

## Mistaken Adventures Around the Globe

BRYAN VILA: Well, thank you, Karen. Thanks, everybody. So because I'm a fatigue researcher on top of my criminal justice hats, I know this is evening hours. You've been starting school, everything's been busy, so we'll try and make this move. Before we get moving though, I guess the first thing is-- I'm Brian Vila. If you have questions, don't hesitate to ask me. Despite all this background, the one thing I've learned is that I've been wrong I've been wrong a lot. I bet I screw something up tonight. In fact, we're probably get three or four. So this ought to be an interactive bit between us, and I'll try and give us plenty of time at the end to make that happen.

I've just got a few-- not rules, but things I'd like us to do. First off, I want you to get to ask questions about each of the stories I'm going to tell you. And there the stories-- at least, the stories that I thought about over the last weeks as this talk came up that I could tell my mother anyway. Secondly, like I said, no dumb questions. And third, I'll answer any question you have, however embarrassing, wherever it lands on the topic, because one of the nice things about this book is it's so bloody broad.

Being wrong is a major part of life. And the only thing I'd say that really jumped out at me as I was reading this-- and I'll get on my topics-- it just hit me, how powerful it was to stop for a minute. We think about right and wrong, especially in the justice system for God's sake. This is right, that's wrong, very clear, go to jail, don't go to jail, get a ticket, don't get a ticket, very clear cut. But as a scientist, I know that mostly in life that's rubbish-- mostly whether something's wrong, whether it's wrong policy, whether this is the right deodorant to wear tonight or not. All of those things tend to be probabilistic.

And so what that leaves me is it leaves me to live in this space that isn't so damn comfortable-- it's right, it's wrong. That's it. Bullshit, I live in the middle of it, somewhere, where I'm skeptical. I think probabilistic about things-- what are the odds that-- and sometimes, the odds are really long on one side or another. But that skepticism is actually the same root word as academic. And we are academics here. You all are in the Academy. It's the old way of saying going to school at a university. So that's one of the fun things with this, aside from making me rehash at least 10% of the errors I've made over a fairly long life-- so off we go. Any questions before we get moving?

So first off, let's just start-- one of the more entertaining places I worked was in Micronesia. So if on this map of the Pacific, here's us, there's Hawaii, and here's where I worked over an area about the same size as the continental US. That's why outlines fit in there.

So here was an area as wide from side to side as from California to New York and about 1,000 miles high, with 2000, give or take, depending on the tide, little tiny islands-- about 100,000 people scattered over these islands, mostly in concentrations. And the people had nine

different languages, 12 quite different and distinct cultures, and I went out there to work. It was a cool place to work, but it wasn't all fun.

Some of the police officers on the island of Moen in Chuuk, used to be called Truck-- this is me teaching a long time ago in what passed for a police station and a classroom during the day. Folks are graduating-- first time they'd had any real training up at the top there. Can you see these well enough, or should we dim the lights down and risk somebody falling asleep?

Yeah, can somebody down the back fiddle with the lights, or maybe I can do it. Can you? Thanks, Karen. So anyways, so these are some of my guys. Jo Ken Alter over here was a police officer during the Japanese times, because the Japanese held those islands prior to World War II. And we fought very, very hard to take them back. [? Meoshe Teleno ?] in the middle was the wise guy on my department that I was chief of. And I can't remember this guy's name, it's been almost 30 years now. And that was me. I got the best jeep, because I was the chief.

So this is a strange place to work. But it was also a place where I learned that if I was going to figure out how to work in this many different cultures, with this many different people-- when I was on Yap or Palau, they had these lovely palm trees that are beetle trees, so you had beetle nuts. Do you know about beetle nut, anybody? Karen does. We'll have to talk about that some day.

And that meant, in those cultures, if I wanted to sit and talk with somebody, I'd squat down beside the road with them, and usually I'd borrow some of their beetle nut. And we'd chew beetle nut, and we'd spit in the dirt. And your teeth get all red, and you get a little buzz off of it. It also was a real good warming agent, which is a big deal when you live in less developed countries.

When I'm on Pohnpei in the Central Carolines, in the middle of the map I showed you, one of their major cultural pieces is drinking Sakau which is a mild-- it's not a narcotic, but it's sort of a hallucinogen if you drink a lot of it. But you have to really work to drink a lot of it, because it's got the consistency of elephants or snails in a blender kind of thing. But it was an important thing for them. And so if you're going to work there, you do things their way.

And despite all the island paradise side of this place, things did go wrong fairly often. The murder rate in the Republic of Palau at that time, although it's not statistically proper-- as a few of my grad students over there know to be talking about rates comparing Detroit with, say, Palau, which had 11,000 people at that time. But 12 murders-- 11,000 people one year. Pretty tough place part of the time.

So let me tell you the story about my first introduction. So it's a day and a half of constant travel to get out to where I was going to live on the Western side of Micronesia-- day and a half of airplanes jumping from island to island, to island, to island, to island. I get off the plane, meet my new boss, who is a story all into himself.

And the first thing he says is well, I'll give you a chance to rest up tonight. Go ahead and take a shower if the water is still on. And then tomorrow, I want you to get back in a plane and fly halfway across Micronesia again and look at a training situation we've got going on. I had been a cop in LA for nine years at that time before I took this job way out there.

And so OK, I take the plane back. How hard could it be? The first time the plane stopped, they said get off the airplane. You've got 30 minutes or 45 minutes to get a drink or something if you want. I go in search of ice tea. The plane leaves without me. So what the hell do I do? There's my first major screw up. I'm stranded. When is the next plane? Oh, four or five days, but the manifest is all full, so you probably can't get out for another week. Well, everything that I was supposed to do 400 miles farther east was going on that day and the next day and the day after, so I'd missed it all.

So I find another airplane. I take half a month's salary out of pocket to pay for that guy to fly me over to Pohnpei, the island I was going to. We get there, he gets distracted on landing, we almost crash. I rent a car. We won't talk about the car. I head out, I get lost in the jungle three times, before I finally find the place that the training is going on. It's a good day so far, right?

I find the place that they're teaching this class. It's a concrete block-walled room, quite small-- about 40 cops sitting inside taking the class. They don't have gun belts on, but they're pretty short, pretty stocky, barrel-chested. They're pretty hard looking men-- most of them in their late 20s to mid 40s.

The classroom really sucks. It's got a tin roof. It's pouring down rain, because we're right on the equator, and it always rains in Pohnpei. They get rain like some places in Hawaii. There's an air conditioner, because we're on the equator. It's hot and humid. And the air conditioner is roaring. And this guy up front, an FBI agent who'd flown out to give the class on search and seizure law, is talking about curtilage, some arcane legal term that has absolutely nothing to do with where these people work or where they live. But so this is going on.

I stand in the back of the class. I watch, and my role is to keep my mouth shut and learn, because I'm a new guy here. A couple hours later, after lunch, things are really starting to get sleepy in the classroom. Well, nobody's nodding off yet. I'll try and keep it alive. The police chief who is teaching this next lecture comes back to me in a break and says hey, you're the new guy. And I said yeah, Bryan Vila.

And he says, I'm Kemo. And this guy is this big. When he worked out, he works out. I got to know him well over the years. He works out with 60 pound dumbbells in each hand. He's just a monster, big guy. And he says hey, you want to do this training thing for me, so you can be in on the training. And I said sure. And he tells me what the deal is. And it's a standard training thing you use in police academies everywhere-- everywhere I've ever been.

So when the students are back and they are sitting down-- and Boisey, the guy's name-- I called him Kemo, because we changed the names in the book, and I keep slipping and calling him his

real name. Everything is starting to quiet down. And I come in the door, in the back of the room. I'm wearing an aloha shirt. I walk up toward the front of the class, and I say Boisey, you son of a bitch. And I pull out a gun and boom, boom, boom, boom!

And I turn around, and I walk out of the classroom. And I shut the door behind me. Well, because I know, boys Boisey has fallen hard after I shot him. And I know what he's going to do. He's going to get up, and he's going to stand up at the podium again, and he's going to say all right, write down everything you saw. I want a full description of the shooter. I want to know what you saw. And so it's one of these basic things you teach police recruits.

Well, I'm standing there, but I forgot this little thing. It's that training something we always use with recruits in a recruit Academy setting. Well, these guys may not have been trained very well, but they've been policemen for a long time in their own villages, in their own islands, in their own places.

And they were pretty scruffy looking. They didn't have polished badges. They had green corrosion on them. Their uniforms were raggedy. A lot of them were barefoot or just wearing shower shoes. So they didn't look very professional. But the thing I forgot was they were still cops. These guys were real cops, and I just gone in there. And for all they know, I'd killed the chief of police from one of these islands. And they come charging for the door-- there's my first one. So we've established that I can screw things up.

They come charging for the door. These are big guys. They are not big this way like Polynesians. These are Micronesians, so shorter-- but they really are mostly. But they're charging for the door. They're going to go catch that son of a bitch that shot the chief, and they don't have their weapons. Thank you.

So they all hit the door at once, and they get tangled up, like you do when everybody's big, and everybody's trying to get to the door. I haul ass. I'm running. It's pouring down rain. I'm skidding around, because I still don't have decent shoes for that part of the world. Through the mud, they're thundering behind me. I go this way. I go that-- even the fat guys are keeping up with me. I'm not doing well. I finally think this isn't working. We're way down and away from where the training was taking place. So I doubled back. I lose more ground. I'm thinking maybe I can get back to where the instructors are, and they can calm these guys down. Not looking back at all, I am just hot-footing it.

Finally, I hear behind me-- Hey! Stop! And it's Boisey, and he was an obnoxious guy, really, but nice to see him. And he stops them, and they are steaming. He gets things calmed down, takes them back to the classroom, gives him the spiel then. And I'm sitting there, and I'm covered in mud from slipping and sliding. I'm sweating like a dog, because it's really hot, and it's really tropical.

My heart's pounding 185, pushing 200. And I'm thinking well, what did I do wrong here? Well, what did I do wrong? I forgot these were real cops. I let my perceptions of I came out of the

Marine Corps and a big city police department, and even the Boy Scouts taught us to shine things and polish them and get them lined up just right. So I let that cloud my perception to who these people were and what they were likely to do. I didn't think about that little tiny detail that-- it's funny as hell now after we had a good laugh over some cups of my first Secow.

But I was wrong, so what do I do with that? I learned something. It was a good first lesson. It seemed like a really lousy day-- missed a plane, spent half a month's salary that I haven't even earned yet, on and on and on. But it paid off. The good news was I'd already got a lot of experience screwing up as a cop and as a marine. And so I want to transition then into this Marine Corps thing for a minute.

You might look at this picture over a little bit. Anybody see anything unusual? What's the guy using for a support for the rifle? Can you see that with the light the way it is? So this guy's lost a leg in Afghanistan or Iraq. But at the rifle range, he's still putting it to good use. He's using it for a monopod for his rifle.

I went in the Marine Corps at 17. The only reason I finished high school was because my parents wouldn't sign off on my enlistment papers until I did. I hated school, which is ironic. I was looking for some adventure. I wanted to prove myself. And at heart, the Marine Corps was very, very straight forward. And I learned a lot in the core. Give it everything you got, and then give it some more. Take care of your fellow Marines. Never quit.

They also had this very important piece, it fits in with this. Do whatever it takes to achieve the mission. How many of you are freshmen? All right, so you're all coerced into attending this, right?

[LAUGHTER]

I'll try and make it worth it. So the big take home, one of the most useful things ever out of all of this, was the whole idea. Here's your mission, go do it. Not, do it unless it hurts, or do it unless it's uncomfortable or until the next TV show comes on. Do it, totally commit to it-- a nice thing to think about when you're starting. If you hit a roadblock, adapt, improvise, overcome, find a way to get there and get it done. It's very straightforward.

That mantra-- adapt, improvise, overcome-- is being used by businesses all over the world, by police departments, by innovators of all sorts, by entrepreneurs, by the sorts of people who succeed well in a very quickly changing world, which is the world we live in right now. Humans have never experienced this level of change, ever, in our history.

But it's also got an element in this. If you think about improvise, what's bound to happen if you're making it up, if you're just trying alternatives? What's going to happen? I heard a small voice. You'll make mistakes. Absolutely, you've got to. I usually do this, and I can't figure out why the damn thing isn't working right. You can't improvise without making mistakes.

And if you don't have that willingness to make mistakes, you're stuck. You're stuck in the world that you live in right now, not the possibilities of the future. You're stuck. So what are you going to do? Are you going to hang your head in shame every time you screw something up? No, but the Marine Corps wasn't one of those places where they said well, that's all right-- not at all.

But the one thing you didn't have to do, the one thing you couldn't do, was apologize. You just said I did this. It caused this problem. All right, what did you learn from it? OK, and then here's the consequence. I don't know, sometimes, the consequences were a lot of push ups. Sometimes, the consequences were spending the time off you would have had doing something unpleasant like scrubbing trash cans or something, but that was it. Screw up, own up, pay the consequences, drive on.

I learned another thing there to, which you may have noticed a little bit already, which is that when you screw up, you might as well laugh at it. Other people are going to laugh at you, why not have a laugh with them? Don't take yourself so seriously. It won't get you anywhere.

So all this was brought home to me the first time I was on a combat operation, about 47 years ago this month. We got to this airstrip in Tanki, this little town in between Danang in Trillion, Vietnam. It's getting dark, so were digging holes in the ground to use for fighting holes. And were filling sandbags to build a barricade around each hole. And our Sergeant says OK, you two guys over there, go over there.

I look, and the ground looks nice and soft right there, which sounded like a good thing. But there's a little sign there. I shove that out of the way. And we start digging the ground soft, filling sandbags like a good thing. Finally it's dark. They put us on lines, that means that one guy stays awake for two hours. The next guy sleeps. I get the first round of sleeping.

It's been raining. The hole has already got that much water in the bottom. So I threw a pallet down there, a freight pallet like you see forklifts picking up to move stuff around. I go down and I sleep. My partner, a guy named Stan, takes the first watch. It's my turn. I'm sitting out there. It's a monsoon season. It's just pouring rain, just buckets and buckets of rain. It's pitch dark, because of the cloud cover. There are frogs in all these rice paddies around us, and they're croaking so loud you can't hear anything. So you can't see, you can't hear, you don't have too much trouble staying awake yet because of wondering what's out there.

And we're sitting and we're sitting. I'm sitting, he's sleeping. All of a sudden there's this womka! It's behind, in our area. Womka! Here comes another one. You see the blast, and they're moving in our direction. I holler at Stan. He comes bailing out. Oh, did I tell you, I'm sitting outside the hole we dug for protection, because we'd screwed up and dug it wrong, and we didn't have a good view of what was going on, even though we couldn't see.

But we had a machine gun we had to be able to employ if need be. So Stan comes out. The two of us get down, we think we're under attack, only the explosions are coming behind us. But the

area we're supposed to shoot at if we get attacked is in front of us. So we're figuring this out as newbies, or FNGs, as they're called more colloquially.

And then the next one comes-- womka! And it's right about there on a little bit raised bit of dirt. And it just knocks me ass and over tea kettle. And I'm getting up. And I get up. And Stan is all right. And I've got a little bit of shrapnel, but mostly my flak vest and helmet and things had caught it.

So we get back on it and deploy the gun. And hours later, finally everything's through. We deal with casualties and stuff. And finally, just before sunrise, the Sergeant says, catch some z's if you can. We've got other people on. So I get back down the bottom of this hole. It's now a lot more full of water, but I'm a lot more tired. That adrenaline is wearing off. I'm ready, so I z right out.

Next thing I realize, something's wrong. And there are flies, but not flies, or not a lot of flies-- flies! Just flies, everywhere there are flies. So I wake up and come stumbling out of the thing, and I'm swatting these flies away. Holy shit! What is this? And I look, and I'm soaked because water was too deep, and I've been sleeping in mud mostly in the water-filled hole. And I've got flies crawling all over me. My whole uniform-- everything is just covered with flies.

Guys are standing around laughing. Remember that thing, it was a faded old sign that I didn't bother to flip over. And it said latrine abandoned, and it was three or four months prior. So the reason it was so nice and easy to dig in this place was it was full of shit. True story.

So I learned three things in that-- read the signs, improvise, get through, figure it out, and also a nice little bit-- a few of you look like you might have been there somewhere-- which is oh, yeah-- oh, I can die too. A nice insight-- a hard one to get when I was 19, I guess, by then. So a very hard one to get.

What else? Oh, I knew I forgot one. If you're going to fight, fight from inside the fighting hole. Don't sit on the front porch like grandpa in a rocking chair. So in police work-- well, that was a different thing. I started college right after I got back from Vietnam, just before I turned 21. And I started as a police officer two years later. So for nine years before I went to Micronesia, I worked as a street cop in Los Angeles for the Sheriff's department. I worked mostly in South Central LA. And then after I made Sergeant, I was a gang Sergeant in East LA. So I worked patrol-- dangerous places, dangerous times in our history.

Policing was really fun, except when it was scary or boring or smelly or all the other things. But it was mostly about trying to figure out people, solve problems on the fly-- the same set of capabilities-- figure it out, improvise, adapt, overcome, make it happen. And that was all about being wrong, making mistakes, truly. Over and over again, every night, there were things that you'd do that were wrong. Somebody would look like they were dangerous, they weren't. Somebody wouldn't, and holy crap, there's a weapon, and you're dealing with things differently.

And it was hard because the people you're dealing with were in crisis, because they were drunk, because they've been injured, because they were scared, because they were high, because they were mean, because they were bad people, and because they were just having a bad day.

So you're constantly dealing with people in this sort of a world. And so what you learn to do-- are any of you psych majors? A few of you, yeah-- good. You're going to get into a thing, maybe, in your upper division work called naturalistic decision-making. It's a guy named Gary Klein who's a colleague that we work with all the time in my lab. And Gary's lovely insight was that people who do dangerous things that are very fast paced, where you don't have time-- let's see how do I wire this thing? And you get the manual out, and you call a helpline. Things that happen so fast, with too little information, where the stakes are high, and where the danger is high, and where the consequences of getting it wrong also are high.

Well, what you do, what you learn to do, is you take a first guess at what is going on. You get more expertise built up, which is what this is about, is over time. But you jump in, go this direction. If it's working, you stay with that direction. If it's not working, you back up, you turn this way, you say I'm sorry, or you re-explain yourself. You recover from it. In business, they call this a pivot. So you've got this momentum, but you turn this way. And so that's what you learn to do, day in and day out. That's the major approach you take to life. You end up apologizing a lot, just like I did in Micronesia, where I learned to apologize in nine different languages, truly.

So let me give you an example of this problem. My partner and I are working. It's 10 o'clock in the morning. We're in North Long Beach or East Compton or something in South Central LA-- kind of a normal time of the day, even in the slums. It's not a big deal time of day usually. A guy comes running up to the side of the car, and he said there's a crazy man right around the corner there, the second, third house. He's standing on the front porch in a bathrobe, and he's got a gun. He's got a big gun.

Thank you, and we're off. And we're calling in for backup, and we're unlocking the shotgun. And we're hauling ass around the corner, making the corner slide to a stop. There's a guy, hard to miss-- not as big as Boisey but big enough. And as we're bailing out, you can see he's got a 44 Magnum in his hand. It's a Ruger 44, because it's a single action pistol. You can see we are that close. And he's starting to turn.

We get behind the car. We drop down on the guy-- the only time I can ever remember actually getting a sight picture, because it was so clear cut. And I yell freeze! Drop the gun! I wasn't waving my hands like this. I was like this. The guy's not doing it, but he's acting strangely.

It's like he's perplexed about something. He's pretty calm, and he's not turning the damn gun aside and putting it down. He's turning toward us. Barrel is not up like this, but it's down like that. He's starting to turn toward us. I say it again. Put the gun down, or I'm going to kill you! And that pauses him a little bit. He's still turning. I should have shot him then. And so should my partner, but I had the best view. He was at the rear of the car more. I was ready to shoot him.

There was just something not quite right about the way he's acting. He wasn't angry. He wasn't scared. He wasn't shaking. Something was going on.

So I said it again. I'm going to kill you! And he sets it down reluctantly. And so we go, and we cuff him up. Move the gun away, and it turns out the reason this guy is so conflicted is because it's his house. Inside the front door where he's standing are two burglars that he caught.

He's a day sleeper. He is working night shifts. And he got up, and these two guys are breaking into his house. He's got them propped up against the wall at gunpoint. He's yelled at one of the neighbors to call for the police. In the background, while all this was going on, I'm focused on this guy with the big gun, right? In the background, somebody is talking, but people are always screaming and things like this. But what she's saying is it's his house! It's his house! It's his house! Only cognitively, I can't hear that yet, until this gets taken care of.

So no harm, no foul, right? Everything's good. But the problem is, from my standpoint as a cop in a place where we're getting one of our guys killed in my station every year-- because this is the early 70s, and there were other kinds of terrorists and folks on the prowl those years.

So my problem is I should have shot this guy by all the training, by all the physics of this situation. It takes about half a second from the time I actually decide to pull the trigger before I can pull the trigger, and then the bullet still has to get over there. It moves quickly, but it's still got to get over there. And it only takes about half that amount of time for a guy like this to do that. OK, so it was a dumb thing to do that way.

So I went through a lot of weeks, months wondering about was I losing my nerve? Was I getting stupid? What was going on, because I was very concerned that I had made a different kind of error from the ones we've been talking about. I was afraid I made the error of omission, of not doing something when I should have done something.

Now that I know the science behind all these fancy schmantzy, naturalistic decision-making and all of these things, no. I was doing the right thing. I was not listening to what the rule book said. But what my brain was saying, I just hadn't had time for it all to bubble up comfortably to the surface over a cup of coffee, because things were moving too fast.

So in my lab here-- lucky, at 40, I got to go back and do a doctorate at University of California Davis in how to study things interdisciplinarily. Got to do a restart on life, and the last eight years here at WSU, I've been taking the research I've done on police fatigue and health and safety for 20 years, and I've been able to take it into the laboratory and do some stuff nobody else in the world is doing, nobody else in the world can do, because it takes a special laboratory and a lot of other things.

But so as we're studying this problem, we're back again to this issue, because we're trying to understand what's the impact? What's possible? Yeah, that's the best way to think about it. What's possible in terms of human performance?

You write a law, if you're a legislator, and it says police officers can only shoot blah, blah, blah, blah, blah, these circumstances. And then there's a lot of case law behind it, and all these fancy things. But the one thing nobody asks, partly because so many people don't have enough damn biology in their background, is that possible?

Can a human being, in a fast-paced, low information, high risk, very dangerous setting do this thing that you demand of them? Kwame Anthony Appiah at Princeton is an ethicist, really good guy-- skinny book, smart guy. The way he puts it is it can't be just if what you demand of people isn't possible. If they can't do that which you demand of them, that's injustice. OK, so that's what we're trying to get at.

The theory that underlies all of this stuff is called Normal Accident Theory, which is another way of saying-- well, Jerry Garcia said it differently. He said it, and I'm dating myself. This is a Jerry Garcia tie, come to think of it-- how appropriate. He said shit happens. Basically, you're not safe. We're all going to die, and we do all the things to be safe. We build structures and systems and all these things.

But in Normal Accidents Theory, the point that is being made is that no matter how hard you try, things like the Exxon Valdez or the crash of the space shuttle Challenger or lots of police shootings are going to go wrong. What's going to happen is probabilistic. When you have more pieces-- and this is the only academic shit I'm going to get into tonight, so it's too late for a whole lot.

Let's do it this way. So imagine yourself in a big empty parking lot this size, walls 12 feet high. Nobody else is there. The lighting is good. There's one other person. You're the cop by the way. There's one other person. He's got a big knife, but he's as far as the opposite corner of this room from me, away from you.

So you have got to somehow calm this person down, get them to relax, put the gun down. You've got all the time in the world as long as the guy doesn't get closer and closer to you. OK, so that's the simple, easy situation. Imagine if the room is just as big as this-- to here, to here.

Now, we're in somebody's living room, and there are 12 people. Three of them are cops trying to figure out what to do. Two of the bad guys have weapons. Everybody's yelling. The stereo still blaring. It's party time, except it's not party time. And you've got to do something. How much time do you have as somebody brings that weapon to bear on you. None. If you go to shoot one of these people, what's the problem you're facing? Anybody have an idea?

[INTERPOSING VOICES]

BRYAN VILA: What's that?

AUDIENCE: If they're going to shoot you?

BRYAN VILA: Well, yeah. They're going to shoot you if you go for it. If they're hot, they'll go. What else? What's that?

AUDIENCE: Shooting a civilian--

BRYAN VILA: Yeah, there are other people in there. Only a few of them have got weapons. Your chances of missing-- it's not like in the movies where you-- ping! And you shoot it out of the guy's hand. Just think about the trigonometry of this. I have a hand tremor, so it's exaggerated a little bit.

But see that ball, that little dot? That's just a natural movement of my hand. Well, think about what that means in a room. That's whether the bullet misses this person, hits somebody else. So anyway, those two things-- basically, the rule that this guy Perrow who wrote Normal Accidents Theory said is that as social service systems get more complex, as there are more people, more things going on, and as they get more tightly coupled-- which just means we're closer-- I haven't got as much time to perceive what you're going to do. Where's your hand? What's in your hand? Yeah, so that's the essence of what we do.

Let me give you an example right quick. The hand tremor makes it just a bitch to push these buttons, I'll tell ya. So here we go. So you've been given a call, domestic disturbance. There are weapons in the house.

Well, that was a surprise. Everybody awake? So what were the constraints in that? Look at this narrow hallway. There you are. You've got to see what's going on. But even if you're a bad shot, it's not hard to hit somebody standing in the same narrow hallway as you, right? So there aren't all that many people. But for the amount of space there is, the amount of slack there is in the system, somebody is going to get hurt.

In fact, it's almost impossible-- we do these in our deadly force scenario or our deadly force simulator. We have simulations like this, but I can't go into great detail about them right now. We just don't have time. So we'll show things like this to get an idea of how well people make these decisions. How did they deal with them? And whether when they're tired-- because cops work a lot of long shifts-- it gets more difficult. And I'm getting short on time, so I'll go faster.

So basically, we've got this whole occupational group in the world that goes around. And just like everybody else, they get tired. And just like everybody else, what happens when they get tired? They make more mistakes. They perceive things less well. They think less well. And as one of my grad students pointed out 20 some odd years ago, you mean nobody noticed that this goes on, and cops are working all this overtime and long work hours and shifts? And they get cranky just like everybody else, only they're cranky people with guns.

So has fatigue from these long work hours that we traditionally have cops do-- has a big impact on decision-making in human beings? And so if you assume that cops are humans-- pretty good assumption mostly-- then you ought to be concerned about this.

But there's another side of this thing. So we take people. We demand that they do this precise thing. And when they screw it up, we hold them accountable. There's a cop in prison right now, in federal prison, that was put there last year for shooting a guy, causing the death of a fellow who didn't do anything wrong, in a very complicated setting. Not saying this rule applies to that thing, but it happens.

But the other side of this is on top of holding people accountable for things that they may or may not be able to control, because we've never researched it, we don't have a clue, we train them to do things, but we've never done science to see if the training works-- if it affects how well they do these sorts of situations. So the big piece here is it's not just that.

Also, when we look at cops working this shift work, working at a dangerous place, with high stress, what we find is they die about seven years earlier after they retire compared to-- this was done by my colleague John Vialadi up at Buffalo, New York-- they die seven years earlier after retirement compared to a matched sample of municipal workers from the same city.

So there are two issues really here. There's justice for the community, the kind of justice we always think of. But if you flip that, there's also an issue of workplace justice. Are you treating people reasonably and fairly? Can they do that which you demand of them? So that's what we're about. I won't talk about the experimental approach. I'll show you a quick video. How am I doing? I'm doing OK? I'm a little over I said I wasn't going to be, but I get too goddamn excited.

So this is just a three minute video on what we've got going on in the lab, give you a visual to go with. So we have high fidelity driving simulators, the deadly force judgment and decision-making simulators. The police officer just got up, has got functional near-infrared brain imaging that he wears, so I can see what's going on in the frontal lobes of his brain, where decision-making takes place, where thinking about consequences, weighing complicated costs and benefits and moral rules.

So in the driving simulator-- about half the cops who die every year die, not in gun fights, driving. And so we're doing distracted driving research. All you've got to do in this task is follow the car ahead of you at 55 in a Crown Victoria simulator, stay in your lane. And when the guy ahead of you puts on the brakes, you push on the brakes before you hit him. Stay within 100 feet. How many of you have lived in big cities, driven in big cities? OK, this is a piece of cake compared to your daily commute.

About half the time in that experiment, we asked them to do a distraction test that's really pretty simple. It's got big letters. It's nothing like trying on my iPhone to find an address or a phone number while I'm driving. We find huge effects from the distraction and from fatigue.

So some of the other equipment we use, we can tell where you're looking, how long, where your head turn is, so we can do this kind of research on driving, making decisions in deadly encounters, making decisions in social encounters in general, and then also a cognitive battery-- all the standard lab tests that you would do. I'm going to run past this.

Let me just summarize this, because I'm pushing time, and I want enough time for us to chat about it a bit. So over the last 20 years, I've studied this issue of fatigue and the limits of human biology. And I've looked at that for police, but I also do it for Marines and soldiers on the ground in counterinsurgency operations in one of my major groups-- people who do dangerous stuff.

The take-home from the research so far is that all the things people have been doing, it looks like, with regard to how we train cops to deal with deadly encounters, what we focus on when we're doing the training, how we hold them accountable-- how in a courtroom, they're challenged. What did you remember about this or that or the other? Does your account today match the account right after a shooting or a critical incident? This highly scary thing put your pulse up over the top?

We do all of these things, and what we forget is that people do make errors. That's the normal thing to do in the world. We still have to hold them accountable. If they could have done better, especially if they're professionals trained to do better, if we've trained them to do it properly. We have no idea whether almost any of the training, from a scientist standpoint, works. Nobody's ever validated, so experimentally said, does this training improve how someone can perform in a real combat situation? And that's just one of dozens of things.

Yeah, so the main piece is people are going to make mistakes. We need to understand how they do it. You need to make more mistakes, if you're going to be really successful. But you also need to learn how to recover from, how to think about them, how to do things. This book is a neat idea. It was a very clever piece of writing. And how many of you finished reading this thing? Anybody? I know it was just assigned in probably your last class. How many of you haven't had it assigned yet?

All right, so it'll come up if you're in one of the classes using the Common Reading thing. Even if it doesn't, it's worth reading. It's useful. This is the thing I've learned that I want you to start out with-- is don't be afraid to make mistakes. That means you're trying. Stay with it. So questions about anything to do with this or just how do I get out of this hot classroom? Yes sir.

AUDIENCE: I have two questions regarding the situation that morning in South Central in Los Angeles you described.

BRYAN VILA: Yeah?

AUDIENCE: The first question would be did you eventually arrest the two burglars or--

BRYAN VILA: Yep, we did arrest the burglars, and we took them to jail. And we un-handcuffed the guy whose house it was, and we gave him back his gun unloaded.

AUDIENCE: And the second question would be regarding the person holding the gun. So you indicated to him that he should put the gun down, or you would kill him.

BRYAN VILA: I ordered him to put the gun, yeah.

AUDIENCE: And I was wondering, when people watch cop shows on television, policemen usually say that people should put their guns down, or they will shoot him, they will shoot them. But you threatened him to kill the person. And I was wondering, is this something that has changed or--

BRYAN VILA: No, if in fact, it was me, because this was really-- I wanted this guy to know no, I'm not going to shoot at you. You're going to die. And that was what I wanted to communicate, because the weapon we normally arm regular police with is nice because it's portable, but it's not terribly accurate in a fast combat situation, especially one where you don't know what you're going to do until it's almost too late or too late to do it. Yeah, good questions. Thank you. Yes?

AUDIENCE: So is the research that you're doing in Spokane about the effects of fatigue and distraction and so on-- is it changing how police units staff their-- have you seen any outcomes of how it's being applied in the real world, either with what happened in police cars? I watched one of your videos online about all the distractions in a police car.

You're driving at high speeds, and there's this computer that's showing stuff, and there's a radio that's squawking at you, and there's all this stuff to attend to. Is it changing anything how policing happens in staffing or in the equipment that is provided for officers?

BRYAN VILA: Yeah, so here's another thing to think about, because one of the things in the world is cynicism. I'm cool, and I know nothing. You can't do anything. I've been one person only working on this field until the last six years. And now there are a handful of folks doing it.

But the research we've done so far-- and we haven't even reported on the newest stuff, because it's not done until October 15th of this year. But the work that we've done, we've gone from no, there isn't a problem with police fatigue to yes, there is-- from you couldn't do anything about it anyway. Cops will never let you change their work hours. They like their overtime pay. They get paid time and a half for overtime usually, sometimes more.

And, yes, they do, and, yes, they will-- to a lot of the major departments especially. But individual cops and union members and police chiefs around the country reaching out-- what do we do? They always ask what's the best schedule? Or how much overtime is too much overtime? And of course, in research, the answer is it depends.

And so what we're on next is developing a comprehensive program that will train the individual officers how to do a better job getting enough sleep and staying healthy on the job. Train the supervisors and the managers how to schedule better, how to do the science behind scheduling people to work around the clock, so that it's less damaging to them.

And you saw right through to the top of this pyramid, which is the reason they're working all the overtime is because there aren't enough people on the job, because cops are expensive. They're one of the very largest expense items on every municipality in the country. Police, firefighters-- that's a huge portion of the budget.

And all that budget, most of it, 90 something percent of it, is people, not the equipment or the cars or those things. And so the real issue is the people. But when you go to a city manager or a city council, and you say hi, I'm the police chief, and I really would like seven more people. They say well, I'd like ice cream for dessert too. It's really hard to get more bodies, especially in times where things have been tough economically.

And so what we're working on with this comprehensive piece, using the data that we get out of this new set of experiments, is we now have a number for how much every additional hour of overtime affects your performance. So the reality appears to be-- we're not done with the analysis yet, but the reality appears to be-- over time doesn't cost the city time and a half, it costs them time and a half for the first hour and a little bit more and a little bit more, and so you get this exponential function that is just going like a bat out of hell.

The risk costs are going up. And so by giving them a tool to measure that, that means they can go to the city council and say the odds of having a crash, of making a mistake that leads to two or three or four or \$12 million lawsuit, those odds are going up this much. And so if you don't give me the cops, this is what the other cost that you're already accepting, because over time has this other thing.

How many of you have ever worked shift work or lots over time? Yeah, OK, so the thing that happens to your body when you're working a lot of overtime is you get tired, and your immune system gets suppressed, and you're more likely to get sick, and you're more likely to stumble over something and hurt yourself.

And so when you get sick or hurt and are off-duty, or make a mistake where they take you off duty without pay for a while as your comeuppance for screwing up, what does that do? It leaves a void. And how did they fill that void? They have more officers work overtime to fill in.

And so you get this vicious cycle going that causes the problem to get worse and worse. So the piece that we're doing with this science all the way from the bottom up is give them the ability to measure the risks, so they can balance-- here's what it costs to do this, this way. Find the place where it makes good sense to hire more people rather than just doing more over time. Smart. I hope everybody catches that as well as you do. I've got to talk about it in DC next, two weeks from now. Yes ma'am?

AUDIENCE: [? CRM J ?] is a major here in Pullman, I believe, and you're up in Spokane, your lab. [INAUDIBLE] teach down here, and do undergraduates go and do research with you in the last [INAUDIBLE] of summer?

BRYAN VILA: So the question was do we ever have undergraduates work in the lab and can undergraduates do their own research in the lab? And do I teach down here? I don't teach any undergraduate work anymore. I've always enjoyed undergraduate teaching, because I run this multimillion dollar lab. And I have a staff at 13 right now, and it costs about half a million bucks a year to keep everybody employed and feeding their families.

So I buy out my teaching. I only teach graduate students. And the last two years I haven't taught them, because I'm working so hard on this project. I'm coming on my late 60s and wearing out. I want to finish this damn thing before I, maybe, try retiring again. I haven't been good at that either.

But we do hire research assistants. We usually need people with a decent psych background and biology background, although we have some criminal justice students working there, doing a great job now. It's hard core, very, very narrowly-focused work. We run an amazingly strict laboratory, because it's hard to get these data out, and you have to be very, very good experimentally. If you're good, if you like working your butt off, we hire students during the summer when we have studies going. And we have studies going all year long, so it's hard for anybody from down here, other than in the summer, to do that.

As far as doing one's own research in the lab, we just have too much high end research going on. But the students who work with us learn a lot. It's the easiest way to learn research methods. I promise that. Other questions? Somebody here was looking like they had a-- yes sir?

AUDIENCE: I was just curious about hiring of police officers for law enforcements. I just read an article at one point where a police officer didn't want this [INAUDIBLE] because it would take away from the pay--

BRYAN VILA: Yeah, no, so that's a good thing. So he's saying he read an article about a police officer who didn't want more people on the department because it took away the overtime. When I started out as a cop, you didn't get paid for overtime. And when we did, we were working 80 hours overtime every single month, because we were understaffed. And my partner and I were rich. We went out, well, anyway-- We had a very nice time of it, until our wives found out we're getting paid for it.

It's really a nice issue asking well, this guy doesn't want somebody honing in on his overtime. People initially said well, that's why you can't ever deal with this problem because the cops like it. And yet, when you do the research, and you see how much overtime, who's working in a department, it's just like in industry.

There are a few people who work almost all the huge amounts of overtime. My top for cops in the US is Officer Fabisiak at the Port Authority police with 3,737 hours of overtime in one year. But the rest of the department is doing this. So they're working 20, 30 hours overtime a week or a month, typically.

So all you have to do, really, is you push this down. Everybody else rises a little. It's fair across the board. And I talk to unions, and I talk to the individual cops all over the country and in the UK and Canada at present. When you talk to them about it, and you explain how the body works, and what the problems are, and what the safety issues are-- when you say if you've been awake for 17 to 24 hours, it's about the equivalent of a 0.08 blood alcohol level, in terms of what it does to your performance-- would you let your partner come to work drunk? Hell no!

And they get that. I expected to get my ass handed to me when I started doing these talks 15 years ago. And out of hundreds of them, everybody gets it. They know it. They look inside themselves and how crappy they feel, and they get it. And so it's the right question. There are people who don't want the overtime to go away. There goes my child support for my third marriage.

AUDIENCE: It just opens up ideas about more jobs.

BRYAN VILA: Yeah, it really does. It's a good question. Anybody else? Yes, ma'am?

AUDIENCE: Yes, you mentioned when you make a mistake, you learn a lesson, take the consequences and move on. And I was wondering, what if there is a mistake that you know there may or may not be a consequence. And if there is one, you never know what might happen. So it's like a mistake that haunts you forever. So how do you deal with--

BRYAN VILA: No, that's a beautiful question. How do you deal with the mistakes that have horrible consequences, or ones that you can't estimate? You don't know, in that crowded room. You have to shoot, but what if you're wrong? What if the guy's not really pulling the gun and going for it or whatever? Because I only talked about the virtues of making errors, of going for it and trying.

The part I didn't talk about is steel rods up my back or the cardiac pacemaker in my chest or the metal plate in my foot or the 1,000 or so stitches I've had over the years going for it. And I also didn't talk about some of the heart breaks-- people that were hurt because I made the wrong decision, or the consequences for actions taken where I was making a mistake that echo and echo and echo, decade after decade, after decade of my life. Or the two marriages, while I was working all this overtime and going to grad school full time, or those things.

So yeah, there's a consequence, and boy, it'll come bite you in the ass sometimes. So maybe, it becomes, partly, learning to make a better decision-- and partly, being brave enough to say I've got to do something here. This isn't working. Is it important enough? Yeah, and going for it then, and then recognizing that. But I'm glad you asked that. I've thought about it a lot as I was trying to put this talk together. Yeah, that's great. Anyone else? Thank you, very much. I really appreciate it.

[LAUGHTER]