

## Rationally Speaking #150: Elizabeth Loftus on, "The malleability of human memory"

Julia: Welcome to Rationally Speaking, the podcast where we explore the borderlands between reason and nonsense. I'm your host, Julia Galef, and with me is today's guest Prof. Elizabeth Loftus.

Elizabeth is a cognitive scientist specializing in the fallibility and malleability of human memory, especially with respect to recovered memories. Her work has landed her on the list of the top 100 psychologists of the 20th century. She was highest ranking woman on that list. It's also won numerous awards and changed the way the legal system handles eyewitness and recovered memory testimony. She's been an expert witness or consultant in hundreds of cases. Elizabeth, welcome to the show.

Elizabeth: Thank you, my pleasure.

Julia: To start off, maybe you could give us the historical context for your work. What was the state of knowledge of how memory worked before your body of work hit the scene, and what was the major change in the way psychologists thought about memory?

Elizabeth: Well I would have to take you back to, I guess, the 1970s when I first ... I was out of graduate school and I was trying to think about what kind of research that I wanted to do next. Because I really wanted to do some research that had a more immediate, practical, relevance than the kind of work that I had been doing in graduate school and in the first few years of postgraduate school. I had done a little bit of studying of memory, but very theoretical work in memory, the kind of work that you could talk to maybe five other people about who would care.

I had always been interested in legal matters and I decided that maybe I could combine my expertise as an experimental psychologist and having some expertise in memory, with my interest in legal issues.

I started studying the memory of witnesses, first to accidents, because I got funding from the Department of Transportation, and later to memory witnesses to crimes and other legally relevant events. That's what I began doing. I started looking at witness memory and started looking at the ways in which you question witnesses, and how those questions can affect what witnesses remember and how the questions could even contaminate witnesses memory. Then I was kind of launched on what would be a kind of long career path of studying the malleable nature of memory.

Julia: One thing that I was wondering is: When you approach this question of how reliable are these memories and can they be contaminated ... It seems to me, just from my cursory review of this field, that up until you start doing this research there wasn't that much recognition in the field that memory was particularly malleable. My sense is that the model was: memories are basically stored as if a file in a filing cabinet, and you can retrieve them and put them back, but there's no alteration that happens in that process. Am I correct about that? And if so, how did you start to suspect that that might need to be revised?

Elizabeth: I certainly wasn't the first person to put forth this idea of reconstructive memory processes. There was a British academic named Bartlett who published a famous book in the 1930s, that I would say had a lot of the ingredients of the ancestor work, to the work that I would ultimately do. Bartlett would present people with stories and look at the way in which people misremembered or changed their memories for those stories.

But mostly people who did memory work were presenting lists of words, or very simplified materials. When I started showing my research subjects films of traffic accidents or films of crimes, that was pretty unusual.

I think at first people may have thought, "Well this is kind of mere applied psychology. Is this really going to contribute to our scientific understanding of memory?" That feeling, I think, would soon change and people would appreciate that this was a valuable way to study memory, human memory and to understand things about the nature of real-world memories.

Julia: I'm pretty shocked that people in the field didn't jump at the opportunity to examine an application outside of the laboratory. It's not always the case that you can actually run your experiments on some non-contrived, non-artificial laboratory domain.

Elizabeth: Right, and I would say when we began -- I and my graduate students and other collaborators -- probably most of the research that was being done, was being done in universities with college students as subjects.

Nowadays, the groups of people that we study are very, very heterogeneous. We've gone into science museums and studied people ages 5 to 85. We've studied law enforcement personnel and their ability to remember. Researchers have studied people going to, like the London Dungeon where they deliberately put themselves in a position where they're scared, and see what they remember. With a collaborator, a psychiatrist, we have studied soldiers who are going through survival school and examining what they can remember about an experience, where they're learning what it's going to be like for them if they're ever captured as prisoners of war. There's so many interesting ways to study memory, now, that weren't so popular back in the beginning.

Julia: Lets go back to the work that you started to do on witness testimony and the memory of witnesses from crimes. What did you discover? What kinds of errors did you discover in their memory?

Elizabeth: I had this funding from the Department of Transportation. It was to study memory for the witnesses to accidents. You have to decide, well what aspect of the problem do I want to look at?

I decided to look at the questioning process. I started designing studies where we would question witnesses in different ways. For example, "How fast were the cars going when they *smashed* into each other?" we would ask of a witness. Then other witnesses would be asked, "How fast were the cars going when they *hit* each other?"

We found just changing a single word, in your question, was enough to affect the answer that people gave you. It didn't stop there, because we would then subsequently learn that the way you word a question, can not only affect the immediate answer that somebody gives you, but it can have a long-range effect. It can affect the answers that people give to completely different questions that you ask often much later.

Julia: Like what?

Elizabeth: Well, [if you ask] "How fast were the cars going when they smashed into each other?," Then I come back to you a week later and say "Oh, that accident I showed you last week, I want to ask you a few more questions. Did you see any broken glass?"

In our study, there was no broken glass, but if we use the word *smashed* with these people they were more likely to tell us that they saw this nonexistent broken glass, than if we had questioned them in a more neutral way. That was my first clue that these questions were in a way, a vehicle for communicating information to people, information that could change their memory, effect their answers to later questions, and actually change their memory for what they experienced.

This led me to the idea that the questioning is only one of the ways we get new information. We get new information in all kinds of ways after a critical event is over. We talk to other people. We're exposed to media coverage. All of these provide an opportunity for new information to enter a witnesses memory and cause a transformation, a contamination, a distortion in the memory.

This phenomenon, then, became known as *the misinformation effect*. When you expose people to misinformation about a past event, it can negatively affect their memory for that event. Now you'll find the misinformation effect in the college textbooks having to do with memory or cognitive psychology, and it's a pretty well-established phenomenon.

Julia: That's pretty scary. But at the same time, it seems to me that it can't possibly be happening all the time. If I read an erroneous article about 9/11 describing, you know, some fabricated version of what happened, I don't predict that that would dramatically and irrevocably change my memory of what happened on 9/11. Although I guess I could be wrong.

Regardless of the particular example ... Maybe that's a bad example ... it seems to me this can't be happening all the time. I wonder if you, or other researchers who have taken up this issue since you started it, have learned anything about when misinformation is likely to change our memories and when it's not?

Elizabeth: Well, yes. First of all, the 9/11 example is a bit unusual because there is kind of knowledge that we have about 9/11, that is knowledge that we have about the world that we gain in some other way, from television, from newspapers, from talking with friends and so on but it's not ... The part of 9/11, that we experience ourselves as, you know, where were you when you first heard the news that this horrible thing was

happening or had just happened, but for the most part our information is kind of historical.

When it comes to personal memories ... What psychologists like to do, once they get ahold of a phenomenon, is to ask a zillion questions about it. We did ask the question, "Which kind of people are most susceptible to memory contamination and what are the conditions under which people are more or less susceptible?"

Since that is the question you asked, I'll tell you that now, a number of studies show that if the memory has had a chance to fade, it becomes increasingly vulnerable to post-event contamination. It might be a little difficult for me to contaminate your memory for something you saw a minute ago, but a lot easier for me to contaminate your memory for something you saw a week ago or a month ago or a year ago.

Julia: Does it matter whether the misinformation is given explicitly? I mean, not self-labeled as misinformation, but labeled as a correction to your current memory. So I can imagine them saying, "You might think you're remembering that the suspect had a candlestick but actually the suspect had a wrench." Would that be more or less effective, than just casually slipping into a description that the suspect had a wrench, but not explicitly labeling it as a correction?

Elizabeth: I'm not sure we've done exactly that, but we've done something close to that. First of all we introduce misinformation now by just allowing a witness to, you know, overhear or to read a version ostensibly produced by another witness. They may read another witnesses version and they may think they're answering a question like, "How good a writer do you think this person is?"

It's a narrative where we can slip in some pieces of misinformation, to the extent that they're not deliberately looking for misinformation and we can kind of slip it in while they're doing something else. It kind of invades them like a Trojan horse. They don't even detect that it's coming.

Julia: Have you discovered anything about, say, personality correlates with susceptibility to misinformation?

Elizabeth: We and others, have a number of papers on individual differences. I will say that, I believe that virtually all of us ... In fact, I don't know if I have found anyone who is immune. Virtually all of us, are susceptible to having our memories be contaminated by these kinds of suggestive processes. The studies have shown that some people are somewhat more susceptible than others. If you're someone who has a lot of self-reported lapses in memory and attention ... You frequently can't remember, "Did I do that or did I just think about doing it?" ... you're a little bit more susceptible. If you're somebody who is somewhat low in cognitive ability, you're somewhat more susceptible.

If you're a particularly cooperative person and you're low in cognitive ability, you're somewhat more susceptible, so there are things that will correlate with the extent to which you will be likely to succumb to these kinds of manipulations. I think the overall

finding, taken together, is that virtually all of us are susceptible. In a paper that we published, not long ago, we showed that even a group of people who have highly exceptional personal memories ... There are adults who have been studied by colleagues of mine, at the University of California Irvine, who can remember just about everything they did, every day of their adult life. They're extraordinary people in terms of their ability to remember their own lives. Even they are just as susceptible to these kinds of memory contaminations produced through suggestion, than a group of others who are age-matched controls.

Julia: My own story of noticing a contaminated memory is: You know how sometimes people ask you, "What's your earliest memory?" My answer to that was always ... Or I don't know about always but for years now has been, "I remember lying on what I assume was a changing table and looking out the window and seeing a woman jogging past the window with a ponytail." That was my earliest memory.

Then, sometime rather recently, I was flipping through some psychology book. Maybe it was a textbook and I was looking at the section on recovered memories or maybe it was the misinformation [crosstalk 00:16:40]

Elizabeth: Childhood amnesia, yeah.

Julia: Possibly and the example that they gave of the malleability of memory was about convincing people that they had seen a woman with a ponytail jogging at the crime scene or something like that. Of course I can't remember it exactly. I think what happened is I read that book and then that example contaminated my earliest memory. Or maybe I never had an earliest memory. I'm not at all sure but it's all a mess now.

Elizabeth: Well that's kind of a funny experience. I mean, do you now have a earliest memory or a different one?

Julia: Not one that I can be confident in, no. Do you have any examples?

Elizabeth: I had a different experience. I always thought my earliest memory was a really, really happy day when I went to see the movie *The Greatest Show on Earth*, and I thought this happened when I was like about three years old. I had all kinds of memory associated with going to see that film.

Then one day, after I became a memory scientist, I was in a bookstore and I see this book on, you know, the history of movies in the United States. I think, "I'm kind of curious, what year was *The Greatest Show on Earth* actually in the theaters?" It turns out I would've been eight years old. And I have many, many other memories before the age of 8. For my whole early life, I thought I had an earliest memory that really wasn't.

Julia: I love reading about some of the experimental designs that were set up to have memories that couldn't possibly have happened the way they were described. Just so the researchers could actually prove that the memory wasn't a real memory that the

person happened to have, that matched the description in the experiment that they've recovered.

The one I'm thinking of is a description of childhood days spent at Disneyland in which the person hugged someone dressed up as the character of Bugs Bunny -- which of course couldn't possibly have happened, because Bugs Bunny is a Warner Bros. character not a Disney character. But apparently this memory was successfully implanted into some people.

Elizabeth: Right, well we did that study ...

Julia: Oh, that was you!

Elizabeth: ... so I know it pretty well, yeah. The reason we did it is because we were getting a criticism about our work. For example, if I get you to imagine that you're, you know, six years old and you're playing by a window, you trip and fall and you break the window with your hand, you cut yourself, I can get you through that process of encouraging you to imagine, that I can get you to start believing you had the experience.

The critics said, "Maybe what your technique did was to revive a true memory instead of plant a false one. With some of these studies, that possibility does exist. You can't prove that what got produced wasn't the revival of a true memory rather than the planting of a false one.

It's that kind of critique that led us to want to plant something that would be impossible, and the impossible thing that we decided to implant was this idea that on a childhood trip to Disney, you met the character Bugs Bunny. We were able to plant this impossible memory in the minds of a number of our experimental subjects.

Then other investigators would come along and also plant impossible memories of things that were completely made up and didn't happen, into the minds of people, just to solidify the evidence that you can indeed plant false memories and that not just revive true ones.

Julia: While we're talking about experimental design, as I read about this research, it seemed to me that there were, just as you're describing now, a number of different possible scenarios for what's happening. That would look similar, that would give similar experimental results, and that would be hard to tease apart.

One of those is the person's memory hasn't actually changed, but they believe the researcher, or whoever is telling them the story, is probably more accurate than they are, so when they report their memory, they just report the version that was told to them by the researcher. Even though the memory stored in their brain hasn't changed. How would you tease that apart from the memory has actually changed hypothesis?

Elizabeth: That's another valid, potential criticism. When these experimental subjects are claiming that they have a memory after you've plied them with some suggestion, do they really

believe it? That's the question you're asking. Or have they just accepted the idea that the experimenter's version is probably the accurate version? We've certainly worried about that issue and we have done a number of different things to try to address it.

One, for example, is to give people incentives for producing completely ... Pay them money for completely accurate reports. Now you're pitting another motive against, maybe, this tendency. I mean that convinces us that they really ... You know, when they're offered money, for an accurate answer, and they still give the wrong one, it's a clue that they actually believe it.

A variation of the concern that you're raising now is: How do we know the subjects don't just want to figure out what the experimenter wants, and give the answer that they think the experimenter would like to hear? You know, be a good subject, make the experimenter feel good, whatever?

Again, a number of techniques have been devised to address that possibility. I think one of the best ones is to set up a situation where you can see whether these subjects will tell someone else, later on, that they have this memory. It's not in front of the original experimenter anymore. It's another setting. It's another person. It's another situation. Will they still insist that they have this misinformation memory?

And in fact many of them do. When you set the situation up where you can see that, you can see that they appear to really have the memory, believe in the memory, and be willing to tell it to somebody else.

Julia: The alternate hypothesis I'm trying to point out is subtly different from both of those hypotheses. It was more about a situation where I believe that my memory must be false, like the example I gave of my alleged earliest childhood memory. I don't think ... I think it's very unlikely that I have a correct memory of lying on the changing table, looking out the window, especially because the jogging woman who I supposedly remember looked identical to the cartoon jogging woman I saw in the book about memory. I suspect it was fabricated. But it still feels real to me so I think I still have the memory. I just *believe* it to be false, and so I give what I believe to be the true answer when asked, which is, "No, that didn't happen to me." It still feels like it did. I don't know if this distinction that I'm trying to make, makes sense because ...

Elizabeth: Oh no, it makes perfect sense. Actually a psychologist named those now. They're called non-believed memories ...

Julia: Oh, okay.

Elizabeth: ... where you now know that something is not a real memory but it feels to you. It's got a lot of the subjective characteristics of a memory. Some people are actually out there studying these non-believed memories. Of course that's what happens when people come to the end of our experiments.

Our subjects end up with non-believed memories. We tell them, "Guess what, you did not see the car go through a stop sign. We suggested that to you." They go, "Oops, I didn't?" Or, "I really thought I did." You now have a person in this state that you're in, where they believe the memory's false but they can still see that stop sign.

Julia: Well, something that I was confused about is I have this intuitive mental model of memories as sort of like movies that I play back in my mind. And I'm distinguishing that in this hypothesis from a sort of verbal belief. Where my verbal belief is, this did not happen. I guess the alternate hypothesis I was originally trying to point at is that the experimenter describing the scenario, with the false details like the wrench creates a verbal belief that this happened but it doesn't change the movie that's stored in the person's mind.

Elizabeth: No, but the person does change the movie, takes that verbal information and creates an image and it becomes part of the movie. That's what happens in these studies. Or it becomes part of what feels like the movie.

Julia: You can tell that happens because... they volunteer additional details from the movie?

Elizabeth: Well, in some of my studies, for example, we can suggest to people, for example they saw a stop sign at the intersection and then when we show them some possible pictures of scenes of what they might have seen at the intersection, they'll pick the one with the stop sign and say that's their memory.

Julia: Could you maybe go into a little more detail about what's actually happening when the brain recreates or revises a memory? Is the brain sort of creating a memory from scratch or is it taking pieces of other real memories and just, you know, yanking a piece of one memory out and then putting it into a different memory?

Elizabeth: Whenever we try to remember something, essentially, we're reconstructing it. We're taking bits and pieces of experience, sometimes bits and pieces that came from different times and places and merging it together to in essence construct what feels like a memory. I think in the case of the misinformation studies, we're setting up a situation where we provide some extra bits of information in a setting in which, when I ask you to finally recall the experience you initially had, it makes it very easy for you to combine the post-event information with the original information and construct something that's different from the way it actually was.

Julia: Is there any way to guard against the misinformation effect? Like, now that I've read about it, am I going to be less susceptible to it? Or can you warn people before a particular event, you know, before they give their testimony, that the questions that they get asked might affect them? Will that help at all?

Elizabeth: Yes, you can warn people and they can guard against this if they're suspicious. The problem is people don't walk around their worlds with these warning lights flashing at all times. If I warn you right now during this conversation we're having and now you're



walking around a week from now, you're probably not going to be thinking about this. The warning flags are not flying.

But yeah, the studies have shown that you can warn people what you're about to hear or in some way let them know that the source of the information that's coming is not particularly reliable. They can scrutinize it a little more carefully and sometimes successfully reject it. As I said people don't ... These warnings aren't usually active at all times in people's lives.

Julia: Can people get back the original uncorrupted memory? Like if you debrief your subjects and say, "Well, actually you didn't see the broken glass," can they remove that detail and get back the memory the way it was before you messed with them?

Elizabeth: I think one of the ways that people get back, if you want to call it, get back to the original, is by the same process that they left it. They do a reconstruction but this time a reconstruction with true information.

Julia: I see.

Elizabeth: Now they've got what is technically an accurate memory but the process by which it got there is kind of a process of double distortion.

Julia: Yeah, somehow that's slightly less reassuring. I like to imagine this sort of true memory underneath all the revisions and you can scrape away the paint from the paintings that were done on top of the original and get down to the original, and that would be more trustworthy.

Elizabeth: I know. That is a very fundamental question about memory, actually, whether or not everything we ever experience is in there somehow. And even though we make mistakes and we know we have errors in memory, that, you know, somehow we could potentially dig out that true end gram. Psychologists have discussed that and wondered about that and tried to figure out ways of studying that for a long ... I mean that was a hot debate in the 1980s.

Julia: It's not resolved?

Elizabeth: It's not really resolved. I mean I think one of the ... The way I resolved it is that there are many routes to a misinformation response and many kind of situations where people can give you a wrong answer that they believe in. In some of those case you might be able to uncover the true experience, but in some of those cases, there's been contamination that prevents you from getting back to the original memory. And the only way you're going to get back there is by the same process that you left it, by a reconstruction of this reconstructive memory.

Julia: Did you happen to see *Inside Out*?

Elizabeth: You know, I watched half of it.

Julia: Oh no, you didn't like it?

Elizabeth: Well, I was on an airplane.

Julia: Okay, that makes sense.

Elizabeth: I didn't have a choice.

Julia: I don't know if you would have seen this scene then, but there's a lot about memory in there, and at one point you see what's called the "memory dump," where memories that had been stored in the archives of long term memory get sifted through and the ones that don't seem important, like an old phone number, get tossed into the memory dump. Where they turn grayer and grayer and eventually they dissolve and disappear. They're gone forever. That was artistic license I guess.

Elizabeth: Okay, well I like the artistic license in a lot of the movies.

Julia: Oh good. When Neil deGrasse Tyson comes on our show he likes to use his space to complain about the artistic license taken by movies, scientifically speaking!

Elizabeth: Well yeah, because sometimes it's kind of damaging. For example, all these movies that have advanced the theory that massive repression of years of brutalization is a common thing that memory does, is something that's probably done more damage to our society than helpfulness.

Julia: Speaking of helpfulness, I wanted to make sure we talked about the potential for taking this phenomenon of the fallibility and malleability of memories and exploiting it for helpful purposes. For example, can we revise our memories to overcome things like post-traumatic stress disorder? What are the limits to that process? How far could we actually go with that?

Elizabeth: I'll tell you my somewhat limited experience with this and how I got there. With my collaborators, we did a series of studies in which we wanted to look at the consequences of false memories. If I plant a false memory in your mind, does it affect your later thoughts or your later intentions, your later behaviors?

We did some studies where we showed that we could make people believe that as children they got sick eating particular foods, like eggs or pickles or strawberry ice cream. We found they didn't want to eat the foods as much.

Then we found if we planted a warm fuzzy memory about a healthy food, like asparagus, people wanted to eat more asparagus. I started thinking, "Boy, we can manipulate people's nutritional food selections. Maybe we can make a dent in the obesity problem in this society. Maybe we can help people live a ..."

Julia: You can monetize that, seriously.

Elizabeth: ... Yeah, a healthier life here. We also did a study with alcohol where we planted a false memory that you got sick on a vodka drink and you're not so interested in vodka drinks anymore. So this seems to have a lot of potential for ... In fact, the New York Times even called this the "false memory diet."

Whether you could make a dent in people who have real addictions, like maybe drug addictions, whether you could make a dent in people who have PTSD, something very severe like this, I just don't know. Of course it would be wonderful if you could manipulate these techniques, maybe combine them with some other techniques, maybe some pharmaceutical combination ... I don't know what it would look like ... and help people who are suffering in these other ways. It'd be wonderful. But right now I don't see that these false memory techniques are ... Somebody has got to study this ...

Julia: They're not there yet. I see.

When I was a kid, I tried to intentionally revise one of my memories that I felt guilty about. I'm not going to tell you what it was -- but it wasn't a huge deal. I was just a very goody-goody two-shoes kid and I'd done something bad that I felt really bad about. I wanted to not remember that I'd done it so I didn't have to feel tormented by guilt.

I failed at just erasing the memory from my mind. That was clearly a dead-end. I realized that quickly. Then I tried to just create uncertainty in my mind about what had actually happened.

I tried visualizing alternate versions of the event in which, you know, someone else had made me do it, or in which I had considered doing it but not actually done it. I was hoping over time that I would start to experience confusion about which of those versions was the true one and which one wasn't.

And it never worked. Perhaps that's obvious to a psychologist! Or to anyone...

Elizabeth: I can just comment on your experience right now. I mean it's reminding me, when we did our asparagus study, we made people have a warm fuzzy memory about asparagus and now they want to eat more asparagus. Or even when we did the strawberry ice cream study, you know, made people believe they got sick, I'd get calls from people or emails from people, "Can you help me? Could I be a subject in one of your studies so I could lose my interest in a particular food that is my Achilles heel?"

I got contacted by one of the major wholesalers of fruits and vegetables in this country. "Can you help us make people want to eat vegetables more that they think they don't really like, like leeks?" I said, "Well, the problem is, you can't just come here and sign up because these methods need ... They sort of require deception." That's why it's not working when you try to do it yourself.

Julia: Yeah. What should I have done instead? Was there any way that young Julia could have successfully messed up her memory? Or is that just once I decided I wanted it, it all was lost?

Elizabeth: I think what you could have done maybe is give some sort of permission to one of my people, in some time in the future to do something with you that would fix this. Then we'd have to come back later when you were unsuspecting and distracted and not suspicious and try to work on you.

Again, that's just like a germ of an idea right now, but it would have to be when you're not vigilant. Because you're like our warned subjects. "Watch out, somebody is going to try to do something to you."

Julia: Right -- and the fact that I *want* them to do it to me isn't all that relevant here? It's the fact that I'm *expecting* it?

Elizabeth: Exactly.

Julia: Yeah. Well, we're almost out of time, but before we wrap up this section of the podcast, I just wanted to ask you how this research, and your testimony as an expert witness, has changed the way that memory is evaluated as evidence in trials?

Elizabeth: We see a lot of progress. It's really exciting. When I first started to be contacted by members of the legal profession, early in my career ... These were primarily defense attorneys in criminal cases who were faced with these confident eyewitnesses. They would sometimes get confident by the time they were at trial.

When somebody says, "Oh my God, I was so frightened, I'll never forget that face as long as I live," it's very compelling testimony. It's very hard to cross examine it, especially if you're dealing with somebody who was a victim as well, as opposed to an observer witness. There were efforts on the part of the attorneys and the psychology professors and researchers to introduce expert testimony into cases that can maybe educate jurors about memory, help correct some of the misconceptions that people have about memory.

There was a lot of resistance to this effort and now, these days, jump ahead decades, there is greater recognition of the value of this kind of education for jurors. Even in a report issued not long ago, by the National Research Council from the National Academy of Sciences, there is even encouraging of greater use of this kind of expert testimony. There've been courts that have devised legal standards for evaluating and handling eyewitness evidence in criminal cases. New Jersey is a prime example where jury instructions have been written that attempt to educate the jurors about the nature of memory.

All of this, I think, has been fueled by the growing number of cases, proven cases of wrongful conviction, where people spent 10, 15, 20 years in prison for crimes that we now know they did not do. They're actually innocent and you know, the world has woken up to the fact that we've got to do something about this problem.

Julia: I mean, that's wonderful. It occurs to me that ... No disrespect at all to your research or to academic research in general, but I bet that seeing those vivid and emotionally salient

anecdotes of people who were wrongfully convicted based on eyewitness testimony is probably more ... I would imagine it's more compelling to jurors than seeing the researchers' statistically significant effects. I was actually worried about whether that would change jurors' minds. But I bet the examples do.

Elizabeth: Yeah, well, you can't always bring those vivid examples into expert testimony, but I think that has helped to change public opinion, and to change the thinking of people who are in charge of policies.

Julia: Yeah, I think so. All right, well, we are out of time now so I will reluctantly wrap up this part of the discussion and we'll move on to the Rationally Speaking pick.

[musical interlude]

Julia: Welcome back. Every episode, we invite our guest to introduce the Rationally Speaking pick of the episode. That's a book or movie or something else that's influenced their thinking in some important way. Elizabeth, what's your pick for this episode?

Elizabeth: Well my pick ... I guess I should explain this by saying, it's going to be a book but it actually was a book that was turned into a movie.

If somebody had said to me even today, "I just read this great book about the history, politics and geography of Chile. Would you like to read it?" To be honest, I would have to say, "You know, don't bother loaning it to me because I just don't see myself getting to it anytime soon." But when I read the book *Missing* by Thomas Hauser ... There's a film of course by the same name ... which is a book about how a man went missing in Chile and his wife and his father went looking for him. You are in the grips of this unbelievable story and learning about the fate of this man and the efforts of his loved ones to find him.

To find out what happened to him, you learn all about the history, geography and politics of Chile, without even trying, without even trying. It kind of invades you, you know, osmosis. There's a feeling that you're like in the grips, but you also become so educated.

And this has sort of become the philosophy of my teaching. I start my graduate seminar in *Memory in the Law*: I say, "We're going to start with a problem in our society and I'm inspired by this book *Missing*. This problem in society is these 1000s of people who have gone into therapy with one problem, a eating disorder, depression, and they've come out of this therapy thinking that they were raped for 10 years in satanic rituals. How does this happen?" We start with this problem and you will want to know everything there is about this real world problem and be asking all kinds of scientific and legal questions that we're going to answer and address this quarter.

That's my pick. It's been my favorite book for a long, long time.

Julia: That's wonderful. It sounds fascinating on both the object level, and the meta level of, How do you kindle interest in a subject?

Elizabeth: Yeah.

Julia: Great. Well Elizabeth, thank you so much for joining us. It's been a pleasure having you on the show.

Elizabeth: Okay, my pleasure and have a good rest of the day.

Julia: Thanks. You too. This concludes another episode of Rationally Speaking. Join us next time, for more explorations on the borderlands between reason and nonsense.