

69. Neuroscience in Project Management

With Carole Osterweil, Josh Ramirez and Jodi Wilson

Jodi Wilson: So when your brain is taking in information, it's not just taking in one piece of information. It's actually taking in thousands of pieces of data all at one time, and then disseminating what data to keep and what data to throw out.

Josh Ramirez: Now, you would go and redesign project management process based on human factors and based on the science behind it to improve performance.

Carole Osterweil: The very traditional approach to projects is to make an assumption that we can create certainty by risk management. But things are uncertain, and pretending that we're living in a more certain world or putting people under pressure to force things to conform to what their stakeholders want to see does not serve anyone very well.

Kendall Lott: If you follow the precepts and processes laid out in the PMBOK; if you use the prescribed tools at the appropriate junctures; if you plan thoughtfully and thoroughly and give all due attention to risk management, the success of your project should be guaranteed right? But wait.

What about the uncertainty that is inherent in most of our projects – some more than others. And what about the human component, which compounds the already existing uncertain piece? And by human component, I mean more than our communication, but rather the very way we as humans perceive and analyze information, and how our emotive states can change our perceptions, all outside of the structure of the apparently objective value of plans and agendas and quality measures.

If you don't have the tools to navigate in this fog, to drive meaningful prediction and forecasting; if you don't take into account the wiring of the members of your team and even external stakeholders, you could be headed for failure...failure that compounds over the project life cycle. We perceive, we emote, we analyze and we respond, and it's all behavioral science driven by our very neuro wiring and it affects our project management.

Announcer: From the Washington DC chapter of the Project Management Institute, this is PM Point of View®, the podcast that looks at project management from all the angles. Here's your host, Kendall Lott.

KL: For this episode, I flew out to Washington State to speak with Jodi Wilson and Josh Ramirez, who are essentially trailblazers in the emerging field of behavioral project management. We talked about things like cognitive biases, and how project management might be better served by design thinking, to fit the human operating system.

Then I Skyped with Carole Osterweil of the UK to discuss the fog of project management and the stress cycles which can put a project on precarious footing.

Josh Ramirez is founder and president of the Institute for Neuro and Behavioral Project Management. He is currently doing research on the application of neuroscience to project

management.

Jodi Wilson is a behavioral scientist with a PhD in business psychology. She has nearly 20 years experience serving individuals, organizations, and Fortune 500 companies. She met Josh several years ago, when he was working in project management and project controls. He would come to her for help with the thornier project issues, like when everything appeared to be on track technically, but something was missing.

KL (03:21): Tell us a little bit what brought you to come from this PM World into words like neuroscience and behavioral science?

Josh Ramirez: Well, it started with Jody actually. She triggered it. [Laughter] So I was asking these questions, and then she would be like, "Hey have you heard of this thing called cognitive biases?" And I'd go and run to the internet and search on this term because I just didn't have the language. I had these things that were going on, I was trying to find answers to. Eventually, that led me to doing my research. That led me more into not only cognitive psychology, we are also studying the neuroscience side of it as well.

KL: And you're trying to set up essentially an institute here, right?

JR: Yeah. Institute for Neuro and Behavioral Project Management. It's going to be kind of the center of bringing project management and behavioral neuroscience into one place.

KL: So what are we talking about here when you say neuroscience and behavioral science?

JR: So I guess from a very simplistic perspective, the Behavioral Sciences are those things that can be recorded and observed in human behavior versus Neurosciences, those things observed in the brain, such as through fMRIs.

Jodi Wilson: Yeah, one thing that I would add is that with behavioral science, you have the intake of information, how you're perceiving what's going into your decision-making, what you are taking in as a part of your duties in the work environment, not to mention the inter-personal aspects of being on a team and how you work with other people. So it's also that social aspect, too. Where you have the individual and what's going on inside the individual, but you also have that individual as they relate to other people.

KL: And that's what project management is about, right? So that's probably why it would be helpful to understand some of this. I'm taking it that you had a sense that this was not well understood or not well-applied.

JR: Both. Yeah, and I think we also have kind of a paradigm or a dynamic that's ingrained into the project management discipline, as it is right now. When we say the word behavior, for example, people have frames of reference that they're already bringing to mind, such as leadership or soft skills, team building, communication. This is those things, but it's also a whole other set of pieces that I think the project management world hasn't even touched on, and that is redesigning processes based on the way humans think. Redesigning project management interfaces, such as softwares and etcetera. So those types of things. And metrics, so how we're measuring projects, how we're measuring human behavior in projects and applying that to earned value indexes for example,

measuring forecasting accuracy. There's this whole range of human factors that goes beyond just kind of what we would typically think of when we hear the word behavior, or psychology for example.

KL (06:20): So when we talk about these behavioral aspects, what types of things are you talking about specifically? How people do what?

JR: Let's think about the Project Management Institute and the PMBOK processes for example.

KL: Okay, all of you should be familiar with those right, listeners? Go ahead.

JR: Yes, I think there's 49 processes in the sixth edition. Processes, there are sequences of things that happen in different phases of the project, right? So for example, when you're looking during the planning phase, you'll see something like identify risk or break down scope, WBS, identify a risk, estimate durations. That is essentially an agreed-upon axiom in the project management community that these are the basic things you need to do.

KL: In that order.

JR: Typically, yes, the sequence is very important, right? By the way, sequence will become a new emphasis area with Behavioral Project Management. That's another discussion.

So if we look at a standard project management processes right, we have these sequence of things we're supposed to do. If we look at the scientific method and go back into the research and pull up studies that they have done in project management, we will find that there are other things that are based on science, that should be plugged into the flow of processes that would improve performance based on human factors.

One, for example, and I use on all the time, because it's really easy to understand, is obstacle identification. So if you have, if you're identifying obstacles prior to asking how many days a task will take, for example, the optimism bias will go down, and the realism in the prediction and forecast will go up.

So this is an example of essentially what we would call almost like behavior informed process design, which is now you would go and redesign project management process based on human factors and based on the science behind them to improve performance.

KL (08:28): So let's talk about some of the human factors, so give us a list. You've just come out with the words, optimism bias, of probably 50. In fact, you have an interesting thing on your website, is your mapping of those various, some of the biases that you've identified and where they might be playing into the different lifecycle and process phases. Tell us about some of these things like optimism bias. Which ones matter, and where do they come from?

JR: There's a lot of cognitive biases; that's just part of the human factors piece. But optimism bias, for one, is the tendency to be unrealistic about the future and see it in a positive light. The planning fallacy is another bias that includes optimism bias, in some cases, and it's just, it centrally explains the tendency to underestimate durations. So humans in general, tend to underestimate versus overestimate durations, right?

So there are many biases, like the anchoring effect, which makes sequence really important in project process design. Because the anchoring effect, if I give you the number 10 and throw the number 10 out there, now and then if I throw out the number 15, you're already anchored to that 10 number right?

KL: Tell me five or six that you guys have found more immediacy with right now, that could be understood quickly.

JR: One of the first big ones is confirmation bias.

KL: Confirmation bias.

JR: That is a tendency for us to seek or confirm with information that confirms what we already believe, or what we already think is so.

KL: So we hear a bunch of stuff in a report and somehow we hear the five or six things that tell us the project's probably doing okay.

JR: Because we're trying to avoid cognitive dissonance in general, and that conflict of two different beliefs that we have to hold in our head at the same time. And to avoid that, oftentimes biases play into that.

JW: Which leads us to ostrich effect, which is one of the big ones that I see a lot of. They just avoid it, they're like, "Yeah, that's not important," and you're like, "No, that's going to cost another billion dollars." "No, not really, that's not important." They minimize and try and pretend like that really isn't going to have the effect that it truly is going to have.

KL (10:40): So we have planning fallacy, optimism bias, ostrich effect, as you called it, what else we got?

JR: The other one is the anchoring effect, which really essentially will play a big role in how we sequence processes. In many cases, in companies we say, "Oh we're going to do risk. Oh, we're going to do estimating durations." But we don't have a specific order we have to do them in, we're just going to do risk analysis eventually, right? But if you really want accurate durations you want to ask those risk questions before you start talking about durations, right?

And what's interesting is in the PMBOK®, it's already sequenced properly that way. The thing that we're missing is the obstacles process. So the anchoring effect really is very impactful in my opinion, because essentially once you start with a number, anchoring away from that, sometimes it's harder for some people.

KL: And then we can use these in the tools which you're actually using.

JR: So the way I envision Behavioral Neuroscience, being integrated into project management is, in some cases, you will have a new tool and technique that could be added to a PMI or PMBOK®, process, for example. In some cases, you would have a new process. Or you may re-sequence a process to make sure that the sequence is aligned well for project performance.

JW: I think there's also a need in the traditional, or waterfall approach, to add in more work with design thinking. We typically are seeing that with Agile. But design thinking actually mimics a neurological process in the brain. So when your brain is taking in information, it's not just taking in one piece of information, it's actually taking in thousands of pieces of data all at one time, and then disseminating what data to keep and what data to throw out.

So when you look at design thinking, and the process, you're looking at an experiment: run, gather more information, recalibrate, decide what you're going to do, and then take in more information. And it's kind of a circular process, where the information is changing, and the predictions or the outcomes are changing, based on that additional information.

KL (13:05): So it sounds like we're focusing a lot on the planning phase, to be able to improve forecasting.

JR: In Project Management, I think there are two major phases. Obviously there's still initiating; obviously there's still closing. But the primary big piece of project management is really two pieces: predicting what we will execute, and then executing on that prediction, right?

The other thing too is that during the execution phase, we are also constantly re-predicting.

JW and KL: Right, right.

JR: Because we're re-forecasting we're re-evaluating our risk, we're re-updating the schedule on a weekly basis or daily or monthly basis, right? So prediction is that one very important phase prior to execution, but then it follows into execution, and we continue predicting.

KL: They used to highlight it as progressively elaborated, at least up through the PMBOK® 3 and 4, I think, at least when I took the test. So progressive elaboration was that it never really ends, because you have to constantly refine. As we've talked about on other episodes of the podcast, actually, the future is unknown and it becomes more and more known as it gets closer, right? You lose opportunity for other things. And then of course, once it's happened, now it's absolutely known and there isn't any opportunity for change. So this idea that you progressively elaborate's important.

KL: That variability that occurs between forecasting and execution, do we know in fact that it's a problem in project management?

JR: Yes, so prediction inaccuracy, or the planning fallacy, in some cases has been found to cost 4.6% of the project budget. So there is an actual cost to the bottom line associated with being unrealistic in our predictions

KL: Right.

JR: There is a cost associated with un-realism.

JW: Well, and missing continuous feedback too.

JR: Yes.

JW: So when you have a system, and you're not giving continuous accurate feedback in that system, you miss the mark. And those mark-missings actually have dollar signs connected to them.

KL: I would imagine it also gets wider over time if your feedback loop is inaccurate...as opposed to nonexistent, even.

JW: Correct. If you take it away from project management for a moment and just look at it as basic land navigation. If you have a compass that is off or your navigation is off by even one degree, you're going to end up in a completely different place than where you had intended.

JR: That's a great example

JW: So, financially, when you're looking at them and you're like, "Oh it's 2% it's not a big deal." Well, 2% eventually becomes another two, six. Sometimes it becomes 30% because something drastic happened and then you try and recalibrate or re-baseline back, but your baseline is now off, it's not accurate anymore, and so you continue to add in these additional errors that all have a financial ramification.

KL (16:04): I'm assuming that we are assuming that project managers are showing the Earned Value Metrics, the movement against the Gantt chart and the PERT chart to staff. That the teams see how they are performing, how they're moving their backlog. So the question is, what would be the best way to help express that? So they can see the feedback they need to get...that they then need to be providing feedback.

JW: It needs to be happening in a timely manner. So essentially, if it's three months off before you're giving somebody the accurate feedback of how their predictions were either correct or incorrect, or that anything is off with the Gantt chart or anything is off in EVMS...if you're not doing that within a 30-day cycle, you're going to increase that variability that we talked about earlier.

KL: I'm wondering if Agile's approach to the regular interaction of team members and how they're identifying the work that needs to be done, what they'll be doing, and how they've completed it, has helped become a hack for this, or if there's others.

JR: I think the Agile approach, in the fact that they actually have very frequent updates and feedback, is very helpful. I don't know, it depends on what kind of metrics they're using to actually measure it. So I think there is a bit of quality or qualitative feedback that's going on that's probably improving the outcome. My personal opinion or preference would be a combination or a hybrid approach of Agile and Waterfall, using Behavioral Science.

KL: Tell me more, you can't just leave that laying out there. [Laughter] You just blew up the whole PMBOK®, or actually re-merged it, reformatted it.

JR: In my dream world, we would redesign all of project management, and then essentially look at how behavioral science and neuro sciences, both applied to Agile, PMBOK®, Prince 2, etcetera. But what would be really cool is, after the Behavioral Sciences are kind of used to tweak processes, and softwares and interfaces, now using waterfall, and earned value, so to essentially give the

visualization, because visualization reduces optimism bias.

KL: So is that because we interpret data differently?

JR: If we don't see the challenges to our optimistic outlook, we can continue to hold on to those beliefs. So if I say, for example, a Gantt chart, I can visualize what's going on. Resource profiles...

JW: Think about it as information transparency.

KL & JR: Yeah, yeah.

KL(18:48): So back to your point about taking it to process...behavioral process management...

JR: Right, so now you've tweaked the processes using behavioral and neuroscience, rearranged, re-sequenced, etcetera. And then you take Agile down to the task level, where you've got routine feedback, and you're working on the ground level with the field. So essentially you've got Agile going on below the task duration of 15 days, for example, you can still monitor and give feedback with your waterfall, but you have Agile kind of going on at the sub-task level, right?

KL: OK.

JR: With behavioral science, essentially, guiding the social psychological processes in Agile and the team interactions, and cognitive psychology and neuroscience essentially plugged in to redesign the processes.

JW: You know, one of the things with Agile and keeping those standups, so to speak, in the short meeting sessions, is that yeah, you have accountability, but you also still are working on a neurologically friendly aspect. People don't withstand their attention, typically for those hour, hour and a half long meetings. Whereas those smaller short blips of time, where you're talking about, "This is what I have accomplished. This is what's on my to-do list, this is what I will have accomplished by the end of the day," that helps them keep those very brief moments of time and, neurologically, because our attention spans tend to be more of those short blips, it functions more the way that the brain actually functions.

JW (20:26): When you're looking at optimism bias, and when you're looking at ostrich effect specifically, even going...let's even go back to your visualizing or your visibility hack. When you allow candor in a situation, you're going to allow that visibility. You're going to actually set the stage for that visibility to be there and present for people, and for them to be giving continuous feedback in those moments. And that includes, "Hey, look over here, we have a metric that's completely off. Did anybody catch that? What's going on? Do we have any other data points? Give me the story behind this metric."

But if we don't allow that to happen, in environments where candor is not accepted, then we typically have more of that ostrich effect, the confirmation bias, and the over-optimism. And we're continuing down a path that says, "I'm right, I've got everything together. No we don't need to look at any derailers or obstacles because there aren't any."

KL: So, how can large organizations be looking at these hacks? This feels like a very small team

environment we're talking about. How could an organization that's very big, has multiple layers of executives that have different interests in what's happening with the project or its outcomes, be able to be informed and also pass down strategic information that's needed for the predictability and execution of projects?

JW: I think that's one of the hybrids of adding in more agile into the larger organizations. So some larger organizations have actually started building kind of mini-organizations within an organization in order to help the processes occur with increased flow and productivity. So they are taking the inflexibility out of the organization by creating smaller organizations in an organization. And that's one of the ways that I think Agile has also impacted some of the waterfall or traditional components. Because you're now taking full teams and putting them in, creating their own sub-organization in order to make some of these larger organizations become more flexible, adaptable...you're looking at VUCA: Volatility, Complexity, Ambiguity and Uncertainty.

JR (23:02): I want to introduce the topic of time pressure, because time pressure is the very thing that defines a project, right? Deliver a product or service by X date, right? If we didn't have the time constraint in project management, we wouldn't have project management, we would have operations, right?

So, the thing with time pressure, though, it is one of the central causes of cognitive biases. Time pressure introduces automatic thinking. And automatic thinking introduces more cognitive bias...

KL: So it changes how we think more than, for example, resource pressure. Time is a resource.

JW: It increases your likelihood that you're going to use a short cut. So, biases are part of a heuristic system that increase the speed at which you think, and the speed at which you respond. So when you're in automatic thinking, you're on your essentially galactic light speed. You're trying to go as fast as you can with your thinking. And so when you're using the biases and you're bringing in more and more of them, you're really just trying to get from here to the next universe as quickly as possible and then back again.

KL: So recognizing that people's demand to show that they're competent and they're under time pressure – two different things that they're faced with – that's really just putting pressure on these biases. Or are you seeing some specific ways to handle time pressure?

JR: In many cases, it is what's causing many of the biases or is acting as a moderator to increase the significance of the bias itself.

JW: Well, specifically any time you have a manager who says, what we've heard multiple times, "We don't have time for that." Instantly, if somebody tells you we don't have time for that, you're like, you hone in, and you try to zero in on the quickest answer or quickest decision you possibly can make in that moment. All of a sudden, anything that in your own mind may be superfluous or may be extra, you instantly start taking away, and start calibrating to the time pressure that that manager just placed on this...

KL: Are you suggesting that we should never have that time pressure affect our thinking in a project?

JW: So when we're looking at time pressure and we're looking at it from a motivation perspective, if we could ladder it and say, okay, here's, like, no time pressure typically means that I'm basically just going to go at it, and if I get it done, I get it done. It's not a big deal. But if you're up on the other end of the ladder, at say a 10, then at a 10, you're going to be under so much time pressure, that you're likely to freeze, and not be able to take on all of the information that you need or that you're going to make an increase in errors is what the research indicates. However, if we can keep that time pressure in the middle zone, between that four to six range, then we have enough to pressure to motivate us, but not so much pressure of that it essentially paralyzes us.

KL: So from a project management perspective, what is the hack? What should we do about this?

JR: So, we know time pressure changes the way the brain operates, okay? I think the key is knowing where time pressure is the most impactful. That's the hack, right? So anything to do with prediction is a bad area to have time pressure.

KL: Okay, so don't compress our planning time...

JR: Right. So here's another thing: we need to start focusing away from saying the word planning and forecasting, because those generally involves processes. We need to think in terms of the word prediction – anything that has to do with looking ahead.

So anything to do with prediction is a bad place for time pressure. Because you're thinking about risk, you're thinking about obstacles, you're thinking about all the different scenarios of things that could go wrong. You're breaking down tasks into smaller pieces, right? Like by the WBS and activities. And so the brain doesn't process very well when you're trying to rush through that and your blowing past all the, essentially, the phase gates that would cause you to stop and think and expand and mold and break down, right?

KL: So that's the time to allow thinking to flourish more or... Oh, and then there could be that exception! And well, this really could fork here on this decision. And what are some more obstacles to that?

JR (27:31): So here's the other hack. When you think about, in a major proposal where you spend three months preparing for a multi-million dollar project, there are many, many steps between... "Hey, we're going to do this," and, "We're going to package it." The one piece, that one sliver of time, which is probably .0001% of that entire three-month period, is actually the part where you will be doing the predicting. The other parts of that are, "Hey let's figure out what the scope is. Did we get all the paperwork together? Are all the computers installed?" There's all these other pieces that everyone's stressing about to package it, make the project right, make it pretty. But the actual part of prediction may only be an hour or two in the war room, talking about the durations or the resources associated with that scope.

So why would you take that .0001% of the entire package proposal over a three-month period, and say "Let's rush it?" When that prediction, in that one or two hours, is going to mean the difference between whether that milestone is 25% off or 5% off. So that's where you focus on where do I reduce the time pressure and where to put the time pressure back up?

KL: So let's talk a little bit about the dual system theory, the Kahneman System 1, System 2 – slow

and fast thinking. How is that playing out for you? And do you see that as an area to continue to work in, or is that an underlying framework for you as you're looking at how project managers need to interact with predictability, and execution?

JR: It is a very integral underlying foundation to all of this. So System 2 is essentially thinking slower, more deliberately. It's thinking through a process, or a thought that you're going through, right? System 1 is fast, automatic, and because in a project we're under time pressure, we tend to default to automatic thinking or System 1 more often than in an operations environment.

KL: So, that was underlying everything we've been talking about here.

JR: Yeah, system one is underlying everything that we're talking about...

KL: So when we're talking about predicability and using system 1, your point is we're going to have bad predictability.

JR: Our predictability will go down. I have a hypothesis that by default of the time constraint, projects are making worse decisions than operations. If you look at heuristic thinking, automatic thinking, thinking using cognitive biases, even if it's 10% more, because of the time pressure, we're making 10% less quality decisions than under a less time pressured environment.

KL: Well, that's problematic because the definition of project management is that it's a temporary endeavor. Progressively elaborated, under time constraint.

JR: Yes.

KL: So given that we have to be under a time constraint, it sounds like what you're pushing for is more a study in awareness. And personal awareness that that's what's going on.

JR: I think the awareness is the skill part. But we also have the process, right? Sometimes if we're following processes and we have redesign processes to account for time pressure, now we can start to mitigate it through that as well. And then recognizing the hack of where the time pressure should be lower, and where the time pressure can be higher.

JW (31:03): There's also the aspect of, with the System 1 and System 2 thinking, you need both.

JR: Yes.

JW: You wouldn't survive without System 1 thinking; and you also wouldn't survive at different times without System 2 thinking. So you need to be able to balance between the two and recognize when you're derailing into too much System 1, or when you've got analysis paralysis, going on with System 2.

KL: So that's going to be the project manager's skill, right there, is the one that balances that for the different experts on the team, the different performers on the team, and the different expectations of the executives that are asking for this investment to be brought home. So, that's a real shift in the project manager's role. It's no longer as just communicator, it's the thinking a project manager has to have to balance System 1 and System 2, and perhaps to understand the nature of people. The biases

people have, and how they interpret key elements of things that are used in project management.

JR: I think where it's going to go, eventually, with project management practitioners, is we're going to go from just simple certifications or, "Here's your sequence of things you need to do," to a very kind of skilled approach, to where project management practitioners are a bit more advanced than, perhaps, the box of processes that we have right now. So we kind of got it going to this new dimension of focused project management.

KL (32:33): What is behavioral metric design? Because it's going to be about a change in metrics.

JR: So one example, and you can see this on the institute website, NBPMI.com, but Behavioral Earned Value is one area that's an example of this. So, for example, earned value measures project performance against a baseline. In forecasting, we can actually modify earned current metrics that are already in the system, and treat the monthly forecast or the weekly forecast as a baseline and then measure against that and say, "What is our forecast accuracy?" Right?

So we ran a couple of experiments where we started trending what the forecast accuracy was. We weren't measuring against the baseline, right, because the baseline, that doesn't help us improve month to month, week to week, right? And so what we started to do, is using Earned Value to measure the forecast accuracy. Then you can start to see trends by project manager, control account manager, forecaster, whoever it may be, and you can start to see that, Okay, well, they tend to be 30% optimistic weekly, or 50% optimistic monthly, right? Then you can see how well do they predict a month out, versus how well do they predict three months out or predict six months out, right?

So you've got all these different variances and ranges of what you can do and then start to go back and do focus training, or focus process improvement, specific to the individual that's on, that's making the predictions right?

We haven't even talked about bringing in psychometrics into project management. When we start talking about psychometrics and measuring loss aversion and risk aversion and optimism bias and confirmation bias. And plugging that in three dimensionally with project management metrics, we can now triangulate and start to point to performance issues or prediction issues, all across the project.

The other thing too is if we're measuring things like risk aversion, for example, or risk identification aversion, then now we can start to see that those areas also translate into things like safety, because if we tend to be avoiding information we could also be avoiding information that could cause safety risk. So the whole gamut of Psychometrics and Earned Value Metrics, and redesigning metrics to get the data that we need all across projects or common areas in projects, we can start to go not only just in project management schedule performance, but also risk performance, cost performance, safety performance. Quality. The list goes on and on.

JW: You also have...in Psychometrics you have developmental perspectives versus static perspectives. And so when you're using Psychometrics that are developmentally focused, then say, you do have a leader with a high optimism bias, they can still be trained and they can learn how to, when to switch it on and when to turn the volume down on it. So, when to use it less versus when to use it more, it's all a part of that developmental training aspect versus a, you know, "You have now

completed this square and you are in this category.” It's the idea of your ability to grow throughout your career and your different phases of a project, in your career.

KL (36:00): We should be applying many things we've been learning in behavioral sciences and neuroscience underlying that, to how we engage in projects. So where are the hot areas to start?

JR: So, the institute NBPMI.com where, essentially, we're trying to create one central location or repository where all things scientific project management can be in one place. So, not only writing and developing what behavioral project management is, but also future certifications, redesigning of processes, maybe, initially having a supplement book to Prince2, to PMBOK®, to Agile, but eventually having kind of the Book of Project Science.

KL: What areas would you see them investigating first, second and third?

JW: I would like to see additional overlay between actual how cognitive brain processes work and the PM processes work. Because sometimes we're doing things that are actually counter-intuitive or counter the functioning of the brain. So when we are getting far too linear in a situation, we need to take a step back and be like, "Okay is this really what the brain is doing? Is this actually brain friendly?" So I would like to see research where we're actually logging through processes to determine whether they are effective brainwise, or ineffective, and how those processes could be changed.

KL: What would you posit took us to design processes that lean against how our brains naturally work?

JW: I think computing. It's totally hypothesis on my part. Right now, because we're moving from binary computing to quantum computing and where that change is also going to create significant changes in all areas of our lives. When we were creating processes, a lot of the processes that we were creating were that binary code.

KL: So the tools of thinking began to constrain how we approach doing work through the 20th century. Basically.

JR: Right now, there's a lot of focus on AI, which is good, but I think that we have to realize that AI is not going to replace essentially a project management that's re-designed under human factors. Because AI is good at calculations, but bad at abstract, and we are good abstract, but bad calculations. But the main thing is that, in the end, the human will hopefully always be the final decision maker. And if we are erred in our thinking, that decision could be bad, right? The other thing, too, is that the human is also feeding AI in order to give us decisions, and I think eventually everything will be redesigned around humans, because we are the ones that are using, we're the beings that are using everything that we create. So I think that's what gives significance to behavioral project management is the fact that we are the beings that are using projects, right? Projects are human endeavors. They're being created for us, and we are applying human factors to create those human endeavors. So essentially, that culmination of that human endeavor, plus the human factor, is what behavioral project management is. It's recognizing that we are creating these endeavors for these beings that are using them.

KL: Biases influence our outlook on the world and our projects. For example, we've learned that

humans tend to underestimate durations, or overestimate their ability to get things done. And unrealistic predictions can have a profound impact on a project's bottom line. By identifying potential obstacles in the early planning phases and as you move along the timeline, you can hone more closely to reality. As for time pressure, which can trigger cognitive biases, how we perceive and analyze information due to the stress it creates for us, more on that later, PMs who can allocate time more effectively, have a better chance of successful project delivery. Basically the clearer and less distorted our project view, the more accurate our planning, and more effective its execution.

KL (40:32): Carol, Osterweil works as a coach and troubleshooter. She's a consultant to project directors, project leaders, and project teams. Her work focuses on helping people identify the invisible dynamics which can undermine project delivery and take projects off track. She's the author of a fascinating book, Project Delivery, Uncertainty and Neuroscience: A Leader's Guide to Walking in the Fog, which I highly recommend.

KL: In the book, you talk about Project 2020 as an example of the type of engagement you had where you were thinking, "I wonder if other people are like this." If you find yourself in this similar situation, this book is for you. Can you tell me a little bit about your work with Project 2020 team with the UK?

Carole Osterweil: Yeah, yeah, so Project 2020 was a project that I went into, actually, as the transformation director on, and my role was about integrating two big healthcare organizations. So it was on the margins of a big government department, the Department of Health and Social Care, and the whole of the National Health Service, and I totted them up a few weeks ago, I think I had about 64 major players in terms of stakeholder bodies that I was trying to pacify and work with. And the challenge of the project was we had some very, very tight delivery time scales, and at the same time, government policy was evolving on the hoof. And the big challenge was, "How on earth do we go about delivering this thing that when every single time we think we've just about got clarity about what it is we're trying to do, the goalposts would shift again."

And what I learned through that was actually, there are moments and types of projects, I think, when this kind of constant uncertainty and movement has absolutely nothing to do with how well you're leading. It's all a reflection of the environment that you're in. And yet as project leaders, as we so often start to work harder and harder to try to stop this thing happening, and we get under more and more pressure from external people to get this whole thing under control. And the more we try to control it, of course, the less controllable it becomes.

KL: So PMs, listen up on that. It's not just that, Okay, there's big projects, government healthcare, being a PM...that does sound familiar, even on this side of the Atlantic, of course. But when you are faced with this kind of shifting policy environment or external environment, we respond with our training, which is to double down on all of the ways that we want to make things more clear and more certain. So we actually kind of spin up our stress I guess. And then that's a focus in your book, is the stress cycle, I think.

CO: Yeah, that's a key part of it, and this notion of actually what's going on, what's actually going on for us, I would say mentally, emotionally, physiologically. And how does that manifest itself in behaviors?

KL: So let's talk a little bit about that from a stress perspective. Why is that important in terms of

the manifestation and behaviors? And then let's talk about some of those behaviors.

CO: When we talk about people being under stress, in projects or outside of projects, I don't think we often think about actually what's going on for the human brain, and in the book, one of the things I try to do is explain what happens when the fight and flight reflex, which we are very used to thinking about. But what we don't, I think most of us don't realize, is that the brain doesn't distinguish between physical threats like this, and social threat. And all the time in the world of organizations and projects there are all kinds of social threats going on, which actually activate our fight-and-flight responses.

And what this does is, it stops us behaving as rationally as we would like to believe we behave. And so, what we start seeing happening, and you all know this from projects, people start getting a bit defensive, or otherwise they start attacking you, or just feeling, "I don't actually say what's going on, really, because if I do, they will ball me out at a review meeting." And these are all stress responses, which are related to how the human brain works.

KL: Well we're connecting the world of uncertainty that's happening outside of us, particularly among stakeholders, to creating a scenario or a situation of social threat. And then that's the logic, we're walking here, and then that's what triggers us to observe or be part of these weird behaviors.

CO: Yeah, absolutely.

CO (44.51): Modern projects are incredibly complex to deliver, and what do they depend on? More and more they depend on us having really good relationships with people, and collaborating well. And if you have someone on your team, or a stakeholder, who is really behaving a bit irrationally, generally you give them a wide berth, don't you?

KL: Yeah.

CO: And so trust levels go down, communications aren't so effective. And this takes us into what I describe as the stress cycle. So we're now collaborating less, it's harder to be really creative. So and the chances of projects succeeding also recede because of that.

And then of course, there's the wider environment. The word gets out on the street. And when other stakeholders get wind of this, they start getting anxious. And when they get anxious, they want to exert more control, and typically they start asking for more and more data.

KL: Yeah.

CO: Or asking more and more difficult questions you now have to field. And all of a sudden, as a project leader, your job's got bigger, more complex, and you're kind of feeding a machine, which is about anxiety being generated, and you're trying to pacify people. And that is a distraction from what you actually need to be doing to deliver the blasted thing.

KL: We respond with the tools that we know but I'm also hearing in that, that that's just increasing the threat system right? That feels very threatening to have someone say, "Okay, now I want a weekly report. Now, we need a dashboard around this." And your point is that it's triggered often then by this walking in the fog. You don't see it coming. It's not overt; it's not usually flagged on the

risk matrix.

CO: I think you're right. I think that is because, typically, a very traditional approach to projects is to make an assumption that we can create certainty by risk management. But there are some things where things are uncertain, and pretending that we're living in a more certain world or putting people under pressure to force things to conform to what their stakeholders want to see, does not serve anyone very well.

CO: The traditional work of project management is a bit like painting by numbers. The assumption is, we can be certain if we get a good enough outline, we can now say, let's fill in the gaps. Yeah, paint it green, paint it red, and a lovely picture will emerge. There are other projects where things are inherently uncertain. And if we can actually recognize that rather than painting by numbers, what we're trying to do is walk in fog, then you take a very different approach. When you're walking in fog, you know you can't see that far ahead. And so what do you do? You put in a stake in the ground, what we think is the appropriate thing, and we check it out in great detail. And then we go, "Were we right in our assumption? What are we learning here? What are we becoming more certain of, and what is still unclear?"

KL: It sounds like what we're suggesting there is it requires probing rather than declaring. Putting your foot just over the curb, and wondering if there's a puddle there or not, because in the fog. You can't tell.

CO: Yeah, that's right, but what you can then do is get very specific about what you're not certain of, and quite clear about what you are certain of, and all those things you are certain of, the very traditional techniques apply.

KL: So how do we handle the parts that are uncertain? Because you may be in projects that are complex enough that you are in the fog, and that's going to happen. And we've talked on other episodes around people in engineering, for example, and research and development, some things are simply not known. That's the whole point. You build things to test them, to find out. You don't even know the parameters of your project, and that level of uncertainty makes it, obviously, hard to plan for in some ways.

KL (48:27): So from the neuroscience and the stress side of this, how do we tackle the fact that it is going to be fog and there's only so much we can do about it? How do we operate in the fog?

CO: The very first thing is to recognize what you're dealing with. When you feel safe enough to say, "Actually what we're about to embark on, to me, looks foggy. What does it look like to you, Kendall?" And each one of us is likely to have a different view on different things. But what you can then do is explore, "So which bits do we all agree are foggy, and what do we need to do about them?" As humans when we are under pressure or we're feeling anxious, if I'm forced to pretend I'm certain about something, because I don't feel it's okay in this particular group to say, "Oooh this is feeling really ropy or really dicey." That's where that kind of group-think prevails.

If we're feeling really anxious, then we tend to generalize. And when as people generalize, don't they catastrophize? And everything is just really uncertain. And so the key is to kind of go, "Okay, let's be really specific. What are we really not clear on that we're all agreed?" And by doing that, you can reduce the complexity and the uncertainty.

KL: How do we handle living in the uncertainty spot?

CO: Different people are happy or unhappy with uncertainty. I've worked with some project leaders who love walking in fog, and if you try putting them on a project when they have to paint by numbers, they'll do everything they can to make it look more uncertain. There'll be others whose preference is painting by numbers, and if they find themselves walking in fog, if they don't have the language and the possibility of seeing they're in a different kind of environment, they will graph the first thing to create some degree of certainty, goals or objectives, even if they're not appropriate and they'll go helter letter to deliver it, because they'll feel they're doing something.

KL: I almost feel like if we recognize some areas we're uncertain, the meeting at the end of each week would be more about, "So what else do we know that we don't know this week? What other cool things we are we confused about?" It's almost like recognizing them and saying, "Yeah, yeah we get it. We understand this is still unclear," and actually making that a discussion and not a hidden worry.

KL: Recognizing that some of us get more stressed in uncertainty is important, and somehow I want to tackle that head on.

CO: Yeah, and what I believe is the role of the project leader is about, "How do I contain that kind of emotional stuff?" People's uncertainty, their worries about what's going on, and how do we keep people thinking clearly, and how do I keep myself thinking clearly?

KL: How do you face this when the project team has agendas? And I don't mean in an evil or nasty way, but that people have different needs in the face of that uncertainty. So I try and drive for clarity or an acceptance that, "We don't know certain things," but everyone kind of has their hidden parts they're moving.

CO: We need to put that on the table. So, a key part of this conversation, with this team, is understanding, "How do you feel about being uncertain?" And there's a little tool which essentially sets out the differences between painting by numbers and walking in the fog. And it's not that one is right or one is wrong, but it's about us knowing ourselves and knowing each other and most important of all, it's about giving permission to not know.

KL: What was the tool?

CO: Let me think it. There's two axes on a graph. The first one is the vertical one, which talks about diversity of view, "How do we do this?" And the other one talks about, "How uncertain are we?"

KL: Oh, I got it, yeah. Exploring the project; it's an exploration tool. It's a way of talking about how much are we feeling that we're having a common view, versus the increasing diversity of our view?

CO: Yeah, and it doesn't matter if we don't all agree on everything. But what's important is that we can talk about the disagreement. So often there is an undercurrent on projects, and in organizations at large, that it's not okay to talk about some things.

KL (52:58): So let's talk about the sponsor side of this a little bit. What is the best way for us to set and manage expectations with our sponsors to be able to keep them out of our stress cycle and keep the stress cycle from happening with them?

CO: Yeah, I think one of the key things is when you're first working with a sponsor, there is something about actually talking about how you're going to be working together. I found again, coming back to that little tool I spoke about, which has got the kind of painting by numbers and the walking in fog piece, and actually asking your sponsors, "How do you see this project? What do you think is going on here? Where are you with it?" So, a sponsor, coming back to my Project 2020 that we started with, my sponsors thought we were painting by numbers, but because the goal posts were moving, we were in the fog.

KL: What tip would you offer that we should stop doing? Something that's like written as an example, of, you know, Do this, and realizing what you've realized, that the environment can be foggy.

CO: I would say stop thinking that making it appear straightforward will make it straightforward.

KL: [Laughter] Here's how I heard that: I was able to write some words on a Gantt chart, so that must make it clear now, right? That somehow solved the problem.

CO: It's that illusion of control.

KL: And you know you're going to be wrong immediately. It's like, Well why did you even bother writing it down? Because we had to be comprehensive and put everything in the project plan.

CO: Because that's what they're asking me to do.

KL: Well, someone's going to read it, right?

CO: And then all of a sudden, you see, you get held to this truth, which wasn't truthful.

KL: So that's really interesting. Perhaps we need to find ways to be able to talk about scope, schedule, and integration, I would say, in a space that has the uncertain spaces. How do we plan around this? How do we represent those inside the tool systems we typically use?

CO: Yeah, well, I suppose the approach that I like using is one which comes from Eli Goldratt, who is the chap behind critical chain. Now, I don't go all the way into critical chain, because I'm focused on using visible dynamics. But the highest end he starts with is that we agree with the project team, or whomever, on an ambitious objective. The next thing we do is we start to identify the show-stoppers. So you don't break it down like building an Ikea kitchen cabinet. But the question is, "What are the show-stoppers going to be?"

And immediately, as we start talking about show-stoppers, we then have to start thinking about, "What do we have to have in place in order to overcome them?" And a skilled person in describing their show-stoppers will be describing uncertainty.

KL: That's a really interesting way to start a kick-off meeting. Instead of, "Tell us how we can plan

to do all these pieces,” and do the work breakdown structure and building it out, is at some point, with just enough clarity, going to talk about showstoppers. That's Theory of Constraints out of Goldratt, I guess.

CO: Yeah, that's right, so that's what he calls his pre-requisite tree.

KL: Yeah.

CO: And it generates a completely different kind of conversation. And you can have obstacles like “We don't know,” or “Half the management team is not on board with this.” It's a truth we know.

KL: It's risk planning but not the full management cycle of it. It's acceptance, it sounds like.

CO: But it's, so part of it is about it encourages the language of not knowing.

KL: Yeah, normalize it a bit.

CO: And with that there is, you, inherently, in the book I talk about, “Do we have an orientation to certainty, or an orientation to uncertainty?” If we start from one of certainty and we're in a very foggy world, we're never going to be able to cope with the uncertainties. If we start with uncertainty and the world is not uncertain, we can always create certainty.

KL (56:50): So once again, the candid and transparent approach is best, not only for relieving tension and stress within a team or among stakeholders, but also for an honest assessment of the issues at hand. And it's the project manager who needs to set that tone. And we all need to be aware of the impact stress has on our tone and on our ability to make decisions the way we want to make them. The PM of the future must be more than a master of the processes. They have to be able to lead their teams through the fog. The fog of ambiguity and of clouded thinking. By facing the fog together and identifying all the specific unknowns, you not only relieve stress, you allow opportunities to actually address and deal with some of those variables.

Special thanks to my guests, Josh Ramirez, Jodi Wilson and Carole Osterweil. If you go to NBPMI.com, you can learn more about the Institute for Neuro and Behavioral Project Management. Follow Josh on Twitter @behavioralpm, or contact him at LinkedIn, Josh Ramirez PMP. Jodi can be found on her website leadingprojects.org, or through LinkedIn: Jodi B Wilson. That's Jodi with an I. You can find Carole on LinkedIn, that's Carole with an E at the end, Osterweil – O-S-T-E-R-W-E-I-L. Or at www.visibledynamics.co.UK.

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