I was good at it. Now when I got to UCLA, I was essentially never the best in the class, but I was good enough. I mean I got B's and A's

and that was good enough and that's what I wanted to do and I enjoyed it. I took a lot of other classes and I took literature, and I took history and all those. They were fun, so I was a good UCLA student, not straight A, but certainly mostly B's with some A's.

Richard Tapia: [06:20](#) Math, I liked it. It was me. I had accepted that I am directed towards math, but I never had a plan. So here's how I got to graduate school. I had two friends in my undergraduate classes, we took them a lot together. One was named Norm and one was named Wellington and in my senior year at UCLA, they both told me, "We are going to graduate school." And I thought in my mind, "Oh, they're not good enough to go to graduate school. You got to be really good." And they said, "Well, we're going," and then I said to myself, "But I'm better than you are. I do better than everyone in the classes and I don't think I'm good enough to go."

Richard Tapia: [07:05](#) They both looked at me and said, "Well, we're going and maybe you should think of going to graduate school." So I did and I applied and I was accepted at UCLA. Graduate School for me was better than undergraduate school. Maybe because there was a component I had of creativity. I worked with Magnus Hestenes, David Sanchez, and Charles Tompkins.

Richard Tapia: [07:32](#) Sanchez, Dave Sanchez, the only minority faculty at UCLA, he is Mexican American. He came up to me and said, "Richard, what are you going to do?" And I said, "I have no idea." I was married by now. I got married when I was a sophomore. I had a daughter, Circee. At the time of the PhD I had a son Richard. And they said, "What are you going to do," and I said, "Well, I don't have a plan. I'll go to work. I'll go to work in the local industry."

Richard Tapia: [08:02](#) But Lowell J. Paige, who was the chair of the department, and David Sanchez came to me and said, "You should consider being a professor." I had never considered being a professor. Anyway, to make a long story short, David Sanchez and Lowell Paige called Barkley Rosser, the Director of the Army Math Research Center at the University of Wisconsin, which was one of the top research groups in the world in applied math. Lowell Paige and Dave Sanchez wanted Barkley to hire me for a postdoc and he did. So I told my wife, "Pack up the two kids and our stuff," and we had a '63 Chevrolet and we drove off to Wisconsin.

Richard Tapia: [08:45](#) Now I will say to you, Evelyn, perhaps from a professional point of view, the best decision I ever made in my life was going to the math research there at Wisconsin. Why? Because as a student, I wasn't sure about this and sure of that, but I was accepted immediately at Wisconsin. In

other words, if I was there, then I had a reason for being there and I got to run with the big dogs. I learned from the big dogs how to be professional, how to write, how to think and the Math Research Center would have two colloquia a week, so I met everybody.

- Richard Tapia: [09:26](#) Everybody came through to give a talk. So I knew everybody, I was writing papers and things were good. So well once I was at Wisconsin and I had done really well, the job offers came. I had a huge number of job offers out of Wisconsin. By huge I mean at least 10, all from tier one universities. Okay. Virginia, Indiana, Utah, and Texas and so then I said, "Okay, this is a great life. I will become a professor, a university professor."
- Evelyn Lamb: [10:04](#) We actually have that Rice connection because that's where I went to graduate school. So I'm curious, why did you choose Rice?
- Richard Tapia: [10:11](#) Yeah, that's an excellent question. I know the history of Rice. In fact, I'm writing a book right now, it's called The Precious Few and it's all about under representation, underrepresented minorities. Basically Native Americans, Hispanic Americans and African Americans and Rice will play a big role in my writing. Not necessarily always so positive. Rice, up until 1965 was for white only. So Rice plays a major role in my book.
- Richard Tapia: [10:39](#) Why did I go to Rice? Jean, my wife is Nuyorican, that means that she was born in New York with Puerto Rican parents and we met in Los Angeles, and we met and we got married. When we got married she was 17 and I was 19. So we got married young. So by the time we were at Madison we had been married a long time and she and I sat down and she couldn't handle- She's Puerto Rican so she couldn't handle the cold weather in Madison. So she said, "Look, we need to go somewhere else where it's not so cold."
- Richard Tapia: [11:11](#) So we decided that we would go back to the southwest. Moreover, my background's Mexican and Jean spent time in LA so we were used to an environment that had a lot of Mexican people and restaurants. Just we were very proud of and enjoyed the southwest. So we said we're going to go back to the southwest, but there we were in this great big, wonderful world and so we said we're going to go either to Texas, New Mexico, Colorado or Arizona. And we started looking at places.
- Richard Tapia: [11:49](#) Now my wife grew up as a dancer. She studied with New York City Ballet and so she really had great interest in theater and ballet and those things. So at any rate we decided that we would consider Texas and I had interest from both Rice and the University of Texas Austin. I

visited and we talked, but Jean really had a strong interest in a city, that means Houston versus Austin. She said, "This is where the theater is, this is where ballet is." So we chose Rice and in a big part because it was in Houston and it seemed to be a good place.

Richard Tapia: [12:28](#) When we got here, Jean opened up a dance school and she had a huge dance school. She had like 400 students and our daughter that was born when I was a junior, became a dance star at the high school for the performing and visual arts. So that was a good choice and it worked out the way we want. Coming from UCLA as opposed to an Ivy League school, I consider UCLA a factory. It taught me that you need to work hard, you need to get papers. So, I got tenure incredibly fast. I mean I got tenure in two years. Once I got tenure, I said, "Look, there is a world out there that I know and that is under represented minorities getting PhDs from good schools. I have to help. I have been there, I know what it takes and I can help." So I started outreach programs at Rice and they were funded by the Sloan Foundation, and by the National Science Foundation. We were incredibly successful.

Richard Tapia: [13:30](#) In a period of time I had either mentored or directed 86 minority PhDs in the STEM areas and we got all kinds of visibility. So I share with you Evelyn, this statement, when I was young and naive I thought that I could change all my colleagues to understand the value in improving representation and how important it was for the nation, but I think I didn't.

Richard Tapia: [14:00](#) Maybe a couple, but what I did do is influence my students. So I now have students like Juan Meza, who is Director of Mathematical and Physical Sciences at the National Science Foundation, or Christina Villalobos, who's the chair of the math department at the University of Texas Rio Grande Valley. So what I did do was influence hundreds of students to go forward and complete the mission and carry the word.

Evelyn Lamb: [14:31](#) And do you have advice for people who are trying to overcome challenges in their career?

Richard Tapia: [14:36](#) Yeah, I do. My mother was a person that said, "Yes, you can." Okay? In Spanish you'd say, "Si se puede." You can do it, and my advice is to say, "Yes, I can do it. I belong. I know I can," and then to work very, very hard. There's no magic button. You don't do something by pushing a button. I've worked very hard and a lot of the papers that I've written, we're really not that important, or a lot of things that I did were maybe not that important. So progress doesn't come in one quantum jump.

- Richard Tapia: [15:14](#) It's a little bit at a time, so a little bit here, and a little bit there, and a little bit there. So as I kept looking forward and moving step by step and using the survival skills that my mother ingrained in me, I went a little bit forward and I want to be the role model that said, "Look, from poor background, just taking the direction, working hard, believing you can do it, and believing that it will take you good places, you can do it. So you don't listen to other people. You just go and go and go."
- Richard Tapia: [15:47](#) And all my life, because I'm a mathematician and you're a mathematician and you know, the world is full of really intelligent people, but I've succeeded more in let's say in a global picture than a lot of these really intelligent mathematicians.
- Evelyn Lamb: [16:04](#) Is there anything else you haven't gotten a chance to talk about yet that you wanted to share?
- Richard Tapia: [16:11](#) No, just that even though at UCLA in my math classes I was never the best, but that was good enough. See, I didn't have to be the best. So I just kept trucking, if you say the expression from way back. As they say, I kept trucking. At Madison, Wisconsin running with people who accepted me on the same level. In other words, when I got to Madison, I was pre-screened. They said, "Well, you know, you're here so you must be good," and I talked to all these good people.,
- Richard Tapia: [16:40](#) So my advice is if you believe that that's a direction you want to follow, don't let other people tell you that you're not good enough. Because I have all kinds of people that are smarter than I am. All kinds. My best friends were smarter than I am, but that doesn't intimidate me because really smart people are not necessarily really successful and I'm pretty proud.
- Richard Tapia: [17:08](#) In fact, some people think that maybe for a minority I'm arrogant and maybe for minority I am arrogant because my mother was very confident. She always said, "You belong. We all belong and we can all achieve at the same level." So I don't have, mathematically or in other things, I don't behave in an excessively humble way that might make me feel to other people, "Oh, you feel that you don't belong." No, wherever I go, I figure, "I'm here. I deserve it. I belong. So let's get it done."
- Richard Tapia: [17:50](#) When I was a President Clinton appointee to the National Science Board, they were all really good people. There's 24 people, 12 women, 12 men, great people, basically some of them were presidents of the universities and Rita Colwell is one of my heroes. Okay.

- Richard Tapia: [18:15](#) So what do you got there? People didn't vibe you. They didn't say, "Oh, I wonder if you really belong here. Oh, you're Mexican," or this and that. They just said, "You're here. Let's go. Let's get some things done." And that's what I learned from the National Science Board, was don't spend time vibing women and minorities, let's just get some things done. That was one of my better experiences, was being on the National Science Board for six years and I met Nobel laureates, and leaders, and presidents.
- Richard Tapia: [18:44](#) So I feel comfortable in this world of leadership. I feel very comfortable and it's been the American dream. So I will say that the American dream, in spite of the current administration, is still possible and I have lived it.
- Evelyn Lamb: [19:01](#) Well, thanks for sharing that with me or with our listeners as well. Thanks a lot for being here.
- Richard Tapia: [19:08](#) Well, I thank you.
- Evelyn Lamb: [19:12](#) Thank you for listening to the Lathisms Podcast. It's produced by me, Evelyn Lamb, and made possible by a Tensor SUMMA grant from the Mathematical Association of America. Our music is [Spanish 00:19:23] by La Floresta. Lathisms is an initiative to celebrate the accomplishments of Hispanic and Latinxs mathematicians. It was founded in 2016 by Alexander Diaz-Lopez, Pamela Harris, Alicia Prieto-Langarica, and Gabriel Sosa. You can find more information about the project at lathisms.org. That's L-A-T-H-I-S-M-S.org. Join us next time to hear from another inspiring mathematician.