

# Podcast episode transcript: Dr. Travis Bias and Dr. Randolph Bias

Travis Bias: Welcome to 3M Inside Angle podcast. I'm your host for today, Travis Bias. I'm a family medicine physician and currently chief medical officer of the clinician solutions business housed within 3M's health information systems division. Today I have with me a very special guest because today's guest is my dad, Dr. Randolph Bias. He's a professor and usability consultant, and one of the originals, one of the OGs of human computer interface design usability, or rather user experience as it's called today. And in 2017, he was recognized with the UX professionals association lifetime achievement award. Growing up with a cognitive psychologist for a father and a social worker for a mother, well, first we communicate the heck out of everything and our discussions around the dinner table. Many times focused on why certain designs were not well thought out. The TV remote control, the cars radio and CD changer, but dad's experience goes beyond these basics. Having worked for large software companies and web startups. And for the last 20 years, he's taught his craft at the University of Texas at Austin's school of information. Serving also as co-director of the school's information experience lab. Dad, welcome.

Dr. Randolph Bias: Thanks, and you should call your mother more often. No, I'm just kidding. Thanks for having me and I hope I can help.

Travis Bias: Awesome. Thanks for joining. I'll get on that with mom. So first I want to be sure, did I get that right about your career path and titles?

Dr. Randolph Bias: You did, and maybe I can offer a little more detail just to kind of give people a sense of where UX folk come from. In 1978, I got my PhD in human experimental psychology from the University of Texas at Austin, studying the like sensation, perception, cognition, memory, psycho linguistics, those of us who chose not to pursue academia at the time, got jobs as human factors, psychologists, and that's why. And so I got my first job as a human factors practitioner at Bell Labs in New Jersey. And that's why you were born in New Jersey. After a while, after a few years, IBM Austin hired us back to Austin and I worked at IBM for a decade or more later moved to BMC software where I started and managed the UX team... Usability team there, then a business partner and I co-founded Austin Usability, a small usability lab and consultancy. And then 20 years ago, did I return to academia to the school of information at the University of Texas to help train the next generation of UX professionals.

Travis Bias: Wonderful, thanks. And I know that you've always had the desire to be in the academic world and to be a professor. And I remember that big family discussion a couple decades ago. And so I'm glad that you followed your passions there. And I think that set us off on a good path as well. And I also think, I remember in elementary school, one of those take your child to work days going on to IBM's campus. And that felt like a big deal getting through security to get in there. I guess today is kind of like take your dad to work day.

Dr. Randolph Bias: I hope there'll be snacks.

Travis Bias: There will be dad, don't worry. Human center design, human computer interface design, user experience or UX, are these all describing the same thing? And does it just kind of depend on the new hip way of saying it?

Dr. Randolph Bias: It's mostly the same thing. The field started as human factors and ergonomics back in the 1940s and 50s, those terms still exist. There tends to be a hardware connotation to ergonomics I think. Then after a while, usability was the term that was in Vogue, somewhere in there was user center design, human computer interaction. These all share a large fraction of their meanings, but lately, as you suggest UX, user experience is the phrase that tends to be the umbrella under which we all live. There's a new term these days called design thinking and design thinking just makes me wonder what the heck type of thinking were we doing before we were doing design thinking... I think all along, we've been doing design thinking and I think it's just that some consultant can charge more or as the third design thinking consultant than they could as the 2000th UX consultant. But that's a wine for another day, but yes, these are basically interchangeable and UX is the term that I would use today.

Travis Bias: All right, well, thanks for that context. For me, I think about this in terms of health care obviously. I think it would be very easy for us to find health workers that are unhappy with the technology they use are kind of baffled by their design. Of course, as a primary care physician, I think of the electronic medical record for my lovely partner, Ashley, I think of ICU pumps. I think of apps for messaging with fellow clinicians or patients like maybe the designers' totally forgot this step, that human centered design step or the UX piece. And I remember being a subject a couple times for you when you needed a physician's feedback on some new health care related website. What's the approach, a typical UX or human center design team takes when evaluating if something is ready for the end user?

Dr. Randolph Bias: Basically in a nutshell, what we do is we gather user data, i.e. Data about the target audience for whatever product this is that we're worrying about. To inform early on the design and validate later on before we ship or go live the design. If you were a test participant for us. It's likely the case that we were testing website or some app for family physicians, for which family physicians were the target audience. And so that's what we do. We gather these data from representative users. If this is a product for nurses, let's not test astronauts and vice versa. And indeed let's not test the spouse of a vice president or your own spouse and think, "Well, that's probably good enough."

The key here I think is recognizing that these software developers and other device developers are really smart. Let's call them technologists. They're really smart. They're unusually smart. And if you've been working on a product for a year or a month or one day, you are no longer representative of your target audience. And so it is our job to go find those representative users and attest them on early versions, prototypes perhaps of whatever device or app or website that we're working on and gather from them data that to indicate that yes, we are ready to ship.

Travis Bias: It sounds like really what you're looking for then when you're testing folks is kind of a representative end user with the kind of specific domain experience. And it sounds like no matter the domain experience you're looking for, it sounds like you really need to have true empathy for your end user. Is that right?

Dr. Randolph Bias: Absolutely. And it's not just like, warm and fuzzy. Oh, we feel your pain. It's what tasks do these people, these end users, these customers, these clients, what tasks are they going to want to be carrying out with our device, our hammer, our medical device, our iPhone app, smartphone app. What task are they going to be carrying out and why? And let's go see, let's not just say, "Yeah, looks good to me." Let's go test and observe them, measure them. We tend to collect two types of data. We collect performance data, time on task, error rates, maybe numbers of references to the helps and also satisfaction data. Let's see, let's gain some empirical data from these representative users to give us confidence when we ship or go live that, okay they are representative users, not just you developers, you technologists who are so smart, but our representative users really can carry out the tasks that we are selling this product to them to carry out.

One of the things we do, is we work with the development team to understand who those representative users are. The marketers or whoever, let's work with them to figure out who we're going to bring in to test and not just get anybody off the street, but make sure if we think we're selling something to people with two years of experience, with whatever, let's make sure we're testing that type of person so that our results from our usability test, our UX tests will generalize to the real world.

Travis Bias: Sure. That makes a lot of sense. And actually, I think when thinking about the different types of end users that you're looking at, I imagine they might give you different answers when you interview them for 30 minutes, versus if you observe and follow them for several hours. And so I appreciate the different types of evaluation that you might have to do, because either I might forget something, or I might be telling you something, or you might be leading me towards an answer. I mean, obviously a good researcher would never do such a thing, but I might give you different answers in an interview because I might be expected to be saying something for the organization yet when you observe my work, I might be representing it differently.

Dr. Randolph Bias: Let me jump in there, if I may. That is exactly right. And it's not just because this is just as likely to be unconscious as conscious. We're not really good at knowing what we're doing or at remembering what we've done and why. If I just ask you, how do you carry out this task? Well you say, "Well, I do A, and then I do B and then I do C." But then if I observe you, I know. You do A, and then you look at that little sticky that you've got up on your display and then you do B, and then you call the guru down the hall, say, "Mary, remind me of this." And then you do C, okay, well, this is good data. We need to know this before we again, I say, ship or go live.

Travis Bias: Sure. And I think that's why a lot of people who study implementation science actually focus on a lot of the importance of not only the technology, but the people and the processes that enable their use.

Dr. Randolph Bias: And this is why software developers, device developers cannot depend upon their own intuitions as to what's usable. Can I tell you my two favorite jokes that I tell... I find myself sometimes talking to...

Travis Bias: Professor jokes. Here we go.

Dr. Randolph Bias: Notice I didn't let you say yes or no. I just jumped right into the joke. When I find myself talking to a group of software developers, which I sometimes do. I sit, start the discussion with the following. I say, "I want to tell you my two favorite jokes today, which will both bound our discussion for the day and also insult everybody in the room." The two jokes of these, "How many software developers has to take to screw in a light bulb? Just one, but the user has to type in and 11 commands to turn on the light. How many UX professionals does it take to screw the light bulb? I don't know, but if you give me six months and \$200,000, I'll get right back to you on that. No, we can't take six months in this internet time, we've got to get you timely data, but nor should you, software developer, technologist depend on your own intuitions."

And so this brings us together and helps us sell the religion, the UX religion, help people realize that they can't just depend upon their own intuitions. We've got to go collect user data as we pursue this user-centered design approach.

Travis Bias: Well, I'm glad you pulled that back around to the importance of teamwork. I thought I was going to have to edit that out so that my developer colleagues and I could still be friends after this. So thanks.

Dr. Randolph Bias: It's key because there's no chance I know enough. I mean, as a UX person, I can look at, let's say a user interface and I could come up with a lot of potential usability problems, inconsistencies, poor contrast between the text and the background dot, dot, dot, but I am not going to be a domain expert. And so I'm going to miss all sorts of things. If this is a product again, I say for nurses, for family physicians, whoever, and so I'm going to need those people. We are going to need those people to help us with the design. Nobody has all the talent in one person. You never have somebody that knows how to develop user interfaces, knows how to test human subjects and has the domain expertise. It is necessarily a team approach. Yeah. Have all your dev buddies call me.

Travis Bias: Okay. Sounds good. Well, so let's switch gears just slightly. You and I get how valuable this type of approach and this type of work is. How do you convince corporate or even startup lead leaders that they ought to invest meaningfully in user experience work? And especially now, because I know in health care, a lot of organizations are really struggling to recover after the crush of the COVID-19 pandemic or the height of it, I should say, we're still kind of amid this pandemic threat. And so as health care leaders are having to justify the expenses of such research or initiatives that really take time to give feedback from their end users and kind of co-develop along with them. How do you convince leaders when you're either in your consulting world, or even when you're building connections with industry across from academia to industry, how do you convince some of these corporate leaders or organizational leaders that this is important to invest in?

Dr. Randolph Bias: Well, unfortunately it does still take some convincing. It's not as bad as it was 30 or 40 years ago when I started, but the whole world has not yet gotten. There are people that can kind of look down their noses at the "soft skills" that we bring to the table and sidebar here. I don't think they're soft at all. It takes a lot of talent to learn, to know, and I'm not patting myself on the back here. I'm patting my students on the back here. It takes a lot of talent to know how to run a test without... As you hinted out earlier, leading the user or otherwise biasing the results.

There is still some convincing that has to be done. One of our mantras is if the user can't use it, it's broken. If there's a usability problem, if there's a big usability problem, it is just as bad as a defect, as a software or hardware defect. If the product gets out there, people can't use it's broke. And so there is some convincing that needs to be done. And the main thrust here for me has been an approach of cost justifying usability. Can I?

Travis Bias: Yeah. And actually, you actually edited a couple additions of a book on just that it was called cost justifying usability, right?

Dr. Randolph Bias: Cost justifying usability, Deborah Mahu, and I, a friend of mine and I, co-edited two versions of this book. And the whole point was, back in the day, the product development vice president would be sitting at the head of the table. And he/she, they would look around the table and the software development manager would say, "Well, it's going to take this many lines of code, it's going to take this many person. Months. I'm going to need this many people?" And the testing manager would say, "I'm going to test it to this % defect free. I'm going to need this many machines. Test this many scenarios on many people. And the tech pubs manager would say, "This money online helps this many documents, this many person months, this many people and the use of the person would go, "Well, you ought make it more usable." I mean, usability's good.

It's in all magazines. And then when challenged, when that VP would say, "Well, how I know when it's usable enough, or how much is this going to cost me? Or what if I just take recommendations one, six and fourteen?" Well, then the usability person would slick out of the room, mumbling something about statistical significance. Deborah and I, and we didn't invent this. There's been some energy before us in this realm. Anyway, we co-edited this book called cost justifying usability, where we encouraged and perhaps armed folks to pursue this cost benefit analysis. It's easy to quantify the cost. Oh, you want to hire a UX professional, fully burden salary. That's going to be 150 or \$200,000 a year, really, or you're going to hire this consultant, but the benefits are likewise quantifiable. It's harder, but it's possible. How many more are we going to sell? What customer support burden savings might we realize? What's the time on task for our users to carry out this task before and after?

Travis Bias: Sure. And what's the time lost, what's the business lost? If I take too much time on the task and give up.

Dr. Randolph Bias: Absolutely and turn over, I heard maybe these tasks are so hard that people burn out and they move on to it, to another organization or whatever.

Travis Bias: Sure. So don't worry, we were talking about the book a little bit and don't worry. I will not talk about the story where at the conference you did that book signing and no one showed up to the table.

Dr. Randolph Bias: Well, first it was lunch hour and second, by way of reciprocation, I won't tell anybody that someone's fixing to have a birthday with a zero at the end.

Travis Bias: Yeah. Well, I still feel very guilty. I think Drew and I, my brother and I both laughed pretty hard at that one, but we still feel pretty bad about that. Back on topic, dad. Sticking with health care, I know you've got broad experience. That's not all health care focused, but just with health care. Can you think of any kind of examples of organizations or companies or even initiatives that are doing this well that are really embracing human center design?

Dr. Randolph Bias: Well, at a very high level, I think many people are. I think people are getting it, that there is value in this attention to the end user at the high school, the school of information at the University of Texas will, where I work. I have a colleague there named Eric Nordquist, who has his lab, the health care experience lab, where he works. They work with the Dell medical school to help Dell figure out how to human centered design, their products, their approaches, their systems. Just as one little quick example, Dell were coming up with an addiction recovery. I don't know what system approach and this health care experience lab helped them by going out and collecting data. They went to all sorts of community clinics to the interview, one on one people who, and to get their feedback on this emerging approach. And so that's just one little example.

Travis Bias: No, that's a great one. I mean it sounds seemingly simple, but really that type of approach is very, very different. There seems to be a whole new movement to improve the patient experience, and really the clinician experience as well, which are both much needed. Physicians are burned out. Patients don't necessarily enjoy how a lot of health care is delivered at the moment. It's actually refreshing to see some organizations take this on. I mean, I remember when there was a lot of local debate about how to even fund the new medical school in Austin. And in early discussions, you knew for the school to fit within the Austin culture. It would have to be a bit weird, I guess, "Weird or unconventional." And so they're really from what I've been able to see really approaching health care delivery from an entirely new person centered angle, almost starting from the beginning, redesigning that whole care delivery experience.

Dr. Randolph Bias: Well, I don't have broad awareness of what's going on, you know better than I, but I know certainly here at the University of Texas, people are clamoring for Eric Norquist's attention to help them again, I say, be empirical in the pursuit of data, as we pursue data to inform and validate these systems. You mentioned something about patient experiences. Just last week, I went to one of my multiple ophthalmologists and I had four different weights and sat in a total of six different rooms. This was not pleasant. And, I mean, the not pleasantness is a thing in and of itself, but it might also have quantitative implications, repercussions. There's every chance I'm going to go find another office that does this better, that for whom the technology is just as good, but the user experience is more pleasant

Travis Bias: That's right. And that impacts of course, patient outcomes, population level outcomes. I mean, not everyone has hours to sit in different waiting rooms, for example, which historically a lot of the care delivery experience has been very much centered around a traditional, scheduling model centered around the physician office. And now that's being flipped on its head, thankfully, and again, ideally to impact outcomes and costs. So hopefully there will be something more quantifiable that you'll see. I mean, there's plenty of research coming out now, but that will only grow. I think, as this transition from volume to value-based care is comes so even outside of health care. Again, your domain experience goes beyond health care. Of course. Are there other industries that health care should be learning from?

Dr. Randolph Bias: Probably. Well, so the only thing, the only good ideas I ever have are by analogy. I see something over here and I try to apply it over there. Talking about the ophthalmology, my ophthalmology experience, Disney, does people moving really well? And I don't know anybody that works as at Disney as a UX person, but I know they have scores. If not hundreds of such, I've seen them make presentations at conferences, but they've got this down, they study it and they've got it down. If my ophthalmologist cared, that team could go learn something from Disney, I am just certain.

Travis Bias: Sure. No, I think Disney's a great example. And I actually heard a talk from some former Disney executive at a recent conference about their digital transformation efforts. And so it seems like if the organizations really dialed into that human or person-centered experience, if that's really driving their strategy, then there are definitely great examples to do it. I mean, I once thought if Walmart was really the centerpiece of renewing my driver's license, it wouldn't be such a headache. I appreciate all these examples and this has absolutely been a blast. It's always fun when our career paths can intersect. And so as you celebrate your upcoming retirement from the University of Texas here in the next few months, I'm hopeful that you make plenty of time for golf among your consultant.

Dr. Randolph Bias: Well, thank you son. I plan to. I went golfing yesterday, but I want to tell you one more story that I forgot to tell you, and now it helps segue to the end game of what I'm going to do here in retirement. Talking about cost justifying usability. Back in the early two thousands, when we were at Austin Usability. One time. Well, I think it was 2001 and it was on a Wednesday, we got a call from the company that the agency who was doing the website for a large international rental car company. And they called us up and they said, "We have a problem. We know it's a usability problem. Can you do a usability study for us by Friday?" And we said, "How about to give us the weekend?"

And they said, "Okay." We were confident we could find leisure and business travelers to test. We scrambled around built a usability test plan. What tests we going to ask them to carry out, found test participants, observed them, measured them, stayed up all night, wrote the report with the prioritized list of usability suggestions sent it to them on Monday, they gave us \$14,000. \$14,000 in five days back then that was... Even today that would be pretty good money. After a couple of months, I went online to the rental car company's website, and I saw that they had made most, not all, but most of our recommendations, they had implemented them and so I called them up. And I said, "So how did that work for you?" They said, "On day one, after making these changes, we started realizing a \$200,000 a day bump in revenue."

Their payback period for their \$14,000 invested in UX was before lunch on the first day. Anyway, if I had done that with that rental car company, you wouldn't have to be working right now. Of course, the world would be less well off if you weren't working.

Travis Bias: Well, no problem. I actually enjoy the work and I like actually working towards impacting the health system so that you don't have to sit in four waiting rooms in a day. And so that other patients and populations have better experiences. And ideally we get to a point where we're spending a lot less on health care in this country.

Dr. Randolph Bias: Would you hurry up on that please. Get right on that will you.

Travis Bias: I'll get on it. I've always been able to tell how you truly believe in the power of this user experience work. Thank you so much for joining me today. Any last words of wisdom for us?

Dr. Randolph Bias: I hope that any of your listeners that might not have had the UX religion now have. I'm always proud of you for all that you do, and I'm glad that you appreciate the value of it and are helping insinuate UX into the health care delivery system in however you do.

Travis Bias: Perfect. You've obviously had an impact on the way that I think about this within health care. Thank you so much for this opportunity. And thanks again for your time.

Dr. Randolph Bias: Yes, sir. Thanks very much.