Episode 97: Using Carrots (Not Sticks) for Climate Action

with Jade Radke, PhD student in Psychology at UBC, & Jiaying Zhao, Associate Professor of Psychology and the Institute for Resources, Environment and Sustainability at UBC

As part of the "Happy Climate" project, Jade Radke and Jiaying Zhao are exploring how to increase both climate action and happiness. Across projects, they've found that positive frames and probabilistic rewards work: Framing actions as doing more good (vs. less bad), framing climate change as an opportunity for action (vs. a disaster to survive), and offering lotteries (vs. certain rewards) all lead to more climate action. That said, as we discuss, context matters!

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. Today, we're Calling DIBS on Jiaying Zhao, better known as JZ, and Jade Radke.

Long time listeners know that JZ is a co-founder of DIBS and Associate Professor at UBC's Department of Psychology and the Institute for Resources, Environment and Sustainability.

Jade is a psychology PhD student in JZ's Behavioural Sustainability Lab. I've been impressed with Jade's work, dating back to when she was a master's student, and of course, I and everyone else has been a fan of JZ for many years.

So I've invited Jiaying and Jade to the pod today because I wanted to hear more about some of their recent projects. We've heard some snippets of JZ's previous projects, but they've been doing some really neat projects together over the past year or so. So without further ado, welcome to the podcast, JZ and Jade.

JADE RADKE, GUEST: Thank you. Yeah, it's great to be here.

JIAYING (JZ) ZHAO, GUEST: Great to be back.

APPELT: Thanks for coming back, and thanks for being here. I usually ask people to start by saying a little bit about themselves and how they found their way to working in behavioural science. So Jade, do you want to kick us off?

RADKE: Yeah, absolutely. I have always been interested in psychology more generally. I can't really remember a time that I haven't been trying to figure out why people are behaving the way that they're behaving. It's always been an interest of mine, but I really started diving into it during my undergrad in psychology at MacEwan University.

I was taking all these different psychology courses. I wasn't quite sure where I was going to land, but then I started taking Introduction to Learning and Behaviour in my first semester of my second year with Dr. Russ

Powell. And immediately it was like, that just clicked for me. It made sense. I was interested in it, and I kind of dove in head first to it. Dr. Powell was my honors thesis supervisor, as well as Miranda Macaulay who is a board certified behaviour analyst. Miranda also runs the BICA program at MacEwan, which is a certificate for behavioural interventions that focuses on applied behaviour analysis, and I also completed that certificate.

And then after I graduated, I worked as a behavioural therapist in an elementary school for a little bit. I just loved the science and love seeing all the different applications of it. But, you know, I'm happy to be back in graduate studies because I feel like the question's never answered. I always want to know more. So it's really been just such an amazing journey, getting answers to previous questions and then having more questions as a result.

APPELT: 100%. And actually, what you're saying really resonates with me because I think I had a similar experience where I knew I really liked psychology, and for me it was psychology and economics, but I wasn't sure exactly what. And I had that similar moment of like, oh, this, this is the pathway to answering the questions. And then, like you said, having more questions and more questions, but at least starting to get answers.

JZ, you shared your journey with us before, so I thought I'd ask you more about a recent part of your journey, which is what brought you to working on projects related to the idea of Happy Climate.

ZHAO: I've been working on climate action for a while. What really got me started on Happy Climate is Liz Dunn, who approached me in 2019 and said, why can't we make climate action feel happy instead of miserable? And that was a light bulb moment for me. And that's when I started working on a Happy Climate.

APPELT: That makes a lot of sense. It can feel very disheartening, so I love that there's this more of a positive spin, so I can't wait to hear about some of the projects. But I thought we'd start somewhere else because I was looking through, and you both have together five papers between review and publication, which is pretty impressive for just a couple of years of work together.

And so I thought maybe the way to set the stage would be to talk about your paper in sustainability science, which is looking at how we can reinforce climate action. Do you want to tell us about some of the big ideas in that article? And then maybe just be careful to explain any of the jargon like operant conditioning or spillovers as you go.

RADKE: I was really excited to work on that paper. I feel like it's really coming from the sort of pure behaviourism point of view that I started with in that first class I already mentioned, and I think just so much of it, having experience working with kids and all of these things, positive reinforcement has just been shown to be so effective. And by positive reinforcement, I mean when we get something added to us after something that we do that we like. Usually it's a reward, some sort of money or happiness. We're a lot more likely to continue doing that thing in the future.

And then, kind of as you alluded to already, I came over to the climate side and just immediately saw everything was so negative and so harped on, we have to do this, or else all of these terrible consequences are going to happen. And that can be really disheartening. And people really don't feel motivated to continue working through all of that. And so we just were kind of thinking, kind of similar along the lines of the happy climate, happiness is like one example of, if we can be rewarded or reinforced for this sort of climate action, it will probably be a lot more sustainable over time and across different behaviours, as well as a lot more enjoyable.

So we wanted to really just create a framework that outlined that using a lot of previous science that's been done from behaviourism already. We already know these basic principles exist and they work, but just really applying them to the climate area. And for people who may not be as familiar with the line of work, to give concrete ways that we can do this, and it doesn't all have to be awful and sad, and we can benefit from it as well as making it more likely to keep happening.

APPELT: Yeah, I think it's really interesting the way you framed it, because as folks who have psychological backgrounds, we know that carrots often work better than sticks. But somehow when we think of climate, our first impulse is we're just so swamped by the idea of climate change that we're like, well, throw that out. We have to focus on the problem. And so just stepping back and saying, wait, we know carrots work, so maybe they'll work here too is just such an obvious idea, but one that we've all struggled to get to so I'm excited that this work is happening.

And I think that's a great segue to asking about your projects using probabilistic rewards. And I think you have two projects there. So I thought maybe we could start with the one on reusing cups, and maybe you could walk us through and again explain jargon like that phrase 'probabilistic rewards'.

RADKE: Yeah, absolutely. And JZ might want to jump in here a little bit more as well, because using the reusable cups actually was a sort of follow up other after the recycling study. The recycling study began a lot earlier. It's just the reusable cups was able to be published really, really fast.

I think that they both are along the exact same idea of, first of all, just reinforcement. We have this sort of reward. So for the cup study it was if people bring a reusable cup to the cafe, then they have a chance at winning, a 10% chance specifically, of winning a free coffee. And then the recycling study was more so focused on people's choices. And which would you prefer? Would you prefer this guaranteed ten cent refund for your recyclable bottle like you're used to getting? Or would you prefer a chance to win a higher amount, up to a 0.01% chance of winning $1,000?

And both kind of stemmed from this idea of reinforcement, but more specifically, variable ratio schedules of reinforcement, which I know is a very jargony word. But that essentially just means that the reinforcer, the reward, is provided on an unpredictable schedule. So we don't know for sure when we're going to get it. We know that we'll get it eventually, like a 10% chance, if we participate enough we'll probably get it at some point. But that has been shown in a lot of previous research to be the most effective type of reinforcement for eliciting high rates of behaviour, and also for the long term maintenance of that behaviour.

So combining this sort of idea of just, in general, a reinforcer, but also what's the most effective type of reinforcer we can use. And then it also just so happens that that takes a lot less resources as well. Instead of just rewarding every single person who brings in a reusable cup with a free coffee, they would run out of coffee pretty quick. So it's a great sort of realistic, but also potentially very effective way to increase behaviour in a way that's fun and more joyful than the same sort of pressures to just bring your cup or recycle, or else you're hurting the environment.

APPELT: Yeah, that's such a great insight to apply it here. And it's funny because it is, like you said, we do know from psychology that probabilistic rewards work well. And I mean, that's something we use with our dog. Like when we are playing fetch with her, we don't reward her after every single throw. It's every 2 or 3. And so that way she's not getting too overweight because it's tempting to treat her over time, but she gets that, and then it's fun for her because she doesn't know which one is being the rewarded one.

And so like you said, with the cups, it's like, oh, maybe this time I'll get a big prize. There's a, you know, kind of joyful feeling there.

And so one of the things I really liked about these projects is that you used a combination of methods. I think from my read you used both more lab studies and more real settings. Can you walk us through the methodology used?

RADKE: Ideally, there's pros and cons to each. So for the recycling study, we started with field experiments where we were out with real behaviour. We had people actually bring their bottles to a table that we had set up either in the AMS Nest for one study or at an event in Alberta in another study. And in the moment when they went to go recycle, we asked them which option they would prefer, if they would prefer to get their guaranteed ten cent back for recycling that bottle, or if they would prefer a chance to win a different amount of money. And they filled out a survey sort of at the same time.

And we, in that exact moment, ran the odds based off of whatever choice it was. And if they won anything from their selection, we gave it to them immediately. So we were able to have this sort of, people were going about their days and just recycling and participating out in the world. But this limits our interpretation of causality because we didn't have sort of random assignment to conditions. It could be that people who chose certain things were also more likely to bring more bottles for a completely different reason than the choice that they made. So we wanted to sort of narrow down that relationship a little bit more.

So we did an in-lab study where we could randomly assign people to a condition. And there we sent out an email to participants who had signed up for the study ahead of time, usually other undergrad psychology students who sign up for course credit, and we would send them an email the day before, either saying that they have a chance to get $0.10 for every recyclable bottle that they brought into the lab when they came to participate, or that they had a 0.01% chance of getting $1,000 for every bottle that they brought in to the lab to participate. And there we saw that people who were told that they had a 0.01% chance of getting $1,000 were much more likely to bring more bottles, 47% more bottles specifically, than those who were just told that they could get $0.10 for every bottle that they brought to the lab.

So we wanted to use a mix of methods there to get at different aspects. We wanted to have the naturalistic component, the choice component, what do people prefer? But we also wanted to narrow down sort of does this actually influence rates of recycling?

APPELT: That is really neat that you have that convergent evidence. And did you find similar results for both container recycling and reusable cup reuse, or were there any differences?

RADKE: Yeah, we did find for the reusable cups... we didn't have any random assignment, but we did have a control location, so Loafe was the location used for that study. And it was really great because they're both on UBC campus, it's the exact same cafe, so it's a great control location. And essentially we did see that in the one location that we offered a 10% chance to get a free coffee, the rate of reusable cups did increase compared to the control location where that offer was never implemented. I mean, there's lots of other opportunities for it to be implemented.

I think we also have opportunities to show this more robustly as well. Like if we have more studies that really kind of highlight this works in different contexts with different prizes, maybe different amounts, then different cafes can adapt it to their own needs. But I understand the hesitancy to implement something based off of one study. It's always great to have more evidence, but so far the evidence is great. So, in the right direction, I should say.

APPELT: Yeah, it would be neat if they do implement it long term, that'd be a real win. Speaking of implementation, are there other settings where you think probabilistic rewards would be able to be a good intervention for eco-friendly behaviour?

RADKE: Absolutely, yeah. I think that it can be applied in so many areas. I think it's one of those almost low hanging fruit that we could do a lot more frequently. A lot of places do do it. A lot of companies do place sort of, you know, fill out our survey for a chance to win a $50 gift card and things like that. So logistically it is being done. One example could be public transportation. Maybe every time somebody scans their campus card or pays on public transport, they automatically get entered to win a prize. What exactly that prize would look like, how often it would get given out, who knows? Those would all be details to figure out. But I think that that could be a potential incentive for increasing the use of public transportation. I don't know, JZ, if you have any other ideas.

ZHAO: Well, we're actually running a very similar experiment at the Harvest stores on campus. So these are little grocery stores that offer produce and sandwiches and deli options. We're actually running one right now where if you're ordering a plant forward meal or a sandwich, you have, I think, a 15% chance of getting a reward. So we'll see what the results are for that one. But, yeah, it's been pretty effective so far. It's just a matter of whether the cafe or the restaurant has the capacity to offer this reward.

APPELT: Yeah, it's really neat. I really like the idea of trying it on things like food choices or, you know, like potentially bringing reusable bags. Like, once you start thinking about it, you can think of a lot of different ways. And I really like the idea on transit, because I think transit is one of those ones where it can feel like you're being a bit of a martyr to get on the bus sometimes, you know, when it's super crowded and the idea that maybe you, like, are getting a prize when you get on the bus, that seems like that could be a moment of joy when it's sometimes a joyless commute.

Well, beyond these probabilistic rewards, you've also looked at other ways to motivate climate action. Do you want to tell us about how framing might be a good tool? I think you have a couple projects there. Maybe we can start with doing more good versus doing less bad. Can you tell us about the idea and results there?

RADKE: Essentially, we just noticed, like you have already said, so much climate communication is negative and focus is just on what we should be doing less. So eat less meat, drive less, fly less, shop less. Rather than focused on what we could be doing more of to help benefit the environment. So we wanted to test whether presenting these actions as things that people could do more of to benefit the environment, like eat more plants rather than something they should do less like eat less meat, would make people more likely to take those actions, and also whether they would feel happier about taking those actions.

So we did two online surveys. The second was a direct replication of the first one with a couple of added questions that just presented 15 different climate actions that were either framed using the Do More Good or framed using the Do Less Bad, and people were randomly assigned to just view one set of those. And they were then asked, how likely are you to take this action in the future? And how happy would taking this action make you feel? And we found across both studies that people rated that they were more likely to take the actions in the do more good and also happier about doing so.

An important caveat to that is it did sort of depend on the action. So overall, when you kind of merge the overall likelihood and happiness findings, we do see it lean more towards the do more good. But for specific actions we had, for example, driving more people AKA carpooling versus driving less miles. And that one went completely the opposite direction. People rated that they were more likely to drive less miles and also felt

happier about driving less miles, which of course makes sense. Driving is not a great part of our day. If we can do it less, I'm sure we would all love to do it less. So I think in general we should look at framing more things about what we can do more. But we have to be careful with the specific action and whether that specific framing would benefit it.

APPELT: Yeah, that's such a great point because I think sometimes we lose the nuance. So, you know, we'll find a great result, like focusing on doing more good works, but then we don't do the context check to say, like, does it work in this specific scenario. And so like you said, it didn't work with the audience you tested, but then if we tested it elsewhere, maybe that one would work and something else wouldn't so it really highlights that importance of testing each variation.

And it is interesting that in this context the carpooling didn't work because obviously there's always like the Great American Road Trip or the Great Canadian Road Trip with friends, but that doesn't map onto carpooling to work, I guess. So that project is really looking at framing the behaviours, but we can also frame the climate emergency itself in different ways by focusing on different aspects. So can you tell us about your project, looking at how we describe the climate emergency itself?

RADKE: Yeah, absolutely. This is our sort of Happy Climate framing study. We essentially just randomly assigned, again, an online survey, people to view a description either in the Happy Climate condition, which is just sort of telling them we're in a climate emergency right now. This is an opportunity for us to change our behaviour to both help the environment as well as our personal happiness, or they viewed a more disaster negative message. The typical: this is a climate emergency. It's causing all of these natural disasters. We need to change our behaviour now or there will be devastating consequences. Or they viewed a neutral message which just gave facts about the climate emergency and climate change, and sort of how it works and how we should change our behaviour. And then lastly, our control condition, they only saw a message related to happiness, and there were no mentions of climate change or the climate emergency at all. And then we gave them a list of different climate actions, some individual actions, some civic actions that they could take, and they had to select all of the ones that they were willing to take. Which of these following actions would you be willing to take?

And we found that the happy climate framing, as well as the neutral framing, were both leading people to select more actions than the disaster and the control frames. So that sort of gives us this indication that this disaster frame really is sort of harming people's willingness to take climate actions.

APPELT: Can you give us an example of what you mean by civic action and individual action? What were some of the behaviours?

RADKE: Yeah, absolutely. Individual action would be things like eating more plants or eating less meat, biking instead of driving, things like that, that you can just sort of do as an individual without any sort of community involvement. Or a civic action, sort of things more like voting for a candidate based on their climate platform or attending a climate rally. And the Happy Climate frame seemed to be particularly helpful for those civic actions as compared to the disaster and control. Neutral was also better than control for those civic actions, but not better than disaster.

So there might be a little bit of nuance between the different types of actions as well. But overall, both Happy Climate and Neutral were definitely better off than the disaster and the no mention of climate action as well.

APPELT: Yeah, that's really interesting. It's neat to see this kind of theme that you're looking at it in different ways in different studies, and it's still this thread coming through of focusing on the positive, or at least not

focusing on the negative. And so you've already got this impressive portfolio of studies. Do you have new ideas brewing, either new applications or new angles you're looking at?

RADKE: Yeah, definitely. There's always a million ideas. It's which ones are we able to do and which ones are we going to do next? We are partnering with One Earth Living and Canadian Geographic soon, which is very exciting. We're going to do sort of a larger scale study looking at presenting different climate action challenges. And through the lens of this happiness component as well, of these things can really improve our lives and our well-being.

And presenting these challenges through Canadian Geographic social media and sort of seeing the uptake of these climate action challenges and how it changes people's behaviour, as well as maybe their mood as well, maybe their happiness, and just sort of looking at a whole host of things, of how participation in these programs might change people's willingness to take action and lives overall. So it's still very much in the works, but I'm excited for that one for sure.

APPELT: That sounds really neat, and I love that we have a teaser for bringing you back next time hearing about that project. But I love that idea of, I don't know, you know, like a lot of times people talk about doomscrolling, but maybe we can have joy scrolling or happiness scrolling. Something along those lines. JZ, any projects that you're particularly excited about?

ZHAO: Yeah. so I think that Live Net Zero will be very cool to pull off. One note is this is going to happen in families across Canada as well as schools, I think middle schools and high schools. So we will share more in a year or so about what we did and we find. Lots of other directions to go from the Happy Climate perspective and the reinforcement. I think the probabilistic rewards are very promising. I think one challenge that we haven't solved is we haven't identified what's a reward, because to different people, different things are rewarding, right? So for somebody who really needs money, maybe paying them money is going to be very effective. But maybe for others it's a social connection. It's talking to friends or reaching out to more people. S

So we haven't quite figured out what is a reward. It's a great intellectual challenge to take on, and it's going to be, you know, part of Jade's PhD thesis.

APPELT: Yeah, that's really interesting to think about different rewards, and do you tailor to the person or, you know, is it like when you have the old prize wheel and then they get to pick and you can take that so many different ways. That's really interesting. And then also getting into like social components, is that a reward for me or a reward for someone else, a charitable donation?

ZHAO: Yeah. whether you're an extrovert or introvert-- so I'm an introvert and social connection sometimes can be a little draining for me.

APPELT: No carpools.

ZHAO: Maybe not the most important piece. But for an extrovert, that's all they crave, right? So we haven't figured out. Well, for some people nature, going into nature is really rewarding. But for others it's cities. So I think figuring that out is going to be key.

APPELT: Yeah. So interesting. I can kind of mentally see the progression of studies that you would have. So that seems like a really neat area.

Well, it's been really neat to hear about these projects, but I always like to wrap up by asking about a message for BI practitioners in training. This podcast originally started as a podcast for students in our certificate program, and we're more broadly now, but it was just like to see if folks have a message for people who are newer to the field of behavioural science and maybe just getting their feet wet. So, Jade, any thoughts from you?

RADKE: Yeah, I do have something that I think is so important to kind of keep in mind as you're going through it. I've definitely had this conversation with people before about the ethics of behavioural interventions, and a lot of people seem kind of worried about it and are worried, or is this okay what you're doing? And I like to kind of remind people that it's a science and it in itself isn't necessarily ethical or unethical, it's the application of it.

So you could absolutely use behavioural interventions in very unethical ways and people do all the time. Companies do all the time. But if you know that where you're coming from and how you're applying this knowledge is ethical, if you're considering, you know, does this benefit the people that I'm sort of intervening on? What are the benefits here? What are the risks, what are the costs, and just not losing sight of that? Because it can be easy, I think sometimes to go down the rabbit hole of I can easily make a lot of money by doing this x, y, z, and I think that's where a lot of people get their hesitancy from.

So if you're just aware of that as you're learning and as you're practicing researching, whatever you end up doing, I think it's just really important to always consider the ethics and the broader context of how you're applying this really amazing, cool knowledge.

APPELT: We often talk about it in the academic circle of like the transparency principle, but I think someone called it-- it was either like the Globe and Mail principle or the CBC principle. Like if someone published what you were doing in the national news, would you feel proud or embarrassed? And you know, if it's something you'd feel embarrassed about, you're probably going down an unethical path, but something you'd be proud of, you're probably on the ethical path. And so making sure you keep asking yourselves those types of questions, you don't get so lost that you don't step back and ask those questions. And then usually you'll be in a good place.

JZ, any messages from you? I know you've given us several gems over the years of different podcast appearances, but maybe you've got something new.

ZHAO: I do. So I would like to rethink about the dominance of ease in behavioural science. We've talked so much about "make it easy", which works very well, but I think we need to maybe rethink that and then shift more attention to make it fun, make it rewarding, make it enjoyable. I think reflecting on my own life, some of the best decisions I made, the best things I may have done, are not easy. Like getting a PhD, that both you, Kirstin, and I have done. It's not easy, right? And Jade is currently on your path. But it's so rewarding and that's why we do it. You know, having a kid is not easy. Going to the gym is not easy. But we will do it. We know it's good. So I think I would like behavioural science to focus more on reward and fun, and how do we reinforce our behaviours? And not too much on "make it easy".

APPELT: Awesome. Those are great messages, and I always ask as my last question, anything else you wanted to cover? Anything I should have asked and didn't, or anything else you wanted to share?

ZHAO: So this is going back to the ease and reward, obviously, because I think we need both. There has to be rewarding and hard things that are rewarding will become easy over time. I think there's a quote from Carl Yung, one of the founding fathers of psychology. He said if the path before you is clear, you're probably on

someone else's. So I think we should think about, you know, maybe take on a challenge. Change is hard, but if it's rewarding and fun, then we'll make it happen.

APPELT: Well, thank you both for joining today. Happy Climate is such a breath of fresh air, and it gives me hope in the midst of the multiple emergencies we find ourselves in. And I'm excited that you're both carrying this work for it. So thank you for doing the work and for sharing it with us today.

RADKE: Thank you so much. Yeah, this was really fun.

APPELT: Well, thank you both. And thanks to our listeners for joining another episode of Calling DIBS.