McMaster Program for Faculty Development (MacPFD)

Spark Podcast

Official Transcript

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Interviewer: Dr. Teresa Chan
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Dr. Teresa Chan (00:02):
Welcome to the MacPFD Spark podcast. This podcast is meant to inspire you to take the next step in your development journey as a faculty member. We're really excited to bring you all sorts of content from inspiring you to teach or supervise differently, to leading and managing your team, to thinking about new creative ways or humanistic ways to actually do your work, and finally to up your game in your scholarly practice. Are you excited yet? I certainly am. So sit back, listen, and enjoy this latest episode of the MacPFD Spark podcast.

[music]

Dr. Teresa Chan (00:43):
Hello, everyone. This is another episode of MacPFD Spark, and I'm back to introduce two very amazing women who I've brought on to the podcast. The first is Dr. Michelle Kho. Dr. Michelle Kho is going to take us through her scholarly practice and how she actually finds inspiration for her research. Michelle is an experienced researcher who definitely has been doing great work as a member of the Faculty of Health Sciences within the School of Rehab Sciences. So I'm really excited to speak with her, because she brings a very unique lens as someone who does both clinical research and also clinical care still. The next speaker on the deck is Dr. Lara Varpio. Dr. Varpio is an ectopic Canadian, as I like to say, and she is down in Washington, DC, placed at another university, The Uniformed Health Services University in the US, where she is a senior scientist in her research group, but she spent some time with us as a digital mentor and a digital contributor to the McMaster Education Research Innovation and Theory, which is MERIT unit. And she definitely is someone who I really look up to as a medical education and health professions education researcher.

Dr. Teresa Chan (01:54):
She and I really dive into some of the very nerdy parts of medical education, specifically around conceptual frameworks and theories, but really, I think this is a good conversation for anyone who's really interested in upping their game in Health Sciences education and research, and specifically health professions education.

[music]

Dr. Teresa Chan (02:18):
Hello, everybody, this is Teresa Chan, and I'm here with another episode of MacPFD Spark. Today, I have a special treat. One of our colleagues from the School of Rehabilitation Sciences, Dr. Michelle Kho. She is an Associate Professor, but she's also a university scholar here at McMaster University, and she's a CRC, so a Canadian Research Chair, and she focuses on critical care and rehabilitation, as well as knowledge translation in that setting. So, thank you so much for spending some time with me, Michelle.

Dr. Michelle Kho (02:47):
Thank you. I've so admired your podcast, I'm really excited to be here.

Dr. Teresa Chan (02:51):
Well, we're excited to have you. I would say, one of the big things that we've been trying to do is pull back the curtain a little bit around what makes for a great scholarship, education, leadership, and you're one of our first guests to come and talk about your scholarly practice. So, I'm really excited to have you, because... Well, obviously, all the things I just listed, [chuckle] make you a bit of a super star, and that's amazing. But I'd love to understand a little bit about who you see yourself as in your scholarly work? Because you are a clinician and you're also a researcher, and you've got all these identities, but when you talk about yourself in the world, how would you explain what you do with your scholarship?

Dr. Michelle Kho (03:26):
I like to think of myself as a physiotherapist who cares for patients, and that the patients are the ones who inspire my research. So by being able to have the privilege to care for patients, we can start to understand the types of research we can do to help them recover faster in the ICU. And by also being a clinician, I also feel like I've got sort of a front row seat to trying to understand how the other clinicians are working so we can make our research as clinically relevant as possible.

Dr. Teresa Chan (04:01):
Alright, so you're aiming to make sure that we do that final part of taking science and turning it into action. Right? CIHR calls it the knowledge to action framework, but you know, some people call it about the knowing to doing gap, and you're trying to bridge the two worlds of what we sometimes read in journal articles, and then how we actually do things on a day-to-day basis, is that what I'm hearing?

Dr. Michelle Kho (04:22):
It is, and it's trying to design the research so that that knowledge to action gap is smaller. So that if we can design and ask the right question, and bring in frontline clinicians to help set up the research, then when we ask frontline clinicians to implement the research, they've already been involved. So some people might think of it as integrated knowledge translation.

Dr. Teresa Chan (04:44):
Oh, that's very interesting. This integration of knowledge transition, this is a new concept that's come up in the last couple of years. Can you speak to me a little bit more about how you've seen it play out? Maybe the way that you do it, but then maybe give me some pros on how you've seen other people do it and what are the coolest things people have done to integrate that KT throughout their program of research?

Dr. Michelle Kho (05:03):
Sure. So my research involves working with exercise with patients who are very sick in the intensive care unit. And the type of exercise we do is a special in-bed cycling machine that physiotherapists will use with patients within the first four days of being on mechanical ventilation or requiring life support. So, because we knew it was important to involve physiotherapists with the research. We wanted to get their thoughts on what it's like to be involved with research, and how can we help facilitate them being part of this research study as part of their clinical day?

Dr. Teresa Chan (05:46):
Okay, so it's about kind of understanding how they can fold in some of their observations into the work that they're doing, and then maybe using that to propel it into action and research for the run down the road?

Dr. Michelle Kho (05:58):
Yes, and I think some of the logistics too of... If we want to do physiotherapy research, we need to involve the physiotherapists. We have had other examples of ICU rehabilitation studies designed for physiotherapists, but not by physiotherapists, so they don't have as much of the innate understanding of what it looks like in a physiotherapist's day, to try to do the intervention. It would be like me coming into the ER and trying to tell you what to do as an ER doc. So, I feel like I've got the sort of a front row seat to understanding a bit more about the day-to-day process of a therapist.

Dr. Teresa Chan (06:36):
Yeah, that makes sense. I think the idea would be that because of your positionality as someone who does the day-to-day clinical work, you're seeing different questions, you're observing different phenomena, and then you can be more empowered to maybe make a change or do something really cool with that, because you have a different insight that someone maybe a little bit further removed might have trouble doing?

Dr. Michelle Kho (06:58):
I think so, and I think also giving the physiotherapists the voice in how the research is set up, and knowing that if we're going to do in-bed cycling, which is a very special skill with a very sick population of patients, that we have to have sufficient physiotherapy resource to be able to do the research.

Dr. Teresa Chan (07:17):
So there's a little bit of advocacy and leadership based in there too?

Dr. Michelle Kho (07:21):
Absolutely, and that's been a lot of fun, because the physiotherapists themselves have elevated themselves within their own ICUs.

Dr. Teresa Chan (07:32):
Well, that's really cool. So, I think across our Faculty of Health Sciences, each group has a slightly different way that they tackle and look at integrating clinicians into their work, and you and I are in the category of we work clinically and then we also do our scientific work, and we try to not burn out really hard. [chuckle] But that does... That dual citizenship, that duality gives you both a strength and a vulnerability. I think about it as being Superman, right? Like, you have special superpowers as a

researcher in some ways, but then because you do have to do the clinical work, sometimes it can be a Kryptonite as well.

Dr. Michelle Kho (08:04):
I think it also helps us try to understand what the frontline clinicians are going through. So if I have my own case load and I've got a research patient, it gives me direct empathy for what I'm asking other people to do as part of my trial.

Dr. Teresa Chan (08:19):
Yeah, 100%, right? I think sometimes if you're a little bit more removed, then you have to go to that pilot testing and you might see it differently. But as someone who's a frontline clinician, you might just build that form differently or think about the process of acquiring the data slightly differently, to make it more reasonable, because you just kinda get how this might work for someone. And I like that perspective that you have, by the way. In my own work, because I'm interested in kinda the intersection of clinical work and also education, I find that when I'm around learners, I get different insights than I would if I work a solo shift by myself. I still might have clinical questions and engage in that part of the research, but without a learner there to point out, "Huh, that's interesting how you thought about that way or see it that way." It's those little "Huh" moments that... I think that's when your research brain goes abuzzing.

[chuckle]

Dr. Michelle Kho (09:08):
Yes.

Dr. Teresa Chan (09:09):
And you file it away, right?

Dr. Michelle Kho (09:09):
Yes.

Dr. Teresa Chan (09:09):
And it helps you change it differently. Yeah, yeah, for sure. So, dial back time a little bit to Michelle from five, six years ago, you're getting started. What's a challenge that you had there that it took you a little bit of a while to figure out how to solve? 'Cause there's a lot of our junior colleagues who might be listening to us, or mentors of junior colleagues who might wanna hear some more kinda like behind the scenes of how did you get from assistant Prof Michelle Kho with a beginning program of research to Canadian Research Chair [chuckle] Michelle Kho?

Dr. Michelle Kho (09:43):
Oh gosh. I have so much to attribute to my mentors, and Deborah Cook, who is a Professor of Medicine and in the department of health evidence, research and impact, she's been my mentor for almost, gosh, 20 years. And she taught me about research programs, and she taught me about how to systematically design a research program so that one bit fits on top of the other, and pilot work is specifically built into your research program, so that you have one study that builds upon the other. So for example, you'll have a systematic review, then a single center pilot study, then we did a multi-center randomized pilot study, and now we're doing a full-scale RCT. But you really can't underestimate the importance of doing the pilot work and learning a lot from research coordinators

who have the expertise to collect the data, to give you feedback on your data collection forms. I remember thinking really fondly about when we started our pilot randomized trial. One of the research coordinators, France Clarke, who's at St. Joe's, she looked at our forms and said, I think these are gonna be really tough to collect data from. And she took three or four hours to help us rejig our forms. So there's lots of people that I look to learn from, and I've had a fantastic group of people around me who have helped me sort of implement the research.

Dr. Teresa Chan (11:28):
I love that. So, look for mentors everywhere, and they aren't always so easily labeled like Dr. Cook, [chuckle] she's I don't think everyone's mentor. [chuckle] But at the same time, there are others who may be unsuspecting mentors, that if you just listen deeply and you appreciate what they have to teach you, that they will give you a very different perspective on something that you're having trouble with, and they can be your teacher. So that might be your students sometimes, it might be a colleague sometimes, it could be the unit clerk, who just is an administrative genius and knows how to use Excel and Word in a way that you could never imagine. I think that it's very interesting, the skillsets that other humans can bring, and being open to mentorship of all kinds from all levels and all types of people, is a really good take-home message. I love that. Okay, alright, that's so wise. What else is there in that genius brain of yours?

[chuckle]

Dr. Michelle Kho (12:22):
It's been interesting, because I feel like I've struggled with trying to understand how to build a team. I have a fantastic group of people around me, and my first PhD student graduated in 2019, and I'm so proud of what she's doing now. It took probably a good five years to create a team of people, and for our team to work together to understand how we complement each other. So, one of the things that Deborah taught me was to learn how to do everything from the ground up.

Dr. Michelle Kho (12:51):
So as I've done my own research and now as I train my mentees, I've done everything from designing data collection forms to designing a database, collecting the data, running the analysis, writing the manuscript, and I help my trainees try to understand how to do everything so that they know what to delegate later in the future, but also what to keep for yourself. And I feel like this is still an ongoing learning for me, so if I bring on someone new, I want them to start to learn how to do everything. And how do you plug in say, a masters student versus a masters student who transitions to PhD to a postdoc or new research assistants, new research coordinator, what skills do they bring and how do you integrate them into the team.

Dr. Teresa Chan (13:42):
Yeah, that's interesting, because to me, I think about it... I don't know, I'm a bit of a comic book nerd, so I think about it as whenever you have a research team, it can be like the Avengers, and so in this Avengers movie, which characters do you have, what are their superpowers and how is it gonna help you conquer the villain at the end of the movie? And I think that what often we don't know what to do is that, A, sometimes we don't know where we're going and so getting everyone on the same page can be hard, and we've seen that in the Avengers movie, where they do a little bit of storming and they don't like each other for a while.

Dr. Teresa Chan (14:15):
But when you do know what you're trying to conquer, like a big research project, then you can head in the same direction, and it's in those moments, it's good to know who needs what support and who can support each other through certain phases, it's nice to know which of your collaborators is really, really good at making cool graphics for your paper, it's also really good to know who is really just amazing at cleaning data, it's amazing to figure out who is really good at using fancy statistical analyses to tell a really elegant story without overwhelming people and explaining it really well in the text, and it's probably a superpower for people to be able to do that first draft and get you through it in a way that seems magical for some, because they're better editors than they are authors, and so understanding each person.

Dr. Teresa Chan (14:58):
And it's not that there's always a generic masters student, it's just that this masters student might be really, really, really good at some part of science, and for them to know, just like with our residents or medical students or nursing students, know exactly what they're good at so they can keep that, but then also how to talent manage themselves to be better at that, and then also compensate for their less than adequate skills in some other domains. So for instance, someone's really shy and they're not really good at presenting, then they have to present enough so that they can survive as an academic, as opposed to someone who is an excellent speaker, you're like, you don't... You got the best slides, I get you to make my slides any day... You can present for our team, I'm good with this. That person needs to know they're good at it so they can keep it up, but then they can probably spend their time working on writing or something else.

Dr. Teresa Chan (15:46):
So, each one of those things I think is a unique value proposition that allows that team member to understand what they can continue, what they should start doing and maybe what they could stop doing because they don't need to anymore. And I 100% hear you in that as you get more senior, we're both in the same rank, Associate Prof, and you're mentoring others, you're like, "Huh, what can I let go?" Because I do know how to do everything and I can grind it out and I can sort through all the parts of a system, I don't know [0:16:13.1] ____, be like hitting covidence buttons until 3:00 in the morning. But is that really my role anymore? Do I wanna be able to keep that skill up so that if I need to do it I can still step up and help and support? 100%. But I would say that it's similar to when you have clinical trainees probably, you're gonna let them get a good first pass at it 'cause it's a learning experience, but you have to be able to bail someone out if they did it wrong. [chuckle]

Dr. Michelle Kho (16:37):
That's exactly it, is trying to figure out how I think of my team... If I bring on a new student or bring on a new team member, my team, we're all mentoring and nurturing this person together, so I look to them to say, Okay, even if I'm interviewing for someone new, if I'm interviewing for someone new who's going to be a big part of our team, I will bring in a senior research coordinator or someone who's worked with me really closely to be on that interview panel because it's so important that they're going to be able to fit into the team that we know how we're going to work together with this person, and how this other new person's going to contribute back to our team.

Dr. Teresa Chan (17:18):
Yeah, I think that really getting to the bottom of how to create those teaming environments that really work, it's a secret sauce, and if you have cracked it, I congratulate you, we'll bring you back another time for talking about teamwork. But it's so hard because there's so many players, there's

so many people and it's not always clear... In any given situation, it's not static either, someone's having a bad day, someone else is having a great day, and somebody on your team's off-kilter. And I do think that it's important for us to pay attention to some of those things when we're taking care of each other, especially in the setting of... A lot of things have flared up during the pandemic and there's a lot of stressors and there's a lot of extra work for some people, homeschooling the kids, taking care of elderly parents who can't go out, those are the kinda things where we can be supportive of each other too, and check in with our colleagues to support them.

Dr. Michelle Kho (18:06):
I agree.

Dr. Teresa Chan (18:07):
Alright, so support your team, form a really good team that all collaboratively mentors each other, that's good. So you and I are I think contemporaries in some ways around where we are in our career trajectory, we're both Associate Profs and we're kind of carving out our path there. And it is a different phase of your career, so now that you've entered into the mid-career-ish phase, how do you think about where you're going to head next? 'Cause I think that there's a reason why our MUFA, that's the main campus faculty that are not clinical faculty, they have a sabbatical around the time there for... Go continue to truck along here. And have been challenging some of my colleagues who are clinicians to take still that time to recalibrate and think through, Well, what is it I wanna do next? Have you thought about where you wanna go with your career, what's that next phase?

Dr. Michelle Kho (18:54):
It's a really good question because I'm in the midst of finishing a multi-center randomized trial. So everything I'm focusing on right now is recruiting and trying to wrap up the trial. If I think about my next grant or the next immediate thing, I think for rehabilitation, we really need to understand how good are we at doing trials, if that makes sense, what's the methodology behind how we actually execute the study and implement the protocol? So in my field in ICU rehabilitation, it's become really popular over the last 10 years in that people in the intensive care unit are doing exercise very early in their ICU stay. And if we look at the science, we see that the information about sort of the recipe behind how we do the study and the fidelity of how well we follow the protocol and how well we're able to study what we actually intended to study isn't very clear.

Dr. Michelle Kho (20:00):
So for example, there is a study, an ICU rehab study that had intended to randomize patients to 90 minutes of exercise in the intervention group and 30 minutes of exercise in the control group, and what they found was the intervention group received about 23 minutes of exercise and then the control group received even less than that, so their conclusion was that the intervention didn't work, but then I counter that, "Well, you actually didn't implement the intervention as you really intended to." So I'm interested in studying the nuts and bolts of how we actually design and deliver our interventions. That's something I'm really interested in studying in my own work and learning from other ICU rehab studies and other rehab studies in general, in terms of what did you plan to do, did you actually do it, and how did you measure it? And how good were you at trying to do what you thought you wanted to do?

Dr. Teresa Chan (20:56):
I love it. One of my colleagues in Emergency Medicine at Queen's University has been looking at how some of these complex systems, like competence-based medical education, get implemented, and

they've been using this term a lot, called fidelity of implementation, and I think that that's a fascinating concept, because just 'cause I downloaded, let's say, the instructions for how to make a really great recipe, doesn't mean that I'm not still gonna muck it up by burning something too much or not having enough of this, or being like, "Oh, I don't need cumin, it's fine." And all of a sudden, it's not even... There's no fidelity. I have substituted the eggs with something... With tofu, and the nuts are... Because my partner is allergic to nuts, we're using crunchy bread bits and it's not even the same thing anymore, and so I think that if I do that with recipes, I can see how in research, there might be a temptation to, "Well, we don't have to do exactly like the study because let's just do something together."

Dr. Teresa Chan (22:00):
So I think about, for a long time in medical sciences and ICU medicine, in the zone that you participate in quite a bit as a clinician, there was something called Early Goal Directed Therapy, where there was a bundle of things you could do to resuscitate someone who was very sick with sepsis. Dial it forward 20 years later, they did a trilogy of three different studies, ARISE, ProMISe and ProCESS, to try to figure out, "Okay, what out of all this package of things did we actually need?" And it turns out paying attention to sepsis and probably giving two days of fluid or something were probably sufficient to really change outcomes. And so the therapy bundle was about the same as what everyone ended up just doing. And so over time what happened was that that fidelity of implementation got whittled away into what we're calling in other zones a minimum viable product, which has fluids and TLC and early intervention with someone who's sick.

Dr. Teresa Chan (22:54):
And that was enough, we didn't need all these fancy gadgets, like a CVP monitor or other things like that, and what it was was that over time, just like all humans do, we took a system that was too complex, and we found out over time, "Oh well, we really only need this." And so the same thing with risotto, I really only need the Gruyere cheese to make it awesome. I don't also need thyme, I don't also need like these 17 spices, I can keep it simple, chicken stock, butter, risotto, olive oil, cheese, that's it, right? And so over time, I've reduced my recipe down to something that's very simple, and I think that that's the fascinating part about implementation science, is that as much as you think you've designed a perfect system, people always either break it or they reformulate it to be better than you thought it could be.

Dr. Michelle Kho (23:36):
I think that's been part of the neat part of doing this research, is that we're starting to explore some of the other nuances of critical care. So one of my graduate students is studying usual care, what actually happens in the black box of rehab. Therapists go into the room, they do something, then they come out, what did they actually do with the patient? And I think trying to understand a little bit more about that's important. And then another one of my graduate students is actually studying fidelity and adherence and trying to... We're trying to deconstruct. So Fidelity is how well you implement the protocol, but then Adherence is more about the behavior of the patient.

Dr. Michelle Kho (24:20):
So it becomes really interesting to see where can we even intervene to improve how we implement our research studies? Because it's all about the comparator group. If your comparator group is too close to your intervention group, then you're not gonna have sufficient separation in signal. And usual care hasn't really gotten as much attention that I think that it needs. And I think what we're learning from COVID is that if we look at the recovery trial, if we look at all of these large trials, it's

usual care that's coming out on top, and some of the other initial therapies, like the hydroxychloroquine, like the Kaletra, compared to usual care, usual care is better. So can we also try to unpack usual care?

Dr. Teresa Chan (25:10):
Yeah, I think that's a fascinating question. I think about it in my zone of education scholarship, what teachers actually do, the scholarship of teaching and learning itself, it's its own separate thing from education research. There's other discovery that we need to do around systems and assessment and other things, themes there, but what actually happens between a teacher and a student is actually the... What we call usual education, I guess, that usual care relationship there is something that we're still fascinated about, and I think what you're talking about is that, what does that look like for clinicians to start to think about what usual care is and can we then think about our clinical scholarship as sometimes being education-related. Sometimes it's actually... 'cause I... Like...

Dr. Teresa Chan (25:55):
Some of the stuff that I've done is looking at work processes of how physicians think about multi-patient environments. And I spun it from the point of view of, then I would be able to teach it, but I could have gone from a health services lens and continued to think about, "Okay, so if that's the case, this is how they think about it, how might I change the processes?" Human factors design, all those other kinda things. And I think there're some really, really interesting nuances to the way that we can think about what work we do as a clinician, and I think as we add more diverse research strategies, around how we would engage in that front line exploration of what it is that we do and unpacking it, it can be really powerful. Because usual care, like you said, it's two words, but it's so much stuff and why don't we pay attention to that? Because the things that come naturally to us, first of all, and we know it doesn't come naturally to everyone, and so being able to be explicit helps our learners just go faster and learn faster than what they did before.

Dr. Teresa Chan (26:54):
It's one thing if we had to, let's say, learn how to derive calculus on our own, but it's another if someone just tells you like, "The derivative of X squared is 2x." And you take the little two and move it in front of the big X, that's a heuristic kinda short cut that I can't look back now and I can't derive the first principles, but I still know that that's the case. [chuckle] And so the idea would be like, what are the things that we can do that help frontline clinicians articulate what they do? We can help improve education then, but then also I think we can become firmer in ourselves as clinicians who wanna take a scholarly approach to what we do, and just know the evidence is there or isn't, and then be able to carve out a niche as to what it is that we're doing from day-to-day that saves lives and makes change.

Dr. Michelle Kho (27:39):
And I think it also comes back to your bundle, like what are the most important things we should be doing? If we look at physiotherapy routine care, we've got different centers participating in my research, and I'm really excited to see what's it like across different centers providing physiotherapy in the intensive care unit? And what's been really fun is, Lyn Turkstra is one of our other faculty in the School of Rehab Science, and she came to us from the US and has been studying a system called the Rehabilitation Treatment Specification System, that really tries to drill down to what does a therapist do with a patient. So if we can understand some of those pieces, and it's more than range of motion, it's more than moving from standing to sitting, it's the, "Do you have a second person to help you? Do you use a piece of equipment? Do you provide motivation? Do you provide

instructions?" There's so much complexity in what physiotherapists do for something that looks so similar across patients, but there is a bit of a labyrinth, in terms of how something might look exactly the same, but you're using lots of different strategies to get to walking down the hallway.

Dr. Teresa Chan (28:54):
Yeah, again, it's one of those things where if you just look at something and admire it for its beauty, with fresh eyes, it can be really amazing. Like I watched a Netflix show called Chef's Table and just getting the chefs to talk about their craft and their art, and I bet you for them, it's an everyday thing, where they're just... That's their job, that's their day-to-day, but I'm fascinated by it because all their introspections and the things they do, their thoughtfulness about it, and it's probably just about, how do we zoom out from our day-to-day and appreciate what it is in the art that we actually do and then advance the science to do it better? And I think until you know what you actually do, it's so hard to advance the science.

Dr. Teresa Chan (29:34):
And I think that that detail orientation, that introspection into what it is to be a great clinician, I think that deserves a certain kind of Chef's Table awe that we should bring to it. I mean, that's kinda why we're having this series, this mini series and focusing on people's scholarly practice, because what you're talking about, that awe that you're bringing into it is the same thing that I might hear a chef talk about a certain kinda cuisine and how it lights up their palate. What you're saying is that we should look at our daily lives and be inspired by it in a way that brings us awe and joy and pleasure, and we can then maybe write some of that down sometimes, we can articulate it and build upon it, and I think that that's a wonderful thing to think about.

Dr. Michelle Kho (30:16):
It's been really cool because if I look at what physiotherapists and occupational therapists and speech-language pathologists do in the hospital, the patients might all be doing the same things, but the clinical decision-making and the complexity of the clinical decision-making that goes into, "I'm gonna stand with you and move you to the chair," or, "I'm gonna help you wash your face," or, "I'm gonna help you with a swallowing assessment," the strategies that you might need to take for someone who has just had a stroke, versus someone who needs more motivation, versus someone who is learning it for the first time, may be so different, and I feel like therapists are just so creative, I think as healthcare professionals, we're very creative and we've had to be more so even in COVID. I've really admired inpatient therapists for that exact reason, and I think to start to be able to unpack some of that and elevate their clinical thinking for something that people might not appreciate as much, it has been a lot of fun.

Dr. Teresa Chan (31:17):
I love it. You're basically doing Chef's Table for clinicians.

[laughter]

Dr. Teresa Chan (31:22):
And that's, to me, that's amazing, because I think that that story needs to be told, because for someone else it might be a way that they get inspired into becoming a therapist or seeing therapy in a different lens, which it elevates the art and science of what they do into something that is explicit rather than left implicit, it allows us to kind of explore decision-making or other intangible or intrinsic properties of what it is that you do and articulate them, and I think that is... That's the kind

of the stuff that I really get charitable. So yeah, we are definitely simpatico in many ways. But yeah, it was a privilege to listen to my colleagues look at a fake tracker board, that's what I did as a simulation, I built a little fake tracker board, we can open up the little tracks and say, "Okay, so which patient are you gonna see first? Which are you gonna see next after that? And then, why... "

Dr. Teresa Chan (32:09):
"Who are you gonna see like, wait till later." And they had to actually think through that out loud with me, and it was just so interesting to hear their thoughts and then try to take the abstraction of all of that to understand what and how people actually thought about those nuances and in reassembling a model to understand it. It helps with learners, again, understanding it. I can pull it up as a diagram to show people sometimes, but it also helps us then think, "Okay, if that's how they're thinking, we can build better tools in the system." 'Cause we finally know for the first time, how they're thinking about it and where things are not going or going. So I think that there's some level of understanding that deep empathy. I think people use design thinking to get it in other industries, and I think that that's kind of the approach that I've seen some groups such as Mirror and other groups start thinking about how... Again, with that integrated KT kind of feel, how from the very get-go can we ask the right questions? Because we know how people are thinking.

Dr. Michelle Kho (33:05):
And I think it's asking the right questions. I think we do have privileges as clinician scientists to try the tweaked questions so they're just right, because you know how easy it is that, you read a study it's like, "Oh, if they would have just done this small thing, it would have been fantastic." So what we try to do is to try to get those... All of those pieces right as best as we can, and I think listening to our colleagues, physios and our physicians and our research coordinators, those are the pieces that could try to help you design something that's gonna be clinically relevant, because there's nothing better than having someone use your research. And with research, time and funding being so scarce, I think it's our responsibility to try to design it and implement it the right way.

Dr. Teresa Chan (33:55):
Yeah, yeah, it's kind of like the idea of a tree falls in the forest and no one's there to witness it. What... Is it gonna do the job it needs to do, but if someone actually... The tree that falls in the forest will be able to make a wood table out of it, then it becomes much more useful. [chuckle] And then similar here I think that you can have a research paper published and that's great for you in your career, in your CV, but I think most of us are aspiring to make change with our researches. The research is not truly the end goal. It is a way station towards more kinda change and adding to the fabric of the world and the academy, but it's also the... Especially in health professions at least, that research is really more immediate than that. That we wanna help change practice so that we can help save people or help improve patients lives, and I think that that is a very tangible touchstone to keep when your a health services or Health Sciences researcher to say, "How is it gonna actually end up impacting someone's life?" And I think that what you're trying to encourage us to do is to, don't lose sight of that, but in fact use it to power the questions that you might ask to build better and to make things more easy and integrate it into workflows and just keep that kind of end user in mind, and it might be multiple end users. It might be the patient, it might also be the provider that's at the bedside, implementing your science. Yeah, yeah.

Dr. Michelle Kho (35:18):
And if you can keep the patient at the forefront then it helps make our decisions easier.

Dr. Teresa Chan (35:24):
That's an unbelievable conversation that you just led me to, so I'm so glad that you allowed other people to listen in on our conversation, and I'm really excited to watch where you go next with everything that you're doing. I think that there's a lot to be done in understanding the art of what our clinical colleagues really do, so that we can appreciate them, and I think we should try to aim to create a research-based version of the Chef's Table to understand how people think and how people do their work and the craft that they do so that we can continue to inspire others to follow suit and then to build upon it.

Dr. Michelle Kho (36:00):
Oh, that sounds fantastic. I will be one of the first to listen to that Chef's Table.

Dr. Teresa Chan (36:04):
[laughter] Alright, well, if you're a clinician, listen to this and you want me to interview you about what you do to make lives better, I'd love to have a conversation with you, so definitely check this out later and email us any time at macpfd@mcmaster.ca. So thanks so much for your time, Michelle, and we will be in touch to have another chat with you another time.

Dr. Michelle Kho (36:26):
Thank you. It's been a delight.

[music]

Dr. Teresa Chan (36:35):
Alright, everyone, May 25th, 2021. It's a Tuesday, you need to mark down this in your calendar now. It's a free conference, and it's gonna be our 40th annual day in Faculty Development. It's gonna be titled "Academia Disrupted: Innovations and Dilemmas Prompted by the COVID-19 Pandemic." And I'm so excited to co-host this event with Dr. Ruth Chen. She is an inspired leader herself, and she's definitely been right here with us as part of our advisory council, advising us on how to navigate this difficult pandemic world and so she is 100% correct, this is the topic we had to cover, and we're really excited to have some amazing speakers, workshops, and just cool ideas being presented about what we've all been going through in the past year. So I know it sometimes feels like this pandemic has never ended and is never going to end, but I think that we've really risen to the occasion to respond in the way that we have as faculty, and we should celebrate those successes. So join us on this day, it's going to be a virtual conference, so it's open to everyone in the world, as long as you come to our time zone, obviously McMaster Faculty will be prioritized if we have a wait list, but we're hoping that all of you can join our conference and make it the best virtual conference ever. So check it out on our event calendar. We're really excited to be having this happen.

[music]

Dr. Teresa Chan (38:06):
Alright, hello everyone. Welcome back. And in this podcast, I'm delighted to invite one of the leading scientists in this area that's been writing and reflecting on this for the last couple of years around frameworks and how they exist within medical education. Now, if you're not a medical education person, this may have less relevance to you, but I think that it still is an interesting concept to think about when you're a scientist in any field, to think about how you situate yourself, and so hopefully you can come along for the ride with us. If you're not primarily someone who's in health professions

or medical education, but for those of you who are, frameworks are so important now that, to be honest, I think that if I don't have a framework that's either fairly explicit in my papers now, I don't know that some journals will even look at my work anymore. [chuckle]

Dr. Teresa Chan (38:51):
So it's definitely something that's really important, and so Lara, can you explain what these frameworks are, because I think there's a shift lift to it to those of us who are in medical education, health professions education, I think we kinda talk about them like they're in style, and for a lot of people who are coming from the outside or occasionally come into our space from other fields, their adjunct, for instance, like QI or some of the clinical work, it's very daunting to use these so can you explain what exactly are these things...

Dr. Lara Varpio (39:21):
Sure, so Teresa, I'm so happy to be able to talk to you about this because this is one of those topics I have a little bit of a rant on, 'cause it is a challenge for so many. And yet it's a challenge, I think because it can be abstract and obtuse and hard to get your teeth into, but what I really hope we can do today is try to put a little bit of meat on things, try to make some very tangible examples so that when we talk about theory and theoretical frameworks and conceptual frameworks, it's not as daunting as it might seem to be. And the other thing, just before we get into it, this is actually incredibly relevant to anybody who does research, period. If you do research in medical education, if you do research in clinical settings, these concepts are the foundations of how we build knowledge, which means it's the foundation of how we do research in any field. So let's dig into it just a little bit. Now I'm gonna start away from frameworks and just start with the idea of a theory. What is a theory? Well, a theory is, in many ways, very simple. 'Cause what it is, it's an abstract description, and that description comes out or is related to your reader in premises.

Dr. Lara Varpio (40:31):
So we hold X to be true. X is related to Y. Y is this? Y is related to T? T thinks about these things in this way, so we take these premises, these statements, and we connect them logically, that's a theory. It explains a phenomenon in our reality, or in our lived experience in some way. So these abstract descriptions of the relationships between ideas and statements, premises, concepts, they help us understand the world. If theory helps us to understand the world and theories can be completely adopted and adhered to and used, and theory sometimes are up for a debate. It depends on where you are. I have yet to meet a theory that hasn't been challenged in some way, they're proven right or wrong, depending on the science we do. And if you're doing objective deductive research, what that means is you'll probably gonna take your theory, find a piece of it, generate a hypothesis, test your science, and off you go. That's when you take your theory and you create a theoretical framework. So if these premises are true, here's how I'm gonna define these terms, here are the things I'm gonna use as proxies for these causes or those effects that are related to that particular theory, right?

Dr. Lara Varpio (41:39):
So deductive research from an objective perspective is all about theory. We just take the theory, we build a framework that makes that theory come to life, and then we test our work, very straightforward, and the findings from detective work often result in a change in theory. So you change your theory because of your findings, qualitative research or research... Much qualitative research doesn't take a deductive approach, starting with theory, it goes in the other direction, it often goes inductive. That means you start with data, and it doesn't mean that theory doesn't shape

what you're doing, it just means that theory has a different role, as in the work, it's not your starting point, it might be your end point. But it could be your starting point if it shapes the questions you ask, it shapes the data you're collecting. So the theory itself is often the thing you're either trying to create or the thing that you're starting your research with.

Dr. Lara Varpio (42:36):
And the theoretical framework is how you bring that theory to life to be developed and understood and explored through your research. Now, the conceptual framework actually stands one level higher. If the theory is the abstract principle, the theoretical framework is how we put that stuff into life, how we create proxies to represent different aspects. The conceptual framework is all the stuff that stands around it, like the lit review that lets this theory is appropriate for this question, like why this research is important statement, which then makes the theory relevant to your practices, to lived experiences. I tend to think of theory to theoretical framework to conceptual framework. Does that help?

Dr. Teresa Chan (43:20):
Yeah, I think that it does except, I went to University of Illinois, Chicago. I trained under someone named George Bordage who's written about theoretical frameworks and conceptual frameworks in a different way, and so I think that this is where there's a debate that's very meta, but we're having a theory discussion and then we are talking about the debate about theory. And so I think that there is a different school where we think of a conceptual framework as a lens, as something that helps you as he talk about magnify or focus. I think about it like having a rose-colored lens allows you to see certain colors versus yellow colored lens, and so some people see conceptual frameworks in that way. As a way to reveal or filter what it is that they're focusing on.

Dr. Lara Varpio (44:04):
In a way that works. They're aligned, the difference... The conceptual framework, you can think about it as the lenses that you wear that shaped the way you see things, your theory could be part of your conceptual framework lens, if you think about them as lenses, because your theories say to you, "These considerations are important, but those aren't."

Dr. Teresa Chan (44:24):
Exactly, exactly.

Dr. Lara Varpio (44:25):
So it shapes the way you look. It shapes the way you ask your question.

Dr. Teresa Chan (44:28):
Exactly.

Dr. Lara Varpio (44:28):
But the theory... The conceptual framework stands above.

Dr. Teresa Chan (44:32):
Yeah, and so I think that that's where right now, people who are entering into HPE are entering into that conversation. And there are some terminological differences, I would argue that after reading your paper that we'll put in the show notes, to me, what you consider that as conceptual framework, I almost think of it as a contextual framework, I think about as the context of everything.

Dr. Lara Varpio (44:52):
Beautiful.

Dr. Teresa Chan (44:53):
And then conceptual framework would be a minor theory in my mind, an organizing frame. For instance, if you're a medical educator, I think about the Kirkpatrick Model of program evaluation, which is a model that says there's four levels of different ways to prove that your program has some outcome, right? Like Mikey, sit, the idea of the learners had a good experience, that they have acquired some knowledge, maybe in an MCQ test, the different level, the third level, I think is, some behavior change and then the fourth level is some big outcome. And so you see this framework a lot as a model for people to see what kind of... And so it works with both Bordage's conceptualization of that conceptual framework and your own because what it is is this model helps you situate your work within exactly where you're gonna be doing the work. And so it gives you that context and grounding that says, Yeah, there are outcomes, we have this other theory that says like he's someone, they should learn something, there's all that stuff, and then on top of that, this is how I'm going to think about it.

Dr. Lara Varpio (46:02): Let me use Kirkpatrick. Because Kirkpatrick created a model to help us understand these different levels. Underpinning that model are different theories, and what's happened is that you can study the model, but often by studying the model, what you do is you create insights that help to shape the theory. Now, sometimes in medical education, we don't do that last part because we focus on the model and we don't necessarily talk about the theory, but the theory is under there. It's doing things, it's part of how you're thinking, even if you may not be aware of it. I know George Bordage, I think nothing but the world of that man. I truly think he's wonderful, he's keenly intelligent, I think the world of him.

Dr. Teresa Chan (46:37):
And he's a Canadian.

[laughter]

Dr. Lara Varpio (46:42):
Oh, did I just drop an A at a very inappropriate... Anyway, but I think one of the things to remember is that our field has been evolving since those papers were originally written, and one of the things that really has happened to medical education over the years is that it has become increasingly interdisciplinary. We have people from the humanities, from the social sciences, from the basic sciences, all of whom are coming to our field to work together and become, help make better clinicians through medical education and health professions education. And so one that you... A little story for you behind this paper. We had myself, I was the lead author with Elise Paradis who was a scientist at the University of Toronto at the time, Meredith Young, who's a scientist at McGill and Bas Uijtdehaage, who's at Uniformed Services University with me. But Elise and I are very qual, and Bas is very quant, and Meredith, I'd put very much in the quant side, but she also likes to play qual. So we had very different perspectives, I come from rhetoric, Elise is a sociologist.

Dr. Lara Varpio (47:49): Meredith is a psychologist, psychology degree. So we come from very different domains, and one of the challenges we had was that as you're pointing up from Bordage, we were thinking about these terms in different ways. We had... The interesting part about this

article is that every section, somebody was disappointed. There's not a single piece of that article that everybody was signing off on with a whole full happy heart, and it was always a different person on a different section. What this paper represents, I think, is a compromise. When you're in a really multi-disciplinary field, you have to figure out how to talk to each other, and the way we've tried to describe theory, theoretical frameworks and conceptual frameworks is a way that can resonate across many different paradigms. It doesn't necessarily 100% reflect anyone all the time, but what we decided is that it was sufficiently true across a broad swathe of thinking about science, that this would be a good place to start conversations. It's a good place where you can say, if we agree on this, and if we can think about it in these ways, then you can say, "Well," and I will take this way of thinking about conceptual framework, I will add in Bordage to make it a little bit different. Or you can just run with this, and this should be enough to get you going.

Dr. Teresa Chan (49:06):
Yeah, I think it's a great paper, it's gonna be a landmark paper in my mind that I'll be turning to. I think what's interesting is as a clinician and as a really highly applied scientist coming from the other end, I think that that's the tension that I feel. Because it is coming from the scientist's perspective, I think the application scientists are wrestling with it in a different way because I use theory in a very different way, and maybe that's the next part. Maybe we should be writing that paper, but the idea is, how do we take all this great work that's out there and use those theories and those concepts and actually put them to work. I think that's a different kind of work. And so I think that's why I wrestle with it is because I live in what we call Pasteur's Quadrant. I waltz between use-inspired research and research-inspired use. And because I do that back and forth, like Pasteur being actually the guy that invented vaccinations and all that stuff. Louis Pasteur was a bench researcher, but then also walked all the way to actually inventing vaccines and back and forth.

Dr. Teresa Chan (50:08):
And so the idea would be that, how do we reconcile those two things? And I think that that's probably the next conversation for a lot of our colleagues who do work in health professions education, whether they're doing it occasionally or as their whole career. I do think that we have to acknowledge that it's in a highly applied field, not only is it in health professions, but education itself is a highly applied science. It's not meant to just advance knowledge, it's supposed to help teach people, it's at the core of it.

Dr. Dr. Lara Varpio (50:36):
Absolutely. Yeah.

Dr. Teresa Chan (50:37):
And then teach specific people and carve out professions and make sure that there are tangible outcomes for our patients in our society.

Dr. Lara Varpio (50:45):
Absolutely.

Dr. Teresa Chan (50:45):
I do see there is some tension there that is worth acknowledging and just to wrestle with that and to understand that theories are the struggle that I have when I'm writing a paper about innovation, is that actually, just like an engineer, I acknowledge that there's probably seven theories that went into making this package of awesomeness that I had just created...

[laughter]

Dr. Teresa Chan (51:07): And just as a car, it does not have one unifying theory that drives it. And application scientists will have a curriculum that has dozens of intersecting theories, and so that's where I think the idea of having that lens really comes into play because then you can look at different parts of it, right? Because in a Tesla, you've got computers, you've got no combustion anymore, but you have...

Dr. Lara Varpio (51:29):
Yeah, you have batteries...

Dr. Teresa Chan (51:30):
Batteries, you have chemicals, you have aerodynamics, all of those things make a car be able to drive, electric car be able to drive.

Dr. Lara Varpio (51:38):
Yeah, if I take that same Tesla experience, that analogy, the part that I think is really interesting is that there are whole domains of science of knowledge that underpin it, and those domains of knowledge are all creating elements that we use in practice. And all of those elements are based on theories of understanding of realities. What we understand about a battery is evolving and changing and that means a better battery, so that Tesla can do better things... I keep saying Tesla, I'm sure lots of cars use batteries and technically all of them, even my oldest car had a battery, but anyway. But then the point is though, that when we take those theories and we put them into practice, often we find by putting them in practice we tend, we find things that really work and we find things in that theory that don't work, that are false. And what I would very much like to see happen is that theory feeds into explaining and explicitly informing what we do, and then what we do explicitly feeds back into the theory so that we make better theory, 'cause that's when theory really gets better.

Dr. Lara Varpio (52:39):
The other thing I wanna just point out is that part of the reason we created this... We really sat down and started working on it, several of us on the team, I can't speak for others so I'll just speak for myself. I sit on a lot of editorial boards and on grant review boards, I sit on a lot of committees where we decide who gets funding for different kinds of research, and there's... And almost all of the forums when I joined many of them, the committees, there's a section called your conceptual and theoretical framework, and I found myself saying, "What does that mean to you, Mr. Committee? What does that mean in this journal? What does that mean?" And suddenly I found this situation where everybody around the table was talking about it in a different way. And I'm sitting there going, well, I can't make grant decisions about whose theory is right, when we can't even decide what a theory is right now, or what a conceptual framework is.

Dr. Teresa Chan (53:25):
Exactly.

Dr. Lara Varpio (53:26):
What we need is something that we can share and all talk to that enables us to then use it appropriately in different ways. I think that's one of the things you started our conversation by saying that you can't write a paper without a theory or a theoretical framework or conceptual

framework. Challenge is, that if we don't all agree on what they are, some basic principles, then an editor can reject your work because they're like, "Well, you didn't start with a theory and build a hypothesis on that, which is how you're supposed to build that science in one way of doing science," and then now your work's rejected even though it's excellent work.

Dr. Teresa Chan (53:57):
Exactly, I think that you've really done a really good job at explaining all of that, so thank you so much for joining me in this episode of this podcast, and I really look forward to having another conversation with you another time.

Dr. Lara Varpio (54:08):
My pleasure, Teresa. I love these chats with you, it's always fun. And thanks to your listeners.

Dr. Teresa Chan (54:13):
Thank you so much.

[music]

Dr. Teresa Chan (54:17):

Thank you so much for tuning in to the MacPFD Spark Podcast. Just so you know, this podcast has been brought to you by the McMaster Faculty of Health Sciences and specifically the Office of Continuing Professional Development and the Program for Faculty Development. If you're interested in finding out more about what we can offer for faculty development check out our website at www.macpfd.ca that's www.M-A-C-P-F-D.ca. Many of our events are actually web events that are free. Finally, I'd like to thank our sound engineer Mr. Nick Hoskin who has been an amazing asset to our team, thanks so much Nick for all that you do. And also thank you to Scott Holmes for supplying us the music that you've been listening to. All right. So until next time this is MacPFD Spark signing off.