

Transcript TrustTalk interview Paul Zak

(The Interview can be listened to on the TrustTalk podcast: <https://pod.co/trusttalk> or on all major podcast platforms.)

Voice-Over: Welcome to TrustTalk, Paul Zak is professor at Claremont Graduate University in Southern California and founder of Immersion Neuroscience. He talks about the neuroscience of trust. His experiments researching the neurochemical oxytocin show that most humans are biologically wired to cooperate, but that business and economics ignore the biological foundations of human reciprocity, risking loss. Building a culture of trust is what makes a meaningful difference. Employees and high trust organizations are more productive, have more energy at work, cooperate better with their colleagues, and stay with their employers longer than people working at low trust companies. They also suffer less chronic stress and are happier with their lives, and these factors fuel stronger performance. Your host today, Severin de Wit.

Interviewer: Paul, welcome at TrustTalk. You were the first scientist to integrate neuroscience and economics into a new discipline, neuroeconomics. As a start, can you explain in layman's terms what neuroeconomics is?

Paul Zak: Thanks, Severin. I know that you have never made a bad decision in your life, but your brother-in-law

Interviewer: *[laughing]* I wish that was true

Paul Zak: your brother-in-law who is, you know, investing in some crazy get-rich-quick scheme. Now what's the deal with that? If humans have such big brains, why don't we sometimes make bad decisions? And it's easy to say, well, he's not that smart or he's not well trained. But by measuring the activity of the brain while people make decisions, we get much richer insights into our underlying biases and our ability to make better decisions. And so that's what we began doing around 20 years ago, myself and many others, which is measuring the activity of the brain, while people make decisions to understand why they're doing what they're doing. Severin, you've seen humans. They are a fascinating species, but they can't really tell us why

they're making the decisions they're making. So we need some other technology to find out why they're doing what they're doing.

Interviewer: In your book "Trust Factor, the Science of Creating High-Performance Companies", you apply neuroscience to organizational culture to demonstrate that high trust improves the "triple bottom line". What is that triple bottom line?

Paul Zak: Great question. So what we've shown is that high trust organizations are better for employees. That is, employees are happier, they perform better, they retain their jobs longer. It substantially improves organizational performance, so good for companies and nonprofits, but also good for society. So interestingly, people who work in high trust organizations shed the stress of work faster. They are happier in their lives outside of work, and they're more productive citizens, parents, partners. And that's really what we want, right? Is that triple bottom line. If we are exploiting one of those three dimensions to benefit the others, then we're in a kind of morally weird place and a place that's, I think, not sustainable. So we want to talk about sustainable increases in performance, individual living standards, organizational performance like profits or societal performance, longer and healthier lives. Trust is a major lever to improve all three of those things.

Interviewer: Why do two people trust each other? Experiments around the world have shown that humans are naturally inclined to trust others, but don't always. You made a hypothesis that there must be a neurologic signal that indicates when we should trust someone. So you started a long-term research program to see if that was true. What were your findings?

Paul Zak: Yeah, it's a deep issue, right? So the only way humans can live around other humans that are strangers is to have something in our head that says, "Severin, trustworthy person" and "I don't know Susan next to you, not trustworthy". Otherwise, we can't live in cities we can't actually conglomerate for work. We can't do all the things that humans do as social species. So the idea was that there must be some signal, not perfect because evolution doesn't give us perfection, but something that's good enough that says this person saved this person not or this person appears to be trustworthy. I can interact with him or her, and if someone is not. And so there was a rich animal literature starting in the late 1970s, showing that a particular neurochemical called oxytocin signals to group living rodents that another rodent appeared to

be familiar or safe. And I thought, gosh, that seems like the signal I've been looking for to understand how individuals and organizations benefit from having high levels of trust. And so the difficulty there was that in animals, you drill into this skull to sample the chemicals in the brain. I don't know a lot about humans, but I'm guessing the humans weren't going to be super excited about me drilling into their heads. So essentially, I'm a tool guy, so I developed a tool or a protocol to measure the human brains, acute production of oxytocin. And then we designed experiments that we thought would induce the brain to make this neurochemical. And long story short, over twenty-five years now, research by myself and many, many others, we identify this neurochemical and in particular, the network that it activates the brain as a key signal that says that this stranger in front of me appears to be trustworthy. And oxytocin does a couple really interesting things. The first is it reduces our physiologic stress, so we're all strangers. We should, again, kind of a level of alert, right, that person could be unsafe, they could be something could be wrong with him, so it reduces that stress level. Oxytocin also increases our empathy. So think how valuable it is as a social creature then like to sort of cognitively think about what Severin want, but then understand emotionally why you're doing what you're doing that makes a really effective team member, a partner, friend, right, I'm getting that emotional information from you. And the third thing that oxytocin does is it motivates us to help others. And that's really interesting. If we think about what it means to be a social creature, it's not just that I live around the other humans. I'm a part of a community if I actually devote my time and resources to help others prosper, to help the community prosper. We said that oxytocin does all this and we develop protocols to infuse synthetic oxytocin into the human brain safely and have done this work now around the world from, you know, Western cultures, I've done field studies in the rainforest of Papua New Guinea, so it seems to be a human universal. Now, as you said, it doesn't work for everybody. And so the beautiful thing about having a mechanism in the brain that seems to explain a lot of behaviour is you can ask: when does this fail? And so there's a number of factors that inhibit the release of oxytocin and these pro-social behaviours. One: are high levels of stress, right? Another one are high levels of competition that induces the brain to make testosterone. So there's a bunch of factors that we've looked at that, you know, influence this system.

Interviewer: We're talking about oxytocin a little later in the interview. But I wanted to go back to the relationship between trust and economic performance. You published about that, about a mathematical relationship and you claim those neuroscience experiments reveal eight ways

that leaders can effectively create and manage a culture of trust. From what I understand, you measure the brain activity of people like you just explained, while they were at work, to understand how company culture affects performance. What are those eight ways to create a culture of trust using that mathematical method?

Paul Zak: I think what we had done the mathematics, you know, the next question was, you know, what are the underlying factors that managers could use or anyone who runs an organization could use to measure the effects of trust and manage that? So those eight factors have a nice acronym, somehow, magically, they spell out oxytocin. I don't know how that happened, but essentially it is of going through those eight factors. I'll give you kind of the overall view. We developed another tool, a survey that allows us to measure the underlying set of behaviors that form the Foundation for Organizational Trust. And so all those eight factors are about empowering individuals to control their work lives, but also be accountable for what they do. So and these are all informed by the research, as you said, that we've done both in the lab and in businesses so that I'll talk about one, for example. So first, oh, in that oxytocin acronym is for ovation. And that means recognizing high performers. Well, gosh, that's not new. But the neuroscience says that that recognition has a bigger impact on brain and behavior when it is close in time to when that goal has been met or exceeded, when it's public, when it's unexpected, when it comes from peers. So again, now I have specific and actionable ways I can use recognition programs to improve individual and organizational performance. So the other seven factors work similarly, and it's really gratifying that lots of companies now use this tool. And again, you hit that triple bottom line. Employees are happier because I have the term of art psychology as locus of control. I have more control over my work life. Organizations are happier because now people are innovating faster. They're more excited about the work they're doing. They put more discretionary effort in. And then when people leave work, they have this sense of satisfaction that I've actually done something that I can talk to, to my family, to my friends. That was important to me, important to our customers, important to the team of people I work with.

Interviewer: In 2011, during a TED global talk, you went so far as to step on stage, wielding a syringe filled with what you nicknamed "The Moral Molecule". The clear liquid, which you then sprayed dramatically in the air contained oxytocin, the stuff you just mentioned, a hormone

that was known to induce labor in pregnant women and stimulates the production of breast milk for the baby so-called "The Hug Hormone". This sounds unreal.

Paul Zak: So again, the evolution is conservative, so it reuses systems and neurochemicals like oxytocin for many things. And I guess the innovation I made in the late 90s was that this was not only a hormone that facilitated birth and breastfeeding, but in the brain it was doing something else. It was establishing those sets of behaviors that distinguish us as social creatures as opposed to a social creatures. And so again, once we had a protocol to measure that, then it really gives us insight into what it means to be a human. So if you think about people who are not well integrated, integrated into society, so we've done, for example, a lot of work with criminal psychopaths. They lack empathy, they don't form relationships, they lack a sense of connection to others. And so again, we can ask these really detailed questions by asking: does this neurochemical work? Are the receptors functional? Are the network that it activates functional and allows us to do a lot of interesting work. And then for me, just personally, I've got pulled into working in psychiatry, in criminology. There are so many good questions you can ask about where inappropriate social behaviors come from and can we treat them.

Interviewer: As a result of your study around oxytocin, you created Immersion Neuroscience Platform, software that applies algorithms from smartwatch data to measure neurologic immersion, the value the brain places on messages and experiences. I'm sure listeners are curious to hear more about that.

Paul Zak: So once we had this tool to measure oxytocin, the question is how far can we push it? How much stimulus do you need for your brain to make oxytocin? So I went and we were in the same room Severin, and I can give you a hug, and that will generally cause your brain to release oxytocin or do something nice for you to give you a gift. So we started looking at videos and we thought, well, wonder if you just watch a short ad or video, could we actually use oxytocin to predict what people would do? And the short answer is no, that there's a host of other neurochemicals and a larger network in the brain that activates, so that allows us to predict when people have a social stimulus, could be a movie, could be a personal interaction, could be a message on Twitter. How will people respond? Can we predict that? And we found this neurologic state I've called immersion, which is a state in which I'm attentive to what's going on, and oxytocin gives me this emotional connection to it. I really care about it. And that's those

are not zero one variables. This very second by second. And long story short, five years ago, we had to create a software platform so that anybody can measure neurologic immersion and predict with high accuracy what people are likely to do after an experience or a message. And again, I like making tools. I'm excited when people get to use those tools. And also I have to confess I'm a really cheap guy and I just breaks my heart when I see resources wasted. But you've seen these movie trailers come out on TV and you go really to spend \$100 million on this dog of a movie, it's awful. So this gives people who are creating content a way to test content. Right now, we don't have to go to a lab from anywhere and see, is this good or not? And if it's not as good as I'd like it, how would I make it better? And anyway, so that that plays to my cheap nature. I just hate to see wasted resources.

Interviewer: Interesting. Your scientific work is, however, not undisputed. What is the criticism fellow scientists have against your findings and how have you responded to that criticism?

Paul Zak: Yeah, great question. I mean, when we started doing this, you know, almost 27 years ago, people were quite skeptical. But again, I think what we've done is build a portfolio of findings that have been replicated by almost all labs that take these tools. We've developed and applied them in so many different realms that now it's, you know, kind of a fact. I remember the first time by the Times of London had an article on trust and oxytocin, and you know, so we first published these findings 2004-2005. So this is maybe 2008 or 2009. And they didn't cite my research like, oh, those people, you know, bad reporters, they realize, Oh, now it's become accepted, right? That the sort of neural substrate of trust is oxytocin and so I think that's where it gets into the Zeitgeist. So, yeah, I don't need to defend it because it's, you know, highly cited. I think I'm in the top point three percent of all cited scientists. And so it's had a big impact. And what's nice is this had an impact in so many different areas, from education to corporate training to psychiatry to criminology. And that's the beautiful thing for me about making a tool is that anybody can use it. So I think all this is, you know, very well established now.

Interviewer: You just mentioned that immersion neuroscience. You are a founder of Immersion Neuroscience. And when I visited your website, I read about the effect of storytelling. Can you tell us a bit about the effects of storytelling with trust in the back of your mind?

Paul Zak: Yeah, thank you. So when we started looking at different kinds of content that would induce the brain to make oxytocin and potentially provoke people to take an action, donate to charity or email your congressperson or share on social media. We looked at a whole bunch of different kinds of content, and we found is that the sort of classical story structure and narrative arc for the well-versed listeners? It's called the Freitag's triangle rising action crisis resolution that is almost the most effective way. Almost, I'll take the almost out. It is the most effective way to induce the brain to actually care about a piece of content. So story structure, storytelling, is somehow part of our deep human nature, and it is the most effective way to communicate information. And so it's like the scales fall from your eyes. When you run these experiments, you go, oh holy moly, this is a really effective way. It's much better than PowerPoint slides or words. Put it on a human scale story with authentic emotions, and then people will care. And I think Severin, that's about us as social creatures. We are fascinated by the other humans. And because of that, if you tell me a story about what humans are doing, fiction or nonfiction, I'm interested. If you can convey that in a way that is interesting to my brain and story structure is about the most effective way to do that.

Interviewer: It's interesting that you say that, Paul, because I just had a discussion with a friend of mine about what makes it to get views on LinkedIn and one of the things that he said was, as long as you do storytelling, if it is very close to a person tell about his or her story, people are much more attached to what you are saying. And if this is very business like formulation in the LinkedIn message. Is that congruent with what you just said and you are what you find from your research?

Paul Zak: A-plus exactly right. And in fact, you use exactly the right word, which is "attached". So attachment to people, to an idea, to a story is the same pathway that uses oxytocin just like we attach to a friend or a loved one or a dog. We attach to stories and that attachment tags in the brain that information as important, and it makes it more easily recallable weeks or months later. So if for all listeners, if you want to convey information effectively, the one most important thing I can say is tell it as a story.

Interviewer: Am I right to summarize one of your findings that people cannot accurately report their unconscious emotional experiences, but we still act on those experiences? When people

are neurologically immersed in an experience, they enjoy it, they remember it and they act on it, like you say. Can you elaborate a little bit more on how that exactly works?

Paul Zak: Sure. So I live outside Los Angeles, and in the last 30 years, consistently 80 percent of movies lose money. How is that possible? We just established that storytelling is really interesting to the brain. How are so many poor stories being told? Maybe they're spending too much money, who knows? But you know, how do we not know at this point of human life a good story from a bad story? And the problem is that we have what I call a Freudian hangover. We think if I just probe you the right way, I can make that unconscious, emotional experience, conscious. Your brain does not work that way. It's like asking you, Severin, to tell me, how is your liver processing the lunch you had today? So well, that's a silly question. So we somehow think that because your brain creates language that your brain has insights into these unconscious emotional states, they do not. Full stop. But we have technologies, lots of technologies, immersion neuroscience is one, but there are plenty others that allow us to measure that unconscious emotional experience and therefore capture people's true, unbiased responses to information or an experience. And again, once we have that, then we can actually craft experiences that people's brains will really love and value. And again, that's it's like the triple bottom line. That's what customers really want. I want to have a great movie. I want to read a great novel. That's what businesses want to create, right? No movie studio wants to make a movie that's going to lose money. And lastly, those movies, those experiences, because they elicit emotional states that cause us to feel something they cause us, they change us just a little bit. I think of the great movies that we've all seen. I know Schindler's List, right? An amazing movie that just absolutely, you know, I can't forget it. I don't want to watch it a second time. Actually, it was just too powerful. It really changed the way I thought about Germany, thought about the Holocaust of World War II. I mean, it was a powerful experience.

Interviewer: It's a wonderful example because talking about oxytocin, I was with my wife in, I think it was Taipei, or in the East, and we went to the cinema and we watched that movie, Schindler's List. And it was such an experience to see that while the movie was running, most of the Asians were crying.

Paul Zak: Wow!

Interviewer: in the cinema. That made such an impact was unbelievable, I still can't remember it, I can remember where I was, what the movie was about, of course, and the reaction of the Asians. Not that our reactions were different.

Paul Zak: Yeah, it's universal,

Interviewer: Everybody.

Paul Zak: Yes, I remember going to the theatre and watching it and everyone just sat there. No one got up. You just people sat there and just had to kind of decompress. It was so powerful, you know? And so that's what we want, right? We wanted amazing experiences. I don't want to watch a so-so movie. I don't want to watch a bad episode. I don't want to have a wife that I don't love. I don't want to, you know, I want to be rich emotionally in the world. And our difficulty is that it's hard to articulate how much value my brain places on something but new advances in neuroscience, the technologies allow us to do that, and I think it just makes the world a little better place. And gosh, who cannot be behind putting effort into making that happen?

Interviewer: A very last question. Paul, what challenges do you see in your future research on this subject?

Paul Zak: Oh, that's a good question. I think, you know, the challenges now are a breadth of this. So really making this information available and making these technologies available to many people as possible and breaking through that, as you said, that bias in which we think that if I just ask people, they'll tell me their unconscious feeling states. So I'm on a mission to help people gain deeper insights into their own emotional wellness and help them connect to other people using information, using technologies and by developing new scientific findings.

Interviewer: Paul, thank you very much for sharing your very interesting thoughts and research. I wish you good luck with the research and hopefully in the future we'll hear more of you.

Paul Zak: What a pleasure to be with you. Thank you so much.

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