Episode 63: "Searching for Positive Spillover" with Jiaying Zhao

with Jiaying Zhao, Associate Professor of Psychology and the Institute for Resources, Environment and Sustainability at UBC

Jiaying Zhao (JZ) returns to the podcast to discuss the recent i-frame vs. s-frame debate, which suggests that we need to choose individual (i) or systems (s) change. JZ counters the debate with evidence that the i-frame and s-frame can be complementary: Examples of positive spillover show that one behaviour change can beget another similar behaviour or attitude change. JZ shares why the field should try to create and measure spillover within and between people.

Transcript:

KIRSTIN APPELT, HOST: Welcome to this edition of Calling DIBS. I'm your host, Kirstin Appelt, Research Director with UBC Decision Insights for Business and Society, or DIBS for short.

Welcome to this edition of Calling DIBS. I'm your host, Kirstin Appelt, Research Director with UBC Decision Insights for Business and Society or DIBS for short. Today we're once again calling DIBS on Jiaying Zhao or the other JZ.

JZ is one of the founding members of UBC DIBS and the Advanced Professional Certificate in Behavioural Insights. She's an Associate Professor in the Psychology Department at UBC, with a joint appointment in the Institute for Resources, Environment and Sustainability. She's also in her spare time a Canada Research Chair in Behavioural Sustainability, among other honours. A proud bunny mom. And she looms large in the field of behavioural science. And I'm proud to call her a friend and have her back on the podcast. And if she can stop laughing, I welcome her today. So welcome, JZ.

JIAYING ZHAO, GUEST: Thank you, Kirstin. I'm very happy to be back.

APPELT: It's been a couple of years since you were on the podcast. Can you refresh us a bit on who you are or what you're up to these days?

ZHAO: Sure, I'm a Behavioural Scientist working increasingly on climate change and poverty reduction these days. My current directions are all about developing interventions to promote sustainability.

APPELT: Awesome. I thought it would be really interesting to dig into some of the current hot topics in the field. And arguably the biggest debate in the last year was ignited by the so-called i-Frame versus s-Frame Paper by Nick Chater and George Loewenstein. And before we get into a discussion, I thought we should provide context because not everyone will be familiar with the terms, i-Frame and s-Frame. So can you walk us through what the authors mean when they use those terms?

ZHAO: Yeah, i-Frame interventions are interventions targeting the individual and therefore the "I".
So, nudge interventions tend to be i-Frame interventions because they change individual behaviors,

whereas s-Frame interventions are targeting system change, things like policy support, increasing policy support, getting people to-- getting politicians to change their behaviours. That's under the s-Frame intervention or engaging in more civic actions like voting, signing petitions, etc. So that's how they define these i-Frame and s-Frame terms.

APPELT: And how would you summarize their claims about i-Frame and s-Frame? What are their claims and conclusions?

ZHAO: Well, they make this provocative claim that i-Frame interventions reduce the support for s-Frame interventions. So basically, it's a negative spillover effect that they're calling out. The idea being, I'll give you an example, if I nudge you to use renewable energy, which you have to pay more for, then subsequently you show less support for a carbon tax policy, which is also more costly.

This negative spillover is found in one of George Loewenstein's papers. And they kind of use that paper as a prime example of this negative spillover from i-Frame to s-Frame interventions. They also, you know, they went beyond climate change to health behaviours, to a range of different intervention domains. And yeah, so they caution against kind of overemphasizing i-Frame interventions. But I think that's the point of the paper.

APPELT: Yeah. And so, they really position the debate as about should we choose i-Frame or s-Frame. But the response has mostly been, is that actually a necessary choice is it an "or" is it an "and", can we have i-Frames and s-Frames, is there a reason to choose? So, where do you end on that debate and what are your reactions?

ZHAO: I certainly don't think this is a zero-sum game. I don't think we choose i-Frame or s-Frame. In fact, Francis Chan and I wrote a rebuttal to say that i-Fame interventions actually enhance s-Frame interventions. They go hand-in-hand, not in opposition to each other.

Another kind of piece of evidence I think that needs to be highlighted here is that there's actually very little evidence of the negative spillovers in the literature. Several review papers of meta analyses actually show that the negative spillover is close to zero. There's actually not much evidence for that. So that's the first empirical evidence.

The second piece is, as I said, there can be positive spillovers. If I engage people on, you know, individual behaviours that can lead to more system change or support for s-Frame interventions. And that's a piece of the puzzle that I think Chater and Loewenstein neglected in their work.

APPELT: I'm hearing what you're saying, and I land on the same side that you do based on the evidence. How do you think the paper has been received more generally?

ZHAO: Well, I've talked to all of my Behavioural Scientists who have read the paper, and I think they share the same view as me. I think the negative spillover is exaggerated in their claim. In terms of evidence, there's actually not much evidence to support negative spillover. It's quite a lot of positive spillovers. And we, to be honest, we as a field don't fully understand what predicts spillovers.

Actually, I have a working paper that tries to explain spillovers using reinforcement learning perspective. But I think it's good for us or behavioural scientists to pause and think about spillovers more carefully and not just talk about spillovers as this, "Woops, we happen to see this in the study, we don't know why," but this is nonetheless a finding. I think we need to be more systematic about that.

APPELT: So, beyond the reactions you mentioned, I'm curious, you said, you know, it's good for the field to think about spillovers. Do you think the debate has been useful for the field, do you think it's been harmful for the field? Has it been a distraction? Has it prompted useful discussion? Where do you land on having this paper or papers like these?

ZHAO: I think it's useful and distracting at the same time. It's useful because it calls for attention to spillovers. I think that's great, but it is distracting because it's not actually correct. A lot of the claims in the paper are not well supported by evidence and it's not helpful to think about spillovers from what they said in the paper. And I, you know, I think every paper is useful to some extent, but we do have to read the paper with a grain of salt and really pay attention to the evidence as opposed to a kind of ideological stance.

So back to the spillovers, I think that there are some frameworks out there to try to explain spillovers, but they're all limited in their specific ways and not very elegant. By that I mean, there's no single explanation that can say, you know, “Here are the conditions for negative spillovers and here are the conditions for positive spillovers”.

One thing we need to pay more attention to is what happens to the behaviour after the intervention is done. I mean, I think what behavioural science experiments typically do is we do and intervention, we measure the behaviours to see if it actually worked and leave it at that, right? We don't actually know how people feel when they have been nudged or when they have gone through this intervention. And I think what happens after that behaviour can predict the spillovers, and that's something we need to pay more attention to.

Take that carbon tax example. If I'm nudged by a default to buy renewable energy, which I'm then paying more for, you know, on one account you can say “Wow, that default nudge increased renewable energy adoption by 80%! Amazing!”. But what is the kind of impact of that, the spillover of that? So as a participant, I could feel less good about myself or better about myself depending on where I sit on the renewable energy issue. On one hand, I can be upset and say, “Well I didn't know I'm paying more for renewable energy. Why am I paying more?” On the other hand, I can see other people saying, “Yeah, this is great. This is something exactly that's consistent with who I am, what I support. I'm willing to pay more for renewable energy”.

So, I think for these two different groups, you will have probably negative spillover and positive spillovers because one is kind of “Wow, I'm just kind of being punished by this intervention so obviously I'm not going to support a carbon tax, that I'd pay more again”. And that's, I think, that's what happened in the negative spillover paper. But for a different group of people, let's say enthusiasts or climate supporters, the intervention could enhance their identity and that could lead to positive spillovers or increased support for carbon tax. So, I think that's one factor that can predict spillovers.

APPELT: Do you think that's related to the idea of targeting different interventions to different subgroups? So, if some groups will have negative spillover, some will have positive spillover. For some groups, it's the right solution. And for other groups, it's the wrong solution.

ZHAO: Yeah, absolutely. Yeah. I think that's a great observation. I think this is why, you know, across different studies, you see null effect of spillovers because they cancel each other out. And we typically don't do a good job of segmenting the audience and attracting the heterogeneous effects within a given population.

APPELT: And so, you have this rebuttal paper out there that is developing a framework for making sure i-Frame and s-Frame solutions, work together.

Can you tell us a little bit more about that and how that relates to what we've been talking about?

ZHAO: Yeah, so I think i-Frame interventions can enhance s-Frame interventions in two ways, at least. The first way is I can use i-Frame interventions to get people more excited about who they are, their values, their identities, the things they care about, and use that to nudge system change. And that's something that, you know, there's a paper by Greg Sparkman. He showed positive spillovers from i-Frame to s-Frame interventions.

Another way where i-Frame can enhance s-Frame interventions is that a lot of systemic reforms are not successful because people don't comply. Take the organic food waste ban in Vancouver that was passed in 2015, basically that banned food waste in multi-family residences in Vancouver. The compliance is low because it's just-- there's no punishment. If I throw food into the garbage, there's no monitoring, there's no accountability or enforcement. The compliance with that policy change is low.

And I think this is where s-Frame can actually enhance the efficacy of s-Frame by using nudge for making composting easier and more convenient for people. This is also what we call the “last mile problem”. Some s-Frame interventions are actually not effective because of the lack of enforcement or lack of punishment. i-Frame interventions can come in and bridge that gap.

APPELT: That makes a lot of sense. Thinking about that and zooming back to the idea of the consequences of papers like this for the field, do you think this paper will be beneficial because it is spurring more work in this area of spillovers and the idea of i-Frame and s-Frame working together, or has it gotten a lot of clicks where other things should have been gaining clicks? Or is it both? Is it also not an or but an and?

ZHAO: Yeah, I think it definitely has drawn more attention to spillovers than in the past. It's almost like somebody, you know, like a doctor telling you “You are sick”, but giving you the wrong diagnosis. So, is that doctor being helpful? I mean, I think, yeah, the doctor told you “You are sick”, so great, but we need a better diagnosis and better treatment for that.

I think this is what the paper is doing is it's calling attention to this problem we have in the field, which is not understanding spillovers well enough, but it's not necessarily giving the right treatment.

APPELT: Yeah, I really like that metaphor is perfect, and I think maybe what the field is doing then is finding the silver lining that there was this paper that took a very inflammatory position and was not based on good evidence. But out of that, the field is finding ways to take what is a part of a criticism that is merited and using it to interrogate other things.

So do you think there's consequences of this debate for the field beyond just the idea of having this more fulsome discussion and exploration of spillovers? The debate has gone into the popular press more than some other papers or other debates. So, are there any consequences of that?

ZHAO: Yeah, I think science is self-correcting, so I'm not too worried about starting on the wrong foot. I think eventually enough of us will provide enough evidence to say, oh, actually, you know, this is how we should think about spillovers. I'm not too worried about the long-term impact of this paper. I think eventually we'll get it right.

APPELT: That's a good segue because that sounds happy and positive. And so, thinking about what we recommend when we are thinking about issues like climate change, which do very much need both i-Frame and s-Frame and that makes me think of your “Happy Planet” work, which is something I thought would also

be nice to discuss today because you had your recent TED talk on that. So when you think about things like climate change and i-Frame and s-Frame, what do you recommend?

ZHAO: Yeah. So, the “Happy Climate Approach” is something that Liz Dunn and I developed in the last couple of years. The motivation is that, you know, a lot of climate actions are punishing. They ask us to, you know, reduce our consumption, cut back on things we enjoy, you know, drive less, eat less, shop less. And I think that's a recipe for negative spillovers. If you shame people, guilt trip people into taking action, they may become resentful and angry and they're less likely to do other things.

That's something we need to avoid, and that's what happy climate approach is calling for, which is entirely different that focuses on rewards or the emotional benefits of climate action. One idea is, you know, you can say drive less, but what are you supposed to do instead? Maybe bike more. And why biking? Biking is not only good for the climate but also good for your wellbeing. It activates our endocannabinoid system so we feel the “biker's high” as a result.

So that's a natural reinforcement to biking and that's one example and there are many examples we have provided so far. I think I went through eight examples in my TED talk. I think that's the right approach to get people to take climate action that benefit the climate, but also themselves and their individual wellbeing as well.

And in terms of spillovers, I think that's also a recipe for positive spillovers, because if I'm feeling good about biking, that I'm maybe more likely to take on other actions that make me happy as well, right? So now I'm going to drive my friends more and I might eat plants instead of you know, a burger, etc., that promote those wellbeing and climate action. So again, I have no evidence to say that will lead to positive spillovers. We have done one experiment that shows very preliminary signal that there is-- it could be a positive spillover from this approach, but we need more data to show that. But at least nonetheless, it's one new, different approach to climate action.

APPELT: And it's such nice work to learn about. So do you think, though, if the happy climate work is it the same, at the core, the same advice as has been given, but instead of focusing on the negatives and what you're giving up, it's focusing on the positives and what we're gaining. Is it essentially framing or is there more to it than that?

ZHAO: Well, framing is just outlining the benefits. But eventually it's about the benefits and not just framing. I think, you know, framing is to say don't say reduce, you know, use less, consume less. But we should say do more, that will benefit ourselves, our wellbeing, and the climate.

It's almost like shifting from a scarcity mindset to an abundance mindset. We should do more of those actions that make us feel good and reduce our footprint. Why not? Seems like such a no brainer approach, but unfortunately none of the current climate narratives is about that. Part of it is changing the narrative, changing the mindset. Part of it is actually getting more benefits out of climate action.

APPELT: Well, I'm thinking about the different work that you do. Are there any other places where you think there's room to investigate spillovers or hope for positive spillover, like in your work beyond the happy climate work, but your work on other parts of the sustainability challenge or financial decision-making under financial constraints.

ZHAO: Yeah, I would like to call, you know, BI practitioners to think about positive spillovers and design interventions to instigate positive spillovers and not just that change one behaviour only. I think one thing we can think about is how we deliver that reward after the intervention.

Let's say I bike and Kirstin you basically praise me and say, "Great job, JZ for biking!" that's a social reward, right? Like I'm getting some reinforcement from my friend. But you can also say “Great job JZ for biking because it's great for the climate!”. That conveys a different message because now there's value in that reward. And I think that value-laden message could be more helpful than just the simple reward itself like, "great job JZ for biking." Because then I would start to think of myself as, “Oh, I do things that benefit the climate.”. So biking is one, but there are other things like car sharing, taking public transit that these are all good for the planet. I think that can start the positive spillovers.

APPELT: And do you think the spillover, like with things like happy climate, there's a spillover within a person where they're doing more other positive behaviours. And what do you think about the role in terms of interpersonal spillover? Like, does it also lead to more spillover between people? And social proof type thing.

ZHAO: Oh, yeah, that's a good point. I mean, that's how the social diffusion happens. If I do this action my then my family or friends will start to do it, too. It's almost like getting a friend on board as well. Yeah. So, it's because our actions are, a lot of our actions are conspicuous. Other people can see it, it's public and that can start the ripple effect socially. It's getting other people on board, getting people to act across different contexts, not just in Vancouver, but in Florida or Europe, right? So, you carry that behaviour wherever you are. So those are all spillovers.

APPELT: And do you think things like Happy Climate are more likely to increase the between people spill over as similar to intrapersonal spillover?

ZHAO: Yeah, because I think happiness is contagious. If someone feels happy, then someone else may feel happy as a result. It's almost like laughing or smiling is contagious too. Yeah, I mean, again, I don't have evidence to support this, but my hypothesis is that if the action truly makes people feel happy, then people would actually do it. You don't even need convincing. It's just you get rewarded inherently after that.

APPELT: Yeah. And it's again, we don't have evidence, but just speculating. It also seems to make sense that you'd want to talk about it more. You know, I don't want to talk about the shameful climate behaviours that I'm not doing. But if it's a happy climate behaviour that I'm like, “Oh man, it's been so great that I know that I have my fridge 'feng-shui'ed' and I have all my vegetables up front and I've got these new recipes”, that seems like much more likely to have social contagion than---

ZHAO: Oh, yeah, because if somebody raves about it, like, you know, “Oh my God, my fridge is so good. I'm proud of my fridge. I have not wasted any food from my fridge ever since I've 'feng-shui'ed' my fridge” and you rave about it and you get other people to do it. I think that message is also contagious, too.

APPELT: Yeah. It sounds like there's a lot of fun research directions for a happy climate to look at spillover within and between people. That's exciting.

ZHAO: Yeah, there definitely are. I mean, I'm getting my students working on that right away.

APPELT: Well. Any other thoughts on the i-Frame s-Frame debate or other current critiques that you wanted to share?

ZHAO: I think we should definitely think about spillovers more and not just focus on the behaviour that the intervention is trying to target as the sole measure. I do think I have yet seen like good studies that track spillovers over time. But I would encourage practitioners, you know, researchers to think about spillovers and measure them more carefully and think about what conditions can enable positive or negative spillovers.

That's the main message from this paper. And yeah, certainly for my work, I think I'm just constantly thinking about spillovers at this point. I guess is this net positive or net negative overall.

APPELT: And just thinking about that a little more, encouraging people to look for spillovers, it seems, given what we've seen in a lot of field projects, that can be quite tricky to measure, any piece of data can be hard to get. So having to measure multiple dependent variables could be tricky. Are there any tips for tracking spillover?

ZHAO: That's a good point because, you know, on one hand, this kind of stuff sounds like p-hacking. If you're measuring a lot of dependent variables, that's a lot of degrees of freedom. One of them is bound to work, right? So, I don't mean blindly measure other behaviours. I do think we need to make very specific predictions of what other behaviours may be influenced by this intervention.

So, like messaging. Take a very simple messaging experiment, like reminders, sending people reminders. We often just track the sign-up behaviours or the behaviours that's targeted in that message, but we don't track, for instance, if I get the message, am I more likely to unsubscribe because I don't want to be spammed? That's a spillover. And that's something that you can easily track from the messaging perspective. So how many people unsubscribed? Whether you get complaints from participants on this reminder intervention.

I think those spillover behaviours need to be hypothesized and kind of, you know, they have to be relevant to that target behaviour and not just some random behaviours that you can measure. But as a, you know, what's the recipe for tracking spillovers? Unfortunately, I don't have it. I don't have the answer, but I hope someone else will give me the answer.

APPELT: Yeah, absolutely. Yeah, I'm just thinking about some of our work with partner organizations and how often when you're outside of the lab, databases are quite segmented. And so, one organization or one branch might be checking message open rates and it's like another branch that checks unsubscribe rates and yet another one. I can see where spillover ends up being quite hard to track when you only have a very thin slice of data to look at. I think that'll be a challenge as we do more partner research is how can we connect datasets and measure things beyond our focal BV.

ZHAO: That's a great point. Yeah, yeah. I mean, data sources need to be integrated to do that, I think.

APPELT: Well, any messages for our new BI practitioners in training?

ZHAO: Think about spillovers! Yeah, also just thinking more, now you got me thinking about spillovers, and also just think about who you're spilling over to and what you're doing and where the spillovers are. So not just in research, but challenges like climate change, where can there be more spillovers in your life? Yeah, the spillover in climate change, I think it's just the messenger effect. How can I get more people to talk about it to, you know, tell their friends, “Oh my God, I saw this thing, it's amazing”. How do you get that message to spread? That's an important challenge.

APPELT: On that note, I'll say everyone should check out JZ's TED talk. That'll be my spillover for the day. Well, I know we've used up a lot of your time, so any last thoughts or questions I should have asked or anything else you wanted to mention?

ZHAO: Yeah. We need to design interventions that make us feel good. We will keep doing it. I think that's the bottom line.

APPELT: Yeah, that's a really good point. And maybe again, an empirical question. We don't have data, but maybe that would also help with issues like burnout and people feeling all the climate anxiety is if we're focusing on the positives. So yeah, love that message. Well, thank you so much for joining. It's really fun to get to nerd out with you on theory and critiques of the field, and I continue to be excited by all the work you're doing. So, thanks for coming on the podcast today.

ZHAO: Thanks for having me again.

APPELT: And thanks to our listeners for joining another episode of Calling DIBS.