**Your Mind on the Self, with Dr. Kelsey Perrykkad**

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0:00:00.0 Ava Ma De Sousa: Welcome to Minds Matter season two. I'm Ava.

0:00:10.2 Beth Fisher: And I'm Beth. And I'm a PhD student at Monash University in the Center of Consciousness and Contemplative Studies.

0:00:17.0 Ava Ma De Sousa: And I'm a PhD student at UC Santa Barbara in Psychology and Social Neuroscience.

0:00:21.7 Beth Fisher: So we started Minds Matter while we were doing our masters together in Amsterdam on our university student radio. And now we're back for season two with a brand new format.

0:00:31.1 Ava Ma De Sousa: This season on the podcast we'll be joined by a lot of exciting guests most of whom are in relatively early stages of their careers. So mostly post-docs and assistant professors. People who aren't that far from their PhDs. We'll be talking to scientists on the cutting edge of research on resilience, social networks, perceptions of history and much more. We're so excited to be back and happy to have you joining us for the ride.

0:00:54.0 Beth Fisher: So for our first episode I spoke to Dr. Kelsey Perrykkad and she's actually a postdoc who works with me in the center of Consciousness and Contemplative studies at Monash University.

0:01:04.2 Dr. Kelsey Perrykkad: I'm Kelsey Perrykkad. I'm a researcher in the Cognition and Philosophy lab at Monash University. I finished my PhD last year. I did my PhD on the self in autism. So we hear about the term self all the time like in literature in I think things connected with meditation. When we're even thinking about our identity. So there's obviously this very big loaded concept. So when we are thinking about it in terms of like research and science, what does it actually mean?

0:01:35.4 Dr. Kelsey Perrykkad: So when I think of the self I think of something multifaceted. So it's not just one thing and kind of traditionally you think of the self as the soul. Like it never changes and it's some core part of your being that never changes and that's not at all the way I think of the self. So the way I think of the self is all the way from low level sensory changes to the way we perceive the world all the way up through what kind of person do I think I am? And there are kind of all different ways that scientists study that. So you can look at changes to attention related to the self. People are faster and more accurate paying attention to their own face and their own name when presented to them. They have better memory for self related stimuli. So if you do an action, you have a better memory for that action or the consequences of that action.

0:02:25.5 Beth Fisher: When you say when you think of the self you think of these low level sensory processing things and then these higher ideas of like who we are. So I think a lot of us can relate to the idea of the self as this identity of who I am 'cause that's how we consider it. Both of what does that mean and then how does that connect with our idea of who we are?

0:02:44.9 Dr. Kelsey Perrykkad: Yeah. So all of the kind of big ideas about who we are, the only way we know those traits are true of us is based on the way we interact with the world. So if I think I'm a kind person, am I really a kind person unless I do kind actions? Unless I get feedback from the world that other people think I'm kind. All of that information we're getting from the world around us and the consequences of the actions that we're making and all of that stuff informs the sense of self that we end up having at the end of the day.

0:03:16.1 Beth Fisher: Oh, that's so interesting. Yes. So if I think, oh, I'm a kind person and then I do some sort of action like donate to a charity, is it convincing me that I am that or is that like actually who I am, or? [chuckle]

0:03:27.5 Dr. Kelsey Perrykkad: Yeah, so it's kind of complicated I think because the thing that leads us to act the way we act is our sense of self in some sense.

0:03:36.1 Beth Fisher: Right.

0:03:36.6 Dr. Kelsey Perrykkad: So the only reason I do kind actions or... Not the only reason but one of the reasons I do kind actions is because I'm a kind person or because I think I'm a kind person, kind of both. And then I get feedback from the world once I do those kind actions that I did something kind, and that kind of reinforces the idea that I am a kind person. And so it's this cycle between what you think you are and what you think you have control over in the world, the things you think you can do in the world, the kinds of goals you set for yourself and then the kind of feedback you get back from the world after you act in the way that you think you are. So you can learn that you're not the kind of person you were if those actions don't give you the feedback you expected.

0:04:15.6 Beth Fisher: Yeah. So I was gonna ask what if you consider yourself like a good or kind person but then you do something bad? So just say I think I'm a kind, good, honest person but then I steal something. Is that feeling of guilt that I have connected to like that's not matching to my sense of self or that feedback is like I don't want to be that? Like how would something like that work?

0:04:35.5 Dr. Kelsey Perrykkad: I think that's a great hypothesis.

[chuckle]

0:04:37.0 Dr. Kelsey Perrykkad: I'm not sure.

[chuckle]

0:04:38.6 Dr. Kelsey Perrykkad: I'm not sure I have the evidence to say anything definitive on that. But yeah, I think that that's a great theory of how a sense of self might relate to sense of moral responsibility and how your traits feed into that kind of emotion.

0:04:52.7 Beth Fisher: So I think what's interesting about what you've just described with this sense of self is that it isn't this kind of abstract soul idea. It's very much who we are engaging in the world.

0:05:02.9 Dr. Kelsey Perrykkad: And it's that you're constantly learning about yourself and in learning about yourself you're forming yourself.

0:05:08.5 Beth Fisher: And so the self changes across your life then?

0:05:13.1 Dr. Kelsey Perrykkad: Yeah, that's the idea. And it's different between different people and different populations. But I definitely think the self and yourself changes a lot in your life.

[music]

0:05:24.5 Beth Fisher: Yeah. Another thing I found super interesting is the idea that the self changes 'cause again, I thought... I feel like when I'm on this podcast I sound like I'm like super spiritual or something. 'Cause I'm like there's a Beth and there's an Ava and rah rah. But I really thought like the self was just this constant thing that is you know the one thing that's constant throughout your life is you or whatever. And it was so interesting that it's like yourself changes and then again after I spoke to Kelsey I was talking to friends about it and they were also asking, "Oh well, does this mean when you have a memory of something you did back in time and you really feel like very disconnected? Like why would I have done that?" Or like that was like totally... Makes you feel uncomfortable and they're like, "Oh is that because it's a different self? So at that moment that self kind of understood that that is something I would do. And then 10 years later and you just feel very disconnected to that because yourself and all the things wrapped up in that have have changed. So I thought that was an interesting idea as well.

0:06:26.5 Ava Ma De Sousa: So one distinction that does exist in literature is this idea of the experiential self versus the narrative self. So the experiential self is itself that's making decisions potentially but that are just for the now. And that's experiencing things, having sensory experiences and then our narrative self is what is actually tying all of these instances of our lives together. And I think there can be a stronger or less strong narrative self. And I'm not sure if Kelsey's research would go into that idea of bridging who a person sees themselves as like over time. But that's something that I find really interesting that you're touching on is this question of how much continuity do you feel with who you were before and who you are now? And I think the narrative self is very key to tying all of that together.

0:07:17.3 Beth Fisher: And I think what's interesting with that is like when you just think about it initially you're like, "Yeah, I've been the same self." But when you actually think about it in like instances of your actions or behavior then it's like, "No, wait, hang on. That doesn't feel like something Beth would do." So I think you can feel both ways about that. But I wonder also if this is something that we need to feel that's a continuous thing because if it felt fragmented or different could feel quite alarming. So I wonder sometimes with when we're talking about these theories, our reactions or feelings to them we're kind of made to feel that way because that's how we can best understand and survive.

0:07:55.9 Ava Ma De Sousa: Because our human societies only work because they're societies and because we each fulfill a different role. You need to be able to understand and be able to predict as Kelsey was saying what this person's gonna do. Because especially now that we all have such specialized little niches and jobs that we do and things that we're good at. So it's very important that there's a sense of continuation because otherwise we would fall apart. And so for you to be able to rely on everyone else to be giving you that type of experience you also have to reciprocate that with a sense of your own self. Right? She briefly mentioned this idea of solipsism and maybe not thinking that other people have minds but the only mind that we have access to is our own. So I think our best model of other people oftentimes is us. So if we feel like we have no sense of continuation with ourselves, it's hard to go into the world and trust other people because we don't have that same experience of being able to depend on our own selves.

[music]

0:08:58.8 Ava Ma De Sousa: To really understand how Dr. Perrykkad approaches studying the self, it's important to take into account the framework she's working under. This framework is called predictive processing.

0:09:08.4 Dr. Kelsey Perrykkad: Predictive processing basically says that what the brain and the mind are doing is predicting what's gonna happen next in the world. Getting feedback from the world about whether that matched or mismatched with the expectations and then updating what your expectations are next. So one way to think about that is that you're building an internal mental model of what the world is like and what it's gonna be like based on all of your previous experiences of the world.

0:09:36.7 Beth Fisher: And could you give an example of how that would look?

0:09:40.4 Dr. Kelsey Perrykkad: So when I'm sitting in this room and talking to you, what my brain is doing is trying to expect what you're gonna say next, what kinds of things I'm gonna see next. And that's based on what I expect things in the room to do. So we're sitting in a pretty empty room. I don't expect the keyboard to get up and jump off the table. I don't expect you to jump off your chair and run around and dance. So you might put some music on and we can do that. But I take cues from the environment and based on what I've always seen, these kinds of things do and these kinds of people do I make expectations for the next state of the room which is pretty similar to last state of the room. But if I was at a music concert for example the next state of the music concert is gonna be much more complicated than the next state of this room. So there are lots of kind of interacting things in the environment that are gonna change dynamically at a music concert. Whereas in this room, it's pretty much you and the technology.

0:10:34.8 Beth Fisher: Yeah. So what's the benefit of having these models of how we expect the world to be?

0:10:39.7 Dr. Kelsey Perrykkad: It's supposed to make processing easier and quicker for the kind of neural architecture. So it's supposed to be that you don't have to then take in all of the cacophony of sensory input and process it all. And this is why we have models of attention and all of this sort of stuff that we don't have the cognitive resources to process everything that happens at every moment of time. So being able to predict what's gonna happen and then only really process the things that you didn't predict, the only things your brain has to deal with are the things that didn't match your model. And then those things then update your model for the next time. So hopefully you're a bit better next time at predicting what's gonna happen.

0:11:18.7 Beth Fisher: Taking this back to the self, within these models do we have a model of self?

0:11:24.1 Dr. Kelsey Perrykkad: Yeah, definitely. So all of those aspects that I was talking about before from attentional differences to the traits that we have, to memory and all of these things, the self is the one cause of sensory input that is there from the very beginning to the very end of your life. So when I'm trying to understand what I'm gonna see next, one of the things I expect is that my actions will change the world. So looking over there versus looking over here I'm gonna see different things because I've moved my eyes and so I can attribute some of the changes in my sensory input to myself or my body as an aspect of myself. And in similar ways when I act kindly I expect changes in the person I'm sitting next to that will be a result of the action that I've just made. So the kind of self that I think I am changes the kind of sensory input I'm getting from the world. It changes my expectations, it changes the results. And I can attribute some of those results in the world to my actions and myself.

0:12:32.4 Beth Fisher: Initially you were saying how the self changes across our lifetime. Is this because when we're interacting with our environment things might happen that we don't predict. Is it that information that's changing our model of ourself?

0:12:47.2 Dr. Kelsey Perrykkad: Yeah, definitely. So the environment that you're in, you have different expectations. You have different expectations not only of the environment itself and the things totally separate from you but also about your ability to control things in the environment and your ability to enact your goals and what kinds of goals are appropriate to have in that environment. And the environment is more or less uncertain. There might be things that you don't expect in some environments whereas other environments are very like I said, this room versus a concert, this room is much more predictable than a concert environment. And the way your actions, your expectations, your goals, your traits, how those things interact with the environment is gonna be different based on different environments. So as you learn about the world, you're also learning about yourself.

0:13:32.7 Beth Fisher: So Kelsey actually researches this. So she does experiments around these ideas. How on earth...

[chuckle]

0:13:39.4 Beth Fisher: Do you try and find experiments that can investigate this?

0:13:44.5 Dr. Kelsey Perrykkad: The experiments I design are mostly around agency which you might have been able to guess from the way I describe the self as a lot about action and consequences and not in like a moral consequences kind of way but more in a sensory consequences kind of way. So when I'm thinking about investigating the self, what I wanna know is how do our traits influence how we behave in the world? And then how do our behaviors garner sensory consequences in order to inform that sense of self again? One of the experiments that I designed during my PhD was about these squares. So you have these squares on the screen and the participant's task is to figure out which of the eight or four squares on the screen they can control. So what they're doing is they're moving the mouse, they're acting in the world, they're looking at the sensory information that they're getting from the squares on the screen and they're trying to pick which squares they can control through their actions.

0:14:36.4 Ava Ma De Sousa: So there's eight squares on a screen.

0:14:38.7 Dr. Kelsey Perrykkad: Yep.

0:14:39.1 Ava Ma De Sousa: And they're all moving? So...

0:14:40.4 Dr. Kelsey Perrykkad: Yeah. They're all moving.

0:14:41.7 Ava Ma De Sousa: And one of them they are actually controlling?

0:14:44.1 Dr. Kelsey Perrykkad: Yeah. So one of them mostly follows the mouse movements that they're making. And so they have to figure out which one of the eight they're controlling. And that might seem very abstract and kind of separate to our everyday lives but that's essentially how we get a sense of agency, a sense of control in our daily life in the world. Is we act in the world and then we see what happens and try and figure out whether we did that thing. Most of the time it happens pretty automatically.

0:15:09.2 Beth Fisher: So with this experiment, what do you look at in terms of understanding like our agency? Is it how long it takes them? Is it the movements that they do to work out that they control it? And then given whatever you find, what does that tell you?

0:15:23.1 Dr. Kelsey Perrykkad: One of the things I was looking at was specifically what strategies people use. What kinds of actions do people take in order to figure out what they can control? So I split all of the mouse movements into different kinds, people moving vertically and horizontally or moving in circles, squiggles all sorts of different kind of strategies to try and figure out which square they were controlling. And I was also using eye tracking so I could look at which square they were looking at at any moment in time. And another thing I was interested in is when they decided to move their eyes from one square to another. In other words when did they decide... The square I'm looking at isn't moving the way my mouse is moving. I think I should try another square. So it's the participants themselves in my experiment, experimenting with what they can control and trying to figure that out.

[music]

0:16:14.8 Beth Fisher: Kelsey gave a nice overview of predictive processing and I think a good thing to point out is so rather than being like, "So I'm sitting here talking to Ava and rather than like everything coming in in my brain like processing that all that information as it comes in, I already have a model in my head before doing this. That's also forming how I'm experiencing this. So yeah. Rather than it just being like, oh, all this information's coming in and I'm like processing that.

[vocalization]

0:16:43.3 Beth Fisher: And it's like crazy and there's so much going on. It's already like no I have all these expectations already about how this will go.

0:16:49.7 Ava Ma De Sousa: I think sometimes our expectations can also cause us to go...

[vocalization]

0:16:54.2 Ava Ma De Sousa: Though.

[chuckle]

0:16:54.3 Beth Fisher: Yeah. I think they they do often.

[chuckle]

0:16:56.3 Ava Ma De Sousa: Yeah that could happen too. So if you feel like that, don't worry. Your predictive processing isn't broken. Also predictive processing is probably one of the biggest and most important frameworks right now for understanding how the mind as well as the brain work but it's still not what everyone unanimously agrees on. So this is one option for what our brains are potentially doing. I thought it was really cool that she was using this framework to look into the self. And one of the interesting things that she was doing was this idea of when you're interacting with the world, you're testing yourself and you're kind of seeing who you are and building yourself based on your actions. And so interestingly this is actually like one of the most spicy moments in like social psychology history. So in the '60s or '50s there was this movement that was like like the biggest movement in psychology at the time that was centered around this idea of cognitive dissonance which basically meant that when people hold a view that's inconsistent with a behavior that they're taking part in, they feel this discomfort or this dissonance, is what they called it, the physical discomfort, and that causes them either to change their view or to change their behavior. But more often than not it can be changing your view. So this explains why hazing can be such an important motivator and make people feel like they belong and stuff because they're like, "Oh, I...

0:18:22.3 Beth Fisher: I think we need to explain what hazing is 'cause they don't know if every... [chuckle] All our audiences luckily might not know what that is. [chuckle]

0:18:30.0 Ava Ma De Sousa: Oh, well, you're lucky if you don't know what hazing is. Maybe it's our Australians, I guess who wouldn't know. You guys are living a great life down there.

0:18:36.6 Beth Fisher: Yeah, I don't think we don't really... It's kind of like with frat and sorority culture, you'd have to go through these awful kind of feats of strength, I guess, to be accepted in, and people do awful things to one another and... Explaining it it's really confusing at all. Why it's still a thing? Is it still a thing or is it banned? I don't know.

0:18:57.9 Ava Ma De Sousa: I think a lot of it is technically banned but it still happens.

0:19:02.2 Beth Fisher: Right.

0:19:03.2 Ava Ma De Sousa: I think people hopefully don't die anymore from hazing.

0:19:04.2 Beth Fisher: No.

0:19:05.7 Ava Ma De Sousa: Though there have been cases where it has happened. In Belgium, there was a really terrible case of it that I'll let you all Google, but it's hard to understand why people would do this. But in the lens of psychology and cognitive dissidents, it all makes sense because if you're doing all these terrible things to get into a club, then you don't wanna do those things. You understand that you wouldn't wanna run around naked in minus 35 degree weather in the middle of Boston or whatever and try to get back to your dorm room with no guidance. You don't wanna be doing that. You don't wanna be drinking until you're passing out, rolling down a hill, whatever it is.

0:19:38.0 Ava Ma De Sousa: Well, maybe you do. That's up to you. So you've done all this with the goal, you know, to get into this club, and you finally are part of the frat or part of whatever group it is. So you tell yourself, "I clearly really value being in this because otherwise, I wouldn't do this." So you change your value so that you adjust it to say like, "There was a reason that I behaved this way." So this is this framework of cognitive dissonance where because of this discomfort, you change your values. This theory that sort of blew it out of the water, it was almost like a troll. This guy was like a troll in the social psych world. He basically said, well, actually, if you think about it, it's not that there's necessarily like this huge discomfort. It's just that people are doing self-perception, meaning understanding themselves the same way that they're understanding other people. So based on someone's actions, you're gonna infer who they are. So meaning if we see Michael Jordan doing an ad for Gatorade and he's like drinking a ton of Gatorade, we know that he is getting paid millions and millions. We probably aren't gonna infer that he loves Gatorade, but if we find out that he was doing this for free, then we'd be like, "Oh, he probably loves Gatorade." Right?

0:20:44.1 Beth Fisher: Yeah.

0:20:44.5 Ava Ma De Sousa: And so the idea there was that our self-perception and the way we understand ourselves is actually exactly the same as the way that we infer who other people are. And so this was a problem because it was like, there's actually nothing necessarily super cognitive going on. There's nothing going on in your body. It's just that you're seeing what you do, and from seeing what you do, you're like, "Oh, I guess I like that," or "I guess I didn't like that."

0:21:06.5 Beth Fisher: So with the first theory, it wasn't more like, that's something going on a lower-level or something, and there's some kind of motivations to why we wanna do some things. And in the second theory, it's just you do an action and then you're like, "Oh, I must be a person who does that because I did this action?"

0:21:25.1 Ava Ma De Sousa: Yeah. So in the first theory, the idea is you are understanding that your values aren't aligning with your behavior and so you feel this incredible discomfort that motivates you to have to change your value, and in the other theory, there's none of this hot feeling. It's this very cold, just rational, almost look at yourself as if you were a different person. And so this long-winded explanation of these random theories in the '60s is all just to say that it was really interesting to hear Kelsey almost take that point of view, it seemed, with this idea of predictive processing and going out into the world to test ourselves. So I don't know what she would say to that, and potentially she doesn't necessarily ascribe to that view that it's just you're interpreting all of your actions the way that you interpreting someone else's, but it seems like that framework actually lends itself to that idea. And so it was just cool to see this kind of updated version of testing something like that.

0:22:16.2 Beth Fisher: Right.

[music]

0:22:20.4 Dr. Kelsey Perrykkad: The social realm is just another realm where predictions happen. It just happens that the person that you're interacting with also has predictions, which make it a bit more complicated.

0:22:31.3 Beth Fisher: And does that mean when we're spending time with a friend is that comforting because we have to do less prediction about what they're gonna do because we know what...

0:22:40.9 Dr. Kelsey Perrykkad: Yeah, it could be.

0:22:41.7 Beth Fisher: Yeah.

0:22:43.0 Dr. Kelsey Perrykkad: Yeah, but it's easier to spend time with people that you know well because you don't have to do as much work to predict what they're gonna do.

0:22:48.7 Beth Fisher: So I guess everyone's had the experience of coming away from a conversation or experience and you're just like, "What was that?

[laughter]

0:22:58.3 Beth Fisher: What just went on? I don't understand." And you can feel like quite isolated. It just is a very strange, uneasy, unsettling feeling. Could this model of the self explain those kind of interactions that we have?

0:23:10.3 Dr. Kelsey Perrykkad: Yeah. So some of that is gonna be predicting what the other person is gonna do, and if they give you responses that you totally didn't expect, then your brain's gonna try and update your expectations of their next action.

0:23:23.7 Beth Fisher: Yeah.

0:23:25.3 Dr. Kelsey Perrykkad: Right. And you are constantly kind of modeling what they're gonna do based on what you did and because you're getting a lot of prediction there, you're getting a lot of mismatch between what you expect and what's actually happening in the conversation, your brain is doing a lot of updating. It's like trying to figure out better and better what that other person is gonna do. And if it doesn't get a hold on what that other person is like, what that other person's self-model is gonna lead them to behave like in that conversation, then you might leave it just being confused [chuckle] essentially.

0:23:58.0 Beth Fisher: Yeah, that's so interesting.

0:24:00.6 Dr. Kelsey Perrykkad: Yeah or disappointed. [chuckle]

0:24:00.7 Beth Fisher: Like you couldn't figure them out.

[chuckle]

0:24:02.8 Dr. Kelsey Perrykkad: And if you think of yourself as a very social person, then that might be very disconcerting 'cause you model yourself as being very effective in conversations and then when you don't get feedback that your conversation was effective, it kind of threatens your sense of self too.

0:24:19.6 Beth Fisher: Oh, that's so interesting. And are there... I don't know if we know this, but is there a limit to the amount of different selves we can model it out in mind?

[chuckle]

0:24:27.9 Beth Fisher: Like is there like, "Oh, I can understand 500 people, like different types of personalities, but I can't understand or is it like... Yeah, how does that work?

0:24:37.5 Dr. Kelsey Perrykkad: Well, I don't think we model each self individually in our minds. So I think there's probably like a nested hierarchy of expectation, and you can kind of group people a bit into the type of thing you expect them to do and maybe the words we have for traits help us do that in language to explain how we group people in the kinds of actions they're gonna take like kind people and ego people.

[laughter]

0:25:04.0 Beth Fisher: Yeah. No, that's interesting. Yeah. Okay.

0:25:05.3 Dr. Kelsey Perrykkad: So it's not like you have 500 models of the self in your mind and every person you interact with you're like, "Which self matches that person?" It's more like, "When I interact with this person, they do the same kinds of things as people that I consider kind."

[music]

0:25:19.8 Beth Fisher: And I thought another thing that she spoke about, which was super interesting was understanding how her model can give an explanation to when we're with someone else, how that can feel either really easy and at ease because our model is predicting exactly how that experience will be. Or when you meet people and you just feel like, what the hell is going on? I thought it was a nice way to capture those, how we feel and why we can feel that way in those different situations. Because we've all had experiences where when we are with our friends, we feel really at ease and that's why we love them. And it's nice to be around them and it feels like comforting and homey and all those things. And then sometimes you meet people and for whatever reason come away from the situation feeling really strange and kind of a bit alone and isolated. And I thought it was nice the way her framework can explain those two experiences.

0:26:08.5 Ava Ma De Sousa: I also really liked how you hypothesized that potentially, that's why we like being around our friends is because we're able to have these accurate predictions of how they are. And it feels like you can kind of let go because your model of them is just going by itself in the best cases. But I think that also explains the flip side of the reason that only the people that are closest to you can really hurt you, because you have a certain expectation of them and a certain prediction and when they violate that expectation then they're violating your entire model of them. Whereas someone you don't know, they're not gonna be violating that. But I think this just shows this predictive processing framework is super powerful. It can be applied to so many things. And I think often when people learn about it for the first time, they're like, "Oh wow." You can really interpret everything that's going on in your life within that framework.

[music]

0:27:05.1 Beth Fisher: So just say, I am an awful person.

[laughter]

0:27:09.2 Beth Fisher: I'm evil, I'm terrible, I'm cold, all those things. But I want to become kind. Is there a way, if I had this information... So how much control do we have over these kind of models? Are there things that I could do? Or is this just something that's happening? What control do we have?

0:27:28.9 Dr. Kelsey Perrykkad: There are gonna be some features of the self that are explicit to us, that we know are true of us and we are getting information back from the world that they are true. That's kind of at the explicit level. And then there are other things that we do automatically that we don't realize that we do and we can learn about ourselves, because other people realize that we do those things and tell us that we're actually evil people. And those things I think are gonna be harder to recognize, which makes them harder to change. But I do think there's kind of to this predictive processing, active inference, whatever you want to call it, cycle of acting in the world and and getting information back from the world. There's a little bit of a self-fulfilling prophecies. I think I'm kind, I do kind to things, I get feedback that I'm kind. So I'm kind.

0:28:10.8 Beth Fisher: Right.

[laughter]

0:28:13.2 Dr. Kelsey Perrykkad: And you can kind of change that, if you can convincingly tell yourself... If that evil person can convince themselves that actually deep down I'm kind, they might start acting in kind ways, getting feedback that they are kind and then actually become kind. Because we don't think of the self as this stable soul like thing where there are true things about the core of us that will never change. There are gonna be things that are also harder to change just because we have so much evidence from our past that they're true. So if you've spent your entire life being evil...

[laughter]

0:28:49.6 Dr. Kelsey Perrykkad: This is a terrible example, 'cause I think no one is really evil. But...

0:28:52.6 Beth Fisher: Kelsey is not [0:28:54.1] \_\_\_\_ Kelsey's looking at me.

[laughter]

0:28:56.2 Dr. Kelsey Perrykkad: But if you spent your whole life being evil and getting feedback from the world that you're evil and you suddenly decide you wanna be kind, your model of the world has a lot of evidence that you are evil. So you're not just gonna change it in one day with one piece of evidence from the world that you did a kind thing and so you're now a kind person. It's gonna be a long series of changing that.

0:29:21.3 Beth Fisher: So does then this have implications like clinically, are there ways that if we use this model, we can think, okay, well someone's had this experience up until this point 'cause they have childhood trauma, the amount of evidence they'll need to overcome that that's not who their self is. Yeah. Is there ways that we can kind of think about how we can...

0:29:39.8 Dr. Kelsey Perrykkad: Yeah. And you can think about some aspects of cognitive behavioral therapy, is really getting at that is like taking your expectations for yourself based on your history and questioning them and trying to replace them with something else. And trying to give you evidence that that's not true. Or give you other sources of evidence than your traumatic past. Which might help to alleviate the kind of expectations you have based on your history. But you also have expectations for yourself in terms of how a traumatic event affects you, if you've had a lot of them. And figuring out coping mechanisms based on your history will change how you act in response to similar events in the future. So I think there are ways to change it. I don't think it's hopeless. But it definitely explains some of how people end up. But I think that's kind of common sense that your history forms who you are.

0:30:33.3 Beth Fisher: Yeah. I guess maybe in this model though, it's like provides a bit of hope because maybe people think all the history forms who you are and then that's just who you are.

0:30:40.1 Dr. Kelsey Perrykkad: Right? No, your dynamic, you keep changing. Yeah.

0:30:44.1 Beth Fisher: So I think that that's quite hopeful in terms of the clinical relevance of this because...

0:30:49.0 Dr. Kelsey Perrykkad: Definitely.

0:30:49.0 Beth Fisher: It's not like, oh, if someone has that trauma, they'll just have carry that with them forever." It's like, "No, we can put people in positive environments. And I think that's doing this.

0:30:56.9 Dr. Kelsey Perrykkad: Yeah. You just need enough evidence to change your expectation. Okay. So there is a learning task which was done by Sui and colleagues in 2012, which is a self attribution bias task. So essentially what they did, was they present participants with three shapes, there's a circle, a square and a triangle. And they say, the circle is you, the square is your friend and the triangle is a stranger and you got a minute to memorise that pairing, which is a random pairing, it doesn't have anything to do with your actual life...

0:31:35.5 Beth Fisher: Okay, so circle...

0:31:35.6 Dr. Kelsey Perrykkad: Circle, square, triangle.

0:31:36.0 Beth Fisher: And all the participants get assigned different meaning to each one?

0:31:39.9 Dr. Kelsey Perrykkad: Yeah so you counterbalance them...

0:31:40.0 Beth Fisher: Right. So it's not like...

0:31:40.6 Dr. Kelsey Perrykkad: So it's nothing to do with the particular of...

0:31:40.9 Beth Fisher: The shape.

0:31:41.4 Dr. Kelsey Perrykkad: Of the shapes. So they learn that the circle is them, that the square is their friend and that the triangle is a stranger. So they get a minute to memorise those things and then their tasks, they're presented with a pair so they're presented with a shape and a label and they have to figure out whether or not the shape and the label match what they've learned.

0:32:00.9 Beth Fisher: Okay, so just say, circle, self, match, circle, friend, not match, and they have to work that out?

0:32:10.2 Dr. Kelsey Perrykkad: Yeah. And they have to... Yeah very quickly, they get present, flashed to them really fast and they just have to respond as fast as they can which labels and shapes, whether they match or not. And what they found is that when the self-label is presented, people are faster and more accurate and making that match and mismatch decision.

0:32:28.7 Beth Fisher: So even if it's a shape of self, but word of friends, so that's a mismatch. They're faster than any of the other...

0:32:32.5 Dr. Kelsey Perrykkad: I think it's just when the label is self, they're faster, than the other...

0:32:35.9 Beth Fisher: Okay, so just the word, yeah.

0:32:38.5 Dr. Kelsey Perrykkad: But the interesting part of that experiment to me is that it has no bearing on the rest of their life. It's something they've just learned, it's not meaningful in any sense, it doesn't relate to what they're gonna have to make for dinner or how they're gonna interact with their kids later that night, it doesn't relate to any other aspect of life and yet having just the label self makes you faster and more accurate, it's like your brain has some preference for things that it's been told relate to you, even if it hasn't learned that it does have behavioral consequences for you later. [chuckle]

0:33:10.4 Beth Fisher: Cause if people are faster and more accurate, that means they've learnt it better right?

0:33:13.0 Dr. Kelsey Perrykkad: Yeah, maybe, or that their attentional systems react to it.

0:33:18.2 Beth Fisher: Okay, so their attention system...

0:33:19.8 Dr. Kelsey Perrykkad: More.

0:33:20.2 Beth Fisher: When I say that they have better attention either way.

0:33:22.5 Dr. Kelsey Perrykkad: Yeah, but there are memory experiments too, that people, remember things that they've done. So for example, there's a task where you play a game with the experimenter and you are putting cards in a pile and you put some of the cards in the pile and the experimenter puts some cards in the pile, and then later you're shown a bunch of cards and you're asked which cards have you seen before, you're gonna be better remembering the cards that you put in the pile, than the experimenter did just because you associate them with yourself...

0:33:49.7 Beth Fisher: With you. So...

0:33:50.4 Dr. Kelsey Perrykkad: In some ways, so there is some memory component too.

0:33:54.4 Beth Fisher: So with the first task where all you have is the word self and as you were saying that doesn't have any meaning like why is this?

0:34:00.9 Dr. Kelsey Perrykkad: I think it's just that we have a preference or we've learned that if something is related to us, whether we're told that or whether we learn that through experience, it's going to be more relevant for our future actions, we're gonna need to predict things better around that kind of stimulus. So I think it's kind of an accidental happenstance that we can just present participants with these random things and they learn them faster or respond to them faster.

0:34:24.3 Beth Fisher: What are you doing at the moment? Anything exciting you wanna share with us?

0:34:28.5 Dr. Kelsey Perrykkad: Yeah, so I've got a pre-print out that you can access, which is called the Beach Study, which is an extension of the squares task stuff, which is looking at whether people choose environments based on what they can control or to decide what they can control. The aim of the research in the bigger picture is to figure out whether we both create and choose environments for ourselves that we think we can control things better in and whether we switch environments when we're losing control.

0:35:00.9 Beth Fisher: So we would wanna be in environments we control because that's something we can predict better?

0:35:06.2 Dr. Kelsey Perrykkad: Yeah, so the idea is that you put yourself in environments where your actions have the most predictable consequences because they are the least disconcerting, but you might choose to put yourself in an environment that is disconcerting on purpose, and you might do that because it will teach you something about yourself. So you're like testing yourself in a new environment because you feel like you've learned enough about yourself in this environment, but you know the world is big and wide and variable, and so you say, "If I put myself in that environment, would I still think on the same self?"

0:35:39.2 Beth Fisher: That's so interesting. So I guess we can all kind of understand that concept in terms of our lives, maybe have the same job and then you get really comfortable with that and you're like, Yeah, I get this, and then you're like, You know what, I wanna change. That's what people are always doing...

0:35:53.4 Dr. Kelsey Perrykkad: Yeah or traveling. People often say they travel to find themselves...

0:35:56.8 Beth Fisher: [chuckle] They do.

0:35:56.9 Dr. Kelsey Perrykkad: And that's a very casual, off-handed thing that people talk about and finding meaning in their life, they've travel to find themselves, and you kind of do, travel to find yourself.

0:36:04.9 Beth Fisher: No, you totally do.

0:36:06.6 Dr. Kelsey Perrykkad: Whether that's because your same self works in that new environment and you can confirm the self model you had or whether it's the... It doesn't work and you have to update it and learn a new self.

0:36:21.3 Beth Fisher: So how could you do this in a square study?

0:36:22.2 Dr. Kelsey Perrykkad: So we have two different environments on the screen, we call it the beach task, because one of the environments is the sand and the other one has waves, in other words, when you move through the environment with your square in the sand environment, you kind of jitter around randomly around the mouse movement or if it's not your square, that square just kind of jitters around randomly, whereas in the water environment you're pushed with these regular waves to the left or the right and so the two environments have different statistics, the kind of feedback you're getting from them is different and so you can learn or test your expectations for the square that you're thinking you control in one environment and then decide to switch environments and we can look at what leads you to switch environment.

0:37:08.8 Beth Fisher: So what did you find?

0:37:11.1 Dr. Kelsey Perrykkad: So we found that before people switch environments, they get an increase in prediction errors. So they have more mismatch between what they expect and what they're getting from the feedback from the task, and then after they switch that prediction error falls back down, so it's like they're using it as a test, they're getting more and more errors, it's not... Things are not working the way they thought they were and so they test that self-model or that sense of agency over that square in a new environment and either switch it or stick with it. So another thing I'm working on is how your expectations of yourself and of your agency, so about what you can control in the world, how those expectations influence other behaviors and one of those other behaviors, we wanted something kind of real world and tangible rather than the squares that kinda jitter around a screen is not very impactful in people's lives.

0:38:01.5 Beth Fisher: Yeah.

0:38:02.6 Dr. Kelsey Perrykkad: So the thing we were interested in this study was compassionate action. If you have confidence that your actions will give you the results from the world that you expect, then you have a high sense of agency, you have a high self-efficacy, you are more likely to have more self-concept clarity, which just means that your sense of self, as you report it, is more stable and consistent over time or stable over time and consistent between the traits that you assign yourself. And we were wondering whether that group of traits of yourself or of your self model, will lead people to act more or less compassionately. So the idea behind that is that if you don't believe that you can get the consequences from the world that you expect, why should you act nicely for someone else? Not because you are an evil person but because you don't expect your actions to do anything for them. So it's like wasted effort.

0:38:57.4 Beth Fisher: Oh, I see.

0:38:57.5 Dr. Kelsey Perrykkad: Whereas if you think you can get the stuff from the world that you expect and you have high confidence in your abilities to control things in the world, you might be more likely to act compassionately and help other people just because you think you can actually do it.

0:39:11.3 Beth Fisher: That's kind of interesting 'cause sometimes feel like people who are compassionate are people who have, or maybe this does fit though, people who have more understanding of suffering and these kinds of things, so you sometimes think, oh, they've experienced that as well and that...

0:39:28.1 Dr. Kelsey Perrykkad: Themselves.

0:39:28.2 Beth Fisher: Yeah.

0:39:31.2 Dr. Kelsey Perrykkad: Yeah, so I think there are other things that lead you to be compassionate and not compassionate. So we don't expect these expectations of ourselves and of our control in the world to explain all of compassionate action, just a small part of it. But even that small part I think makes sense with what you were saying. So if you have experienced suffering, you might understand the kind of causal chain that would help alleviate the suffering. And so if you understand that causal chain, then you feel self-efficacy in being able to alleviate suffering, you feel a sense of agency over the actions that would alleviate suffering and so that might lead you to be more likely to try to alleviate the suffering. And again, the interesting part of this research to me is that it's kind of a non-moral spin on compassionate action. It's not because they're a better person or a nicer person or more consistently acting within their morals or something like that. It's just that they believe they can help or they believe they can't help, and that causes them to help more or less.

0:40:30.2 Beth Fisher: So we're waiting on the results for that.

0:40:31.0 Dr. Kelsey Perrykkad: We're waiting on the results for that.

0:40:31.3 Beth Fisher: Okay, well maybe we'll have Kelsey back on...

[chuckle]

0:40:34.7 Beth Fisher: Part two.

0:40:35.8 Dr. Kelsey Perrykkad: Yeah.

[music]

0:40:47.3 Ava Ma De Sousa: Thank you to Dr. Kelsey Perrykkad for joining us as our guest this episode. Our intro and outro music is "Nobody Stayed for the DJ" by Glassio. Our transition music is "Back for More," also by Glassio. Minds Matter is mixed, edited and created by Beth Fisher, she's the Australian one and me Ava Ma de Sousa. We'll be back in two weeks with a brand new episode of Minds Matter. In the meantime, find all our episodes and show notes on mindsmatterpodcast.com.

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