Episode 118: Nancy Segal

# KL: Katie Linder

# LH: Nancy Segal

# KL: You’re listening to “Research in Action”: episode one hundred and eighteen.

# [*intro music plays*]

# Segment 1:

# KL: Welcome to “Research in Action,” a weekly podcast about topics and issues related to research in higher education featuring experts across a range of disciplines. I’m your host, Dr. Katie Linder, research director at Oregon State University Ecampus, a national leader in online education. Along with every episode, we post show notes with links to resources mentioned in the episode, a full transcript, and an instructor guide for incorporating the episode into your courses. Visit our website at ecampus.oregonstate.edu/podcast to find all of these resources.

On this episode, Dr. Nancy Segal, Professor of Psychology at California State University, Fullerton (CSUF) and Director of the Twin Studies Center which she founded in 1991. Dr. Segal received a B.A. in psychology and literature from Boston University (1973), and an M.A. (1974) and Ph.D. (1982) in the Social Sciences and Behavioral Sciences from the University of Chicago. From 1982-1991 she was a post-doctoral fellow and research associate at the University of Minnesota, affiliated with the well-known Minnesota Study of Twins *Reared Apart*. Dr. Segal has authored over 200 scientific articles and book chapters, plus several books on twins. Her latest book is *Accidental Brothers: The Story of Twins Switched at birth and the Power of Nature and Nurture* and follows the life histories of two sets of identical Colombian twins who were inadvertently exchanged at birth, and provides a number of interesting research findings. Her 2012 book, *Born Together-Reared Apart: The Landmark Minnesota Twin Study* won the 2013 William James Book Award from the American Psychological Association. Her other books include *Someone Else’s Twin*, *Indivisible by Two*, *Entwined Lives*, and *Twin Mythconceptions*, which describes false beliefs about twins and provides much needed correction.

Thanks for joining me on the show, Nancy.

**NS:** It’s a pleasure to be here.

**KL:** So, Nancy, I would love to learn first what led you to researching twins because this has been such a huge part of your career as a researcher.

**NS:** Right. There are actually two reasons that I’m in the field that I’m in, and the first is that I am a fraternal twin myself. I have a twin sister, Ann, who looks and acts nothing like me. And even as a small child, I was so fascinated by the fact that we were raised together in the same family, went to the same school, had many friends in common, yet we ended up being so different. And I, kind of intuitive, that something fundamentally different had to be driving this. Then when I got to high school and college and learned about genes and behavior, this all made so much sense to me. But what really set me on this path is that I took a class at Boston University, where I went to undergraduate school, took a class in abnormal psychology, and was asked to write a paper about adjustment, and so I did. And the topic I chose was whether or not you should split twins when they go to school. And this is a big issue in my house. And so I began to look at the literature and think about things both professionally and personally, and I found that I enjoyed doing that project more that I enjoyed doing anything else in my four years in college, and I just knew this was my calling. So I continued that theme in, at the University of Chicago as a master’s student, as well as there as a Ph.D. student, and just really loved it—just loved it to bits. What can I say? [*quiet laugh*]

**KL:** I love these origin stories. I’m curious because you’ve been, a couple of decades now, that you’ve been working in this field. What are some of the major milestones or discoveries in twins research in the past, you know, ten to twenty years that have really helped us to better understand twins?

**NS:** I think that there have been two developments, mainly. The first is that twins studies show us that genetic influence is far more pervasive than we ever would have realized. In other words, it affects many more behaviors than people would have imagined. People have no problem realizing the genes influence: height, weight—any kind of physical characteristic, and there’s been a lot of attention to intelligence and personality, but when it comes to social attitudes, religious leanings—things of that sort—that also is influence by the genes and can explain why children within a family is so very different, despite the fact that they share a rearing environment. So that’s the first thing.

The second thing is that the area of personality, particularly, identical twins raised apart or as alike as identical twins raised together, and somehow it doesn’t make sense because you would think that people raised together would be more alike, and that’s not the case. And that’s been replicated by the Minnesota Twins Study that I worked with from 1982 to 1991; the study of twins raised apart, as well as many other laboratories. So, what it tells us is if you resemble personality traits in family members with whom you live, then it’s because of your shared jeans, not because of your shared environment.

And, of course, if I could mention a third element that’s really attracted attention in the twin world, it’s epigenetics. The whole field of genes turning on and turning off. And identical twins who differ for some trait, particularly a medical condition, are ideal subjects for this because they have shared the same genes, so we can then try to figure out, “what are the environmental influences that turn the genes on in one twin, keep them quiet in another?” and use that information for disease intervention and prevention in the general public.

**KL:** Okay, so I think that that is a really interesting point because I think that some people might ask, you know, why twins research? Like, what are kind of the broader benefits we might see from understanding these different interactions with twins, and you’ve just explained one: medical research. Are there others that you’ve seen as well?

**NS:** Well, of course, I think that just in terms of intellectual abilities, personality traits, its—the parents need to know as much as they can about their children and people need to know as much about themselves as they can—where there habits come from, where their ideas come from, and I’m not say that everything is all genetic; I would never say that. Everything is a combination of both genetics and environment. But I think that genetics gives us a new way of thinking about why we are the way that we are, and why our children turn out as they do. For example, I find that parents of one child are usually what I call the environmentalist who do something and get a certain outcome, but when they have a second child, it doesn’t work. And to my thinking, the parents that have the most astute observation are those who have fraternal twins because they’ve got kids that come into the family, at the same time, and despite the fact that they try to treat each child similarly, the kids often go off in opposite directions. And so, I try to tell parents that fair treatment is not necessarily equal treatment. Fair treatment means treating each child in a way that’s consistent with their own predispositions.

**KL:** Interesting. Okay, so you have this most recent book, *Accidental Brothers*. What led you to write this particular book?

**NS:** Well, *Accidental Brothers* is one of the most intriguing cases that I’ve ever come across. It involves the double exchange of two sets of identical male twins who are now in their late twenties, who were raised in Columbia, South America. What happened was is that one pair of twins was born in Bogota, the capital city, and another pair was born up in the north—a hundred and fifty miles to the north. And one of the babies was accidently—well, one of the babies was very sick at birth, and was brought down to Bogota for the better hospital—but for some reason, we don’t know how this happened, the wrong twin was brought back. And so, what this did was it created two sets of identical reared apart twins. And two sets of unrelated brothers who thought they were fraternal twins, and so that’s how they lived the first twenty-five years of their lives. And when there was incidents of confused identity and an investigation, it turned out that the twins underwent double exchange, and I was so drawn to the case when I heard about it because it was a kind of setup that you could never construct ethically from a research point of view, but yet here it was, and I went down to Bogota twice to study them. And the result is *Accidental Brothers*, which combines great human interest and some science as well.

**KL:** So, I’m really curious about, you know, when you’re thinking about this book—and we’re going to get into this a little bit later in the podcast about writing science for the general public—but it sounds like you, initially, were just drawn to the story of this. The science, too, kind of, maybe secondarily, but this idea of kind of this is just an interesting situation. I mean, and it’s a fascinating case.

**NS:** Actually, I was drawn to the case for both reasons, equally. I wouldn’t say that the science took a backseat. I was drawn to it for both reasons. As a behavioral geneticist and evolutionary psychologist, I could see the potential in this case where these genes were separated and unrelateds raised together—it’s so powerful. And the other thing that added to my interest is that the two raised in Bogota were in a very lively, culturally-rich city. Where as the two raised up north were in a very, very remote, isolated village and did not go past the fifth grade. So, you had different genes—I mean you had the same genes in totally different environments, which was so amazingly valuable from a research perspective.

On the other hand, the study of this raises so many interesting issues for different people, and they are as follows: What is it like sociologically and emotionally to suddenly discover you are living a life unintended? That your mother is not your mother, that your father is not your father. Your siblings are not your siblings. In short, somebody else is leading a life you should have had.

The other question is: how to mothers know who their newborn babies are? You know, it’s not so simple. People typically take home the baby that is given to them, and that’s just what these two moms did; they had no reason to question it. And yet, each one took home one of theirs, and one of someone else’s. So there’s no automatic knowledge of who your baby is, and that’s a fascinating topic in and of itself.

The third issue is: how to courts decide on appropriate compensation for the fact that the hospital made these mistakes? And that’s a lawsuit that’s currently pending in Bogota.

And the fourth, of course, are the nature/nurture questions: how similar are the reared apart twins? How alike are the unrelated brothers?

**KL:** Wow. There are a lot of strands here. We definitely think to this book in the show notes as well as many of your others. I’m curious if you can share, Nancy, what are some of the strands that have run through all of your research on twins? I know, you know, one of the things you seem to be really committed to explaining some of the mythologies around twins. Um, can you share a little bit more about that?

**NS:** Of course. That in fact was the topic of my last book, which is called, *Twin Mythconceptions*, and entitled: False Beliefs, Fables and Facts about Twins. And what is does is it brings together about 70 beliefs, or misconceptions that people hold. And then I set the record straight. providing a short answer for people in a hurry, and a long, detailed answer for people who want more of the science. And I think it’s important that this book is out because people are having twins at a much higher rate these days. You know, back in 1980, one in sixty people in the US were twins. Today it’s one in thirty-three. Largely because of in vitro fertilization and other reproductive technologies, but also because mothers are delaying their child-bearing years to establish careers prior to raising a family, and that is linked to a higher chance of having fraternal twins. So, we need to know much more about twins. Not just parents, but educators and anybody who works closely with multiple birth individuals: doctors, hospitals, everybody. So, I think it’s really important to really present an accurate picture to the public.

**KL:** I had no idea, Nancy, that those numbers were so high.

**NS:** Yeah, yeah—I know. We’re seeing more twins than ever and the interesting thing is that, because identical twins are the ones that are so visibly apparent, you know, we’re not seeing as many of those as fraternal twins. The increase is mainly because of fraternals. But I will say that the parents who undergo in vitro fertilization are perplexed to discover that they are carrying identical twins. And that’s because micromanipulation of the fertilized egg outside the womb can sometime increase the chance of division of the zygote, or fertilized egg. That’s another reason. But the identical twinning rate has not dramatically as risen as the fraternal twinning rate.

Well, Nancy, I know we’re just getting started. We’re going to take a brief break and when we come back we’ll hear a little bit more from Nancy about writing science for the general public. Back in a moment.

[*music plays in the background*]

**KL:** As many of you know, I work as the research director at Oregon State Ecampus, which produces the “Research in Action” podcast. I’m excited to share with you that Ecampus has been ranked in the top ten in the nation for the fourth straight year by US News and World Report. As leaders in online education, Oregon State provides students worldwide with access to innovative learning experiences to help them advance their career and improve their lives. You can learn more by visiting ecampus.oregonstate.edu

# Segment 2:

**KL:** Nancy, one of the things that really intrigues me about you work is that balance between the kind of the human interest story aspect and the science. And many of you’re your book are written for general audiences. Does that change how you write them in terms of trying to translate the science for kind of a lay audience who may not be coming from that background?

**NS:** Yes; I think that you have to write with a very different voice when you’re addressing a truly scientific audience as I would in peer-review journals and, but I’m writing a book for the general public. But I like my books to also be meaningful and valuable to professionals who many not be experts in the particular area of twin research. So what I tend to do is I imagine myself having a conversation with people and I talk about the same findings, the same concepts as I would in a more scientific setting, but I just try to make the concepts more understandable, much clearer, really trying to explain to somebody who is hearing it for the first time—giving examples. And I was really lucky because when I first got into doing this sort of thing I was giving a lot of talks to mothers of twins clubs. And that really helped me a lot to kind of polish up to the way I describe thing to the general public. And this was back when I was a graduate student actually doing my dissertation research and I visited all of these mothers of twins clubs in Chicago and New York areas. And I found that that was fabulous experience not only in terms of public speaking, but also in terms of speaking with a more general voice. And then I took a class at Columbia University back in 2002, which was also extremely valuable. And I would really encourage people who are interested in translating science more broadly for public to doing something like this. It was a small seminar in non-fiction writing, and it was once a week, and over the course of the summer you had to prepare three, eight-page essays on some factual aspect of your life, or experience that you’d had. And I remember always thinking to myself that I was a pretty good writer, and then my first essays was really shot down by the students. I mean, I was kind of shocked. But, you know, I was seasoned enough in my profession to think, “hey, wait a minute. Just listen—be open to their suggestions.” And I was—I took that kind of opinion that I’m just going to be open and listen to the criticisms. And by the time the class was over, I had really mashed a lot of new concepts and techniques. You know, how do you present examples and things of that sort. And another thing I’ve learned is that it’s so important to give your writing to a another pair of eyes. I sometimes pay experts in the field to read my general scientific work that came out of *Accidental Brother* or *Twin Mythconceptions,* or some of the other books I’ve written. And then I have, not just experts, but people who are friends of mine who are intelligent people, but aren’t’ really well-versed in twin research. And I find that the combination of these two, it’s so valuable. Now, you can’t impose upon people sometimes to read the whole book, but what you can do is offer free dinners or offer free copies of the book when it’s ready. And for the scientist sometime you can do that—you can pay them to do that, or given them selected sections that are just relevant to their own interests, and I think that that is important.

And you know, the thing is, none of us like criticism. We all want to be told we’re terrific and our writing is wonderful. It’s just not the case. I think writing can be good without being polished, but you’ve got to really have people look at it carefully and you’ve got to take their criticism seriously, which I do. And so, I kind of create this thick skin where I’m not going to let anything get to me. And I figure, “hey, we’re in this together, we all want the book to be as good as possible and let’s just do that.”

**KL:** So, Nancy, I’m really curious to dig in a little bit more about your writing process because it seems like storytelling is so integral to what you’re doing with these books, especially writing for the general public. And because you’ve written so many books at this point, what is kind of your process for getting a book started and kind of weaving all of these different strands together?

**NS:** Well, I usually like to take a chronological approach because I think that when you start a book, and also when you craft a proposal, you need to have a structure. I’m not comfortable without having a structure—I don’t want to just take the book wherever it goes. So, I always like to sort of set things up in the beginning, sort give people almost a little summary of what I plan to do, and a primer on twin research is always important in the beginning, but people can skip that if they want to. And in these books that are generally for the public, I put a more scientific version of things in the appendix, not a long appendix, but some people want this, some people don’t want it, but it’s there if they want it. Anyway, I like to set up a chronology. So, in *Accidental Brothers* I set up the beginning of the moms having their twins, and then of what the unrelated brothers were each doing in their environments to sort of set the scene, then how the confusion happened, how the investigation of the confusion took place, and then the brothers coming together, and bringing in my research into the different chapters, concluding with where the brothers are now. So the chronological approach is great. I also did that for my fourth book, which is called, *Born Together, Reared Apart: The Landmark Minnesota Twins Study.* And that is probably a more academic book than the others, but also very readable in terms of general science. And that was a whole overview of the beginnings, methods, findings and implications, and controversies from the Minnesota study of twins raised apart. Now, it would have been possible to take a topical approach. I could have said, “here’s intelligence, here’s personality,” but that would have deprived readers of the ongoing process of research. So I decided again to take a chronological approach, which made my life so simple. Have the study begin, and then I could introduce new researches as they came and get rid of ones that left, and then along the way, which papers were published. Sometimes in a given year we’d have a paper on intelligence, on height, and on job satisfaction. I mean two totally unrelated, or three unrelated topics. But that’s the way science works; it’s messy. And you want to give people a sense of how it unfolds, and I could bring in new twins, and along the way weave in the interesting—human interest stories—and then conclude with the implications and the controversies. So I like to take a topical approach.

In my very first book, *Entwined Lives*, which did not require that kind of a thing. That was really the first book, I think, that really gave people a sense of what twins research was all about. So the early chapters were: the biology of twinning, a little bit about the history of twinning, a chapter totally on identical twins, a chapter totally on fraternal twins, a chapter on reared apart twins, a chapter on what I call virtual twins, which are same age unrelated people raised together, who replicate twin-ship without the genetic line. We’ll talk more about that in the final segment because that’s an ongoing study I have. And then the other part of the book, the second half, was all on specialty chapters on things like enjoined twins or twins involved in legal cases, and artificial reproductive technologies, and twins in the non-human world—non-human animal world. So, these were all specialty topics. And then, of course, the future of twins studies at the end. So, it really depends, but I think the most important thing for writers is to have a structure, and that is something that you will develop with your agent that you develop if you’re going with a popular press, but also something you develop on your own if you’re going with an academic press.

**KL:** I love that. Like, the behind-the-scenes stories of how books come to be are always some of my favorites. Nancy, what’s the ratio of what you’re publishing now for the academic community verses what you’re publishing for the general public?

**NS:** Well, it depends. As I’ve said, I’ve published six books now and I would say that they’re all for the general public—I really would. As I said, *Born Together, Reared Apart* is a little more scientific than the others, but still very, very readable for any audience I would guess. And, also, all of the books have fabulous pictures because twins are so visually interesting. The identicals and the fraternals, and I’ve got triplets and quads in there too, so there’s lots to look at.

Now, in terms of my articles though, I do have a blend of general articles for the public and articles that are more scientifically based. So, I think that that probably runs about half and half. You know, I’m a full tenured professor, but I like to still publish scientific articles, and I have one or two in press right now. But I also have some general articles. I just contributed a chapter to a book on twins that will be published in Finland, as a more general chapter. And I submitted something to a big newspaper recently, which is also more general. So, I kind of do a blend of both. And I’m also writing a commentary for another scientific journal, so it’s a real blend. And I’m also the associate editor for what’s called, *News, Views, and Comments* in this flagship journal for the Twin Research Society that’s called *Twin Research and Human Genetics*, it’s a fabulous, fabulous journal. It’s all scientific articles, but mine is a more general piece where I distill research into more general terms. I review some current articles, and then I have a really great section at the end called “Twins in the News” or “Twins in the Media,” where I talk about six or seven really just pure interest stories. Although I try to connect them to science if it’s applicable, but I also talk about those as well. So I love doing that as well—I love bringing the science to the public. It’s so important. And you know, people use this stuff in ways that are so surprising to me. I never thought, for example, that I would ever be an expert witness in legal cases, but I have now served in probably 20 or 30, and I have three that I’m currently working on that involve either wrongful death of a twin, or injury, or custody, or even accusations of cheating in the classroom. So there are many, many ways in which these research findings can apply to assist twins in the legal domain.

**KL:** So I’m curious, what has been the response to your work that is written for a more general audience? Both the general audience response and maybe the academic response. Do you find that people on the academic side are kind of skeptical because you’re writing for such a general audience?

**NS:** No, not at all—not at all. I find the response from the both the academic world and the general public overwhelmingly positive. I’ve really never had any negative criticisms. Now, having said that, in the academic world there are critics of twin research who, no matter what you do, will criticize your work and there have been some negative responses there. But, I know where they’re coming from—it’s all emotional, and I don’t take those very seriously; nor do my colleagues. I would say, for the most part, my books have been very well reviewed and very well received by just about everyone. I’m really pleased about that too because as a writer, there’s no greater pleasure than having someone send you an email to say, “hey, this was great, it answered this question,” or “I love this book—I’m giving it to my grandmother for Christmas,” or you know, something of that sort. It’s just so gratifying.

**KL:** That’s incredible. Alright well we’re going to take another brief break. When we come back, we’re going to hear a little bit more about Nancy’s most recent projects. Back in a moment.

# Segment 3:

**KL:** Nancy you mentioned in segment two that you’re doing some work on virtual twins. What can you tell us about that project or the ongoing work that you’re doing?

**NS:** Sure. I’ve been studying virtual twins for probably 15, 20 years. And again, what they are, are individuals who are raised together from birth, or very close to birth, who are genetically unrelated and they come about in one of two ways. Either families who find themselves infertile or wish to adopt for humanitarian reasons, adopt two children at the same time, and they’re very close in age. Or families sometimes have difficulty conceiving, so they undergo various kinds of medical treatments, and once the baby is born, the adoption process—which they also set into place—produces an adopted child. So either way, the kids grow up and they’re genetically unrelated. And there’s a few other ways to get them, but I’ll save that for later. Anyway, they give us a pure estimate of environmental influence. How similar are people who are genetically unrelated, but are raised together in a twin-like setting? That’s a very interesting, ongoing project and I would welcome anyone who can provide me with more subjects. I actually have over 160 pairs, which is extraordinary. Now, should I start to talk about some of my other projects? And actually, if you want to know more about my research, I should just say that my website is drnancysegaltwins.org and that’s drnancysegaltwin.org and Segal is spelled S-E-G-A-L.

So, I’ll launch right in to some of my other projects. I’m currently conducting studies of Chinese twins adopted apart, as well as Chinese twins raised together. And these are all basically adopted in the US, Canada, Australia, anywhere in Europe. And the reason why twins are separated, or adopted away together, is because China in 1979 enacted the one child policy, which limited urban families to one child and rural families to two. And that plus the fact that male children are so highly prized in that culture left the abandonment of thousands and thousands of baby girls, among them twins. And so, if anyone knows any reared apart Chinese twins, I’d love to know about that. I currently have a study of 22 such pairs—15 identical, 7 fraternal. And what’s special about them is no one has done reared apart twins studies in a perspective way that is following or tracking the development as it unfolds. I’m doing that with these kids. Most reared apart twins studies, like the one in Minnesota, didn’t get the people until they were adults. So I’m getting information from teachers, from parents—and now the kids are getting older, so I can get it from the twins themselves. And the companion project of course are the twins raised together.

I also have a study on family relations within twin families. Now, what I mean by that is: if you consider identical twins who each marry—whether they’re females or males—the children they have become genetic full siblings—genetic half siblings. Why is that? Because they each share a genetically identical parent. That means that each aunt or uncle becomes a genetic parent, so to speak, to their nieces and nephews. And fraternal twins families is the ordinary, garden variety—aunt, uncle, niece, nephew relationship. So I have an online study, which was posted on my website of people—of twin aunts and uncles who rate their social relationships with their nieces and nephews. And that’s a very fascinating study with about 400 or so participants now, but I’m always welcoming new ones!

And I have a study on the loss of a twin, which is a very, very devastating event for any twin to experience. I’m comparing loss of a twin to loss of other relatives, as well as the loss of an identical to a fraternal, and that’s online—people can find that. And I have a study on decision-making, which you need to be in the lab to do—that’s an interesting one. And I have a study on gender identity, which can be done online. Usually who have children, twin children, who one or both are showing behaviors that are inconsistent with their anatomical sex, and I’m very interested in that with an Australian colleague. So, there’s many, many things. And I should also point out that I really do welcome anybody who has an interesting twin situation. I find that I am so drawn to these cases and I’m always looking for new topics for my books. And I do have some ideas for my new books, once I can get a sabbatical—I don’t want to share that with your audience just yet, but I do have some really intriguing ideas.

**KL:** So, Nancy, I’m curious—what is it that helps you decide where to go next in your research because you have such a history of doing sort of these longitudinal projects, but as you say, you’re kind of drawn to these new things as well. How do you kind of decide where to put your priorities?

**NS:** I put my priorities to places where I can’t resist studying it—that’s what it is. If I find that I’m obsessing over it, I can’t let it go—something like that—then I know for sure that I’ve got to do it. I remember when I studied a pair of switched twins in the Canary Islands in Spain and I remember someone sent me an email message about them and I thought: I’m going to Spain. It was decided in a matter of minutes, and that’s really how it was with the Columbian twins too that I talked about in *Accidental Brothers*. And I talk about that in the book too. When it crossed my desk—and a lot of things cross my desk—but this one just captured so much in terms of the science and the human interest that it was irresistible. I found myself obsessing about it and thinking of nothing else and I just knew I had to go. That’s what it is basically; you kind of know. You just know what you need to study and what you don’t. And there are so many case studies that I find interesting too, but they’re harder to publish. And so often with a case study what I’ll do is I’ll try to get an idea for a larger study from that, but there are case studies that you can certainly publish in the medical literature, it’s just that it’s more difficult in psychology.

**KL:** Mm-hm. I’m curious if there are unanswered questions about twins that you feel are still kind of central to what you’re trying to figure out.

**NS:** Yeah. There is one unanswered question that I would love to have the answer to, and it’s going to sound amazing, but no one really knows what causes a fertilized egg to divide to form identical twins and there’s a lot I talk about in that regard in *Twin Mythconceptions*. But, we really don’t know exactly. And the twinning rate seems to be pretty similar, at least the identical twinning rate is similar across cultures. And so people for many years thought it was simply a random event to which any woman would be equally subjected, but it turns out that there are families who may have a higher predisposition—a genetic predisposition for identical twinning. And you see that in some inbred populations say in Iran, or Pakistan, or India where you have these isolated populations of just lots and lots and lots of identical twins. So that’s a great, unanswered question as far as I’m concerned. Really quite fascinating. And I’m also interested in male-female twins, particularly those that are raised apart. There’s been a big controversy of the extent to which female twins tend to do better in say spatial skills. And so there’s a whole controversy as to whether it’s an environmental influence for the brother or a hormonal influence from sharing the womb. So one of my students now is doing a study where she’s trying to disentangle these, and so what we’re doing is we’re comparing spatial skills of the girls in the opposite sex virtual twins, who shared an environment with their brothers, but not a biological or not a, you know, a prenatal one. And we’re comparing their spatial skills to the females who grew up with a brother and shared the womb, so I think that’s—no one has ever done that before and I’m really curious to get those findings out.

**KL:** So, Nancy, you are so energized around this topic. I mean it’s just clear, your passion for it. I’m wondering if you have any insights for the range of researchers who listen to this show about how do you stay so engaged with the same topic over your entire career. I mean, clearly, you’re looking at it from a range of different angles, but your career has really been devoted to this. How are you staying energized around it?

**NS:** I think I stay energized around it because new things keep coming up. And that’s what it is—it’s never the same old story. Everyday there’s something new and something interesting. And I think that’s probably true of every field. Every field is very, very complex—all kinds of angles. And once you become known in a field, things just come your way. And the other trick is that you have to be passionate. If you’re not passionate and in love with a subject, then it not going to work. You just can’t just like something, you have to love it. And I that when something has a personal angle, such as twin ship does for me, I think that makes it all the better because I can connect so readily with people on a train, people on a bus, research subjects, investigators. You know, once people discover you’re a twin, it breaks down a fundamental barrier between you and the participants, and that’s served me so well throughout the course of my career.

**KL:** And have you learned anything about yourself as a twin with this research?

**NS:** Well, I’ve learned that I’m a pretty typical fraternal twin [*laughs*] that we really, pretty much conform to the literature and the findings. And you know when I first began, after I got my PhD, my thesis advisor in Chicago said, “You shouldn’t tell people you’re a twin because they may think that your findings are bias.” So I tried to keep that quiet unless I was asked point-blank and I would never deny it. But now that I’ve established myself, and my findings have been accepted, I feel like I can talk about it very freely and very easily. I don’t think anybody would ever accuse me of any kind of bias; everything is very consistent. And yeah, so I feel very comfortable with that now.

**KL:** Well, Nancy, we will absolutely link to your website for folks who are interested in learning more in the show notes. And I want to thank you so much for taking the time today to come on the show, share about your research, and all of the insights that you’ve learned.

**NS:** It’s my pleasure! And I should add that if anyone ever emails me, I answer every single email [*laughs*].

**KL:** Alright, well we will link to that contact information in the show notes as well.

Thanks also to our listeners for joining us for this week’s episode of “Research in Action.” I’m Katie Linder—we’ll be back next week with another episode.

[*music plays*]

# Show notes with links to resources mentioned in the episode, a full transcript, and an instructor guide for incorporating the episode into your courses, can be found at the show’s website at [ecampus.oregonstate.edu/podcast](http://www.ecampus.oregonstate.edu/podcast).

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