

Welcome. You are listening to the UC Davis Center for Poverty Research Seminar Series. I'm the center's director, Ann Stevens. This series brings scholars and policy experts from around the country to discuss their work on poverty and poverty research. In March 2013, we hosted Cybele Raver, a professor for applied psychology and vice provost of academic faculty and research affairs at New York University.

Her research examines the mechanisms that support children self regulation in the context of poverty and social policy. Raver has received a William T Grant faculty scholar award as well as support from the Spencer Foundation, the MacArthur Foundation, the National Institutes of Health and the National Sciences Foundation.

>> Here is Raver presenting her seminar, poverty and children Self-Regulation, scientific inquiry and prevention.

>> So what I'm gonna do today, I'll get, I'll give you a brief introduction in terms of how I place this work, in terms of research on poverty and inequality. It's very exciting that you're funded for this institute, and I'm very excited to hear more about what you're all, working on.

I'll give you my take on that. Just briefly, I'll give you a little tour of the Chicago School Readiness Project. It's a very great opportunity both in terms of federal support for the research and in terms of the tremendous amount of input and collaboration with great colleagues. For this project, and so it's great to be able to talk about those findings across multiple years.

And then, I'll talk a little bit about the role of schools in neighborhoods, for the development of kids self-regulation, for CSRP kids over time. That's where this work has gone, to really take, self-regulation in context. From the perspective of looking at it within the pre-school context, to looking at it within larger, school and neighborhood context.

So, first I just wanted to start you off this figure. I'm sure many of you, if not all of you, are, deeply familiar with this figure, You know that chill, that adults, ages 65 and over have basically experience dropping rates of poverty over time. Now, of course, Ross and I were talking, at dinner, if you look at supplemental poverty measures, the graph looks different, but I'm going to go over, this.

And, I'm gonna use old-school, measurement of poverty. And you see that that drops relatively precipitously and the rate for children, under 18 kinda bumps along going up and down. You know, for kids under age six it's even lower, I mean even higher, we know that's because their parents are younger and are earlier portions of the earning trajectory.

So that, you know between one and four, and one and five kids in the US is poor. And I show this figure for two reasons. One is to point out that when we study kids in poverty in my view we're not studying a very specialized, population. It's actually quite generalizable to a large sector of the population.

And I think often from a basic search standpoint, there's the perception that when we study processes among at-risk kids that, that's somehow a very special or atypical group, and in this case, I think it's actually not. And that's deeply saddening or it's frustrating for those of us who really don't believe that lots and lots of kids should be poor.

But that said, the other reason that I pointed out is, because of the difference in these trajectories, anybody know why the rate of poverty came down for folks 65 and older?

>> Social Security.

>> Social Security passed. In? 1935, good. Right? Which is the same time that welfare was substantiated, aid to widows, Right?

Essentially. And Linda Gordon has an interesting story of that, but more importantly, it came down, actually, in the 60s and 70s, many, policy analysts and historians of, of public policy of domestic US. Poverty policy, inter-poverty policy, have argued that that's because of, the rise of power, or, the advocacy organizations of the American Association of Retired Persons, right?

And that substantial shift in U.S. poverty policy, or anti-poverty policy, went toward transfers, increasing transfers to widows, to single older women largely the elderly who are poorer women, where that has not been the case as clearly for families with young children. Why is that relevant? Well because I just want to highlight now that poverty is not a natural thing, right?

That's actually the case that we initiate or instantiate or support or pull apart policies focused on poverty. And at the end of this talk, I'd like to bring that back for what that offers us as an opportunity for understanding basic science processes or, or, or basic developmental processes from a, a, a, both a basic science and an applied context.

And I hope to make that clear as I go. But if I don't, just remember, Isabell, what was that point you wanted to make about anti-poverty policy and social science research? Any thoughts before I go leaping forward 'cause otherwise, I'm going to keep going. All right, cool. Okay, so what's the implication for education?

We know the income gap between richest and poorest kids in the US has widened substantially, between 40 and 50% in the last twenty five years. If you look at Sean Reardon's recent chapter in *Whither Opportunity*, which I highly recommend for those of you who haven't had a chance to read it, but a lot of you probably are reading it.

The consequences for learning are just tremendous right? So the gap in academic achievement between richest and poorest kindergartens for example, is now two to three times larger than what we used to think of as the race gap, the achievement gap, between black and white children several decades ago.

Or rather it was our biggest focus several decades ago and now that got disclosed while the gap for the rich versus poor kids has, you know, widened tremendously. Just as an example, in Chicago where I was working for several years and these data are collected, 86% of kids who are eligible I mean in school are eligible for a free lunch.

The poverty rate in Chicago is not one in five but virtually the vast majority of kids in Chicago Public Schools. What that means for the school system is pretty shocking, which is that more than 25% of kids, in third grade, 24,000 kids in third grade, were not able to pass their school proficiency.

standards, basically making them very clearly eligible or, or at risk for high levels of educational difficulty. Chicago Public Schools estimate how many kids they're gonna have, basically, A juvenile justice involvement based on the estimates of their third grade proficiency standards. And they know that kids who are having trouble in third grade, are gonna have a wide array of difficulties as they move towards High School and through High School.

So this is a really substantial concern for Chic, for urban school systems, which many of you talk about. So in my view then the next pressing scientific question is not whether poverty is bad. I think that welfare reform research from economists and other social scientists did a very nice job of demonstrating the extent to which poverty is bad for kids, and how anti-poverty policy can actually be good for kids in some cases, not all.

But more importantly I think that we're really interested now in moving that dialog to thinking about mechanisms specifically how poverty exerts such deleterious effects and what we can do to mitigate those effects. Which is I think is where a development psychologist can be quite helpful, at least I hope that we can.

So it's a solution to us teachers to teach more the standard sort of view from a straight-up model of educational reform, is that teachers just need to get in there and teach more to raise achievement or educational opportunity for low income kids. And I think that's an interesting and important set of hypotheses to test and I think we're doing that extensively in educational research.

But what I think of a lot from the perspective of social emotional development as a developmental psychologist. Is that increasingly, neuro scientific evidence in my colleague's work demonstrates, clearly, that chronic stress is associated with poverty related adversity exert their influence through neuro endocrine pathway, through the HP access.

Such that children who are facing these chronic to high levels of adversity are experiencing compromise prefrontal cortical functioning in terms of executive function. And that those kids are having more difficulties in terms of

behavioral regulation. We know that epid, epidemiologically in terms of terms in higher risk of behavioral difficult and we know cognitively in terms of measures of executive function.

So these are som analysis I ran off of, fortunate enough to run with my colleagues, Nancy Blair and the Family Life Project. The investigators, with a sample of 1200 kids, followed from birth by just analyzing the number of years that families were experiencing an income decreased ration of 1.0 or lower.

Then you can see that a clear adult dependent relationship with kids in higher number of years of poverty showing lower EF. This is net of poverty at, at two months. So this is net of family characteristics that would quote unquote, control for a set of unobserved variables that you would think might be leading families to select into quote, unquote, poverty, right?

So I really was trying to be very careful in specifying quite conservatively using a kitchen-sink o-l-s regression what the estimate of the number of years of poverty is for its association with kids' executive function. And this has been show in multiple labs across multiple different data sets that, the amount of time in poverty is clearly associated with more difficulty regulating.

What does that mean for schools? Well what it means for schools is that kids who are at higher risk of behavioral and neurocognitive difficulty with self regulation are in those classrooms that are under resources, in terms of handling those difficulties. So my kid goes to a private school, where I can be assured that there's a clinically well trained counselor in a little office behind the kitchen, where if my kid is having behavioral difficulty there's an on site clinical specialist that can offer that child support.

In the public school right across the street, they do not have an on-site clinical specialist. And that school is serving a much higher proportion of behaviorally-disregulated kids. So, not only do kids' experience this double jeopardy, but in addition, kids' disruptive behavior may limit not only their own, but others' opportunities for learning.

So in an early paper, I pointed out that in a classroom, a middle income classroom, the average number of kids with behavioral difficulty might be one or two kids. Something that a preschool teacher could handle. But in a very low income classroom where kids are highly, highly segregated by income because they're income eligible for that free preschool, the rate of behavioral problems actually more like between two and five kids.

So suddenly that preschool teacher with less, training is managing many, many more kids with behavioral difficulties, such that there might be substantial risk of peer effect. Okay, so that's certainly the glass half-empty, right. And I was, like, really trying in the early part of my career to be a person that focused on social competence and emotional confidence and resilience among poor kids.

So, how am I ever gonna get to that positive story, out of this very bleak portrait that I just portrayed. Well I think I first need to tell you how I think about self regulation. And this idea that it's actually kids' self regulation that might signif, significantly constrain their opportunities for learning.

As well as potentially constraining teachers' opportunities for instruction. And the way that I think about self regulation eh, is really is formed by two different very wonderful but quite diverse trajectories of scholarship. One is through this idea of emotional and behavioral self regulation from temperament research, which really focuses on emotional reactivity and regulation.

And Ross Thompson has this amazing paper in 1994 that defined much of this field for us in this way. Really thinking about kids propensity to become highly, highly aroused physiologically as well as emotionally, and the extent to which that it was difficult or easy to be able to down regulate from that level of arousal.

And obviously Paul and a number of you, Amanda, are doing very cool work in that area. Really trying to understand and break down the many many different components of reactivity and regulation where. We're really focusing on the emotional substratum, the limbic sort of portion of kids' experience, to really understand how they are managing their impulses.

That there's that emotional kind of roar, that, there is either, at full blast or subsiding such that it could really impede kids' ability to focus their attention for example. From a completely different trajectory of scholarship we focused on executive function. Which really looks at for many ways, in many ways from both a clinical and a neuro science perspective, on kids' ability to use their working memory, their attention deployment and their ability to inhibit prepotent impulses.

What does that mean? Basically impulse control. When that child is really really gearing up to run to the door to get ready to go up for recess, but that teacher says that everybody has to stop and get in line and not touch their little partners that involves inhibitory control, they have to inhibit.

The prepotent impulse to run to the door, and they actually have to pull upon the subsidiary demand which includes working memory cuz they have to remember the rule that they have to stand in line and not like, mess each other up. Right so that notion, of those multiple skills, as primarily a top down or a cognitive function is, is right.

It's, basically, strongly substantiated by great neuroscientific evidence that the role of the pre-frontal cortex as being able to regulate behavior. And, you think about it, for us, as adults, right? When we're anxious? As I'm standing up here and I realize I'm talking too fast and I'm, like, starting too get a little jittery, then, I have to, actually, like, bring it down, right?

That I'm actually using my thought process to regulate my arousal. That, that top-down process is, is what we're talking about. What's interesting is because I've sort of floated along at the level that I have, at the more molar level, I'm particularly interested in the integration of these top-down and bottom-up processes.

So we know, as I just said, that cognitive processing can serve as the executive to help kids select good behavioral options in the face of emotionally conflicting or upsetting demands. But we also know that emotions can be very disruptive, it can be the role of bottom up processes where emotions can really disrupt cognitive functioning.

So if kids are experiencing a lot of adversity and are emotionally dysregulated they might have difficulty focusing their attention, they might have difficulty using their working memory. This idea that the frazzled brain doesn't work as well as the contemplate of brain. Right, any, any person who's tried to get themselves, their kids and anybody else into the car at five of eight in the morning to get to school at 8:10, knows that your ability to remember where your keys are and to remember not to scream at everybody and to remember to.

You know, put your briefcase and your kids and everything else in the car calmly. That's very disrupted by those stressors, right? I've never experienced any of that. Do these skills matter for learning. Certainly from the trajectory of developmental science, early in the 80's and 90's, there was a ton of correlational data that beautifully illustrated.

That there was clear associations between kids' emotional regulation and their academic achievement. What I think is fair to say is that those who are very rich in measurement precision. So developmental scientists who've done a fantastic job of measuring kids engagement, measuring their emotional regulation, measuring How they, were liked or dislike by peers.

Measuring how much the teacher is engaged with those kids, depending on their profiles but not so clear in terms of being able to draw causal inference, right? So we could say that some of those were transactional or bidirectional, it was not clear what was driving what. We were clear that children who demonstrated better emotional control were liked better by teachers and peers.

Basically we now know that kids basically come in and teacher's develop reputational bias literally within the first week of school. Teachers have a very hard time updating their cognitive schema of kids once they've decided that your kid is a rambunctious, energetic, happy-go-lucky kid, you can't, it's not easy for that teacher to update that view with new data.

We've also found that children who are, given that reputational status, as either liked or disliked. In turn themselves a

report enjoying school more, with fewer absences and greater engagement. They actually miss fewer days of school than the kids who are reputationally disliked and who, are more emotional. Now, I've just told a causal story there.

But you could imagine somebody coming in and saying no to them, sorry. Cognitively less skilled kids act out because they're not learning as much, right? The point being here that, regardless, throughout you know, the late two thousands, we see that kids who have better EF can organize their attention, use working memory and HIPAA regulatory control.

Have higher achievement even after controlling for I.Q. So what are we deal. Op, sorry what do we do when we have good data to make a costful inference. People like me can't wait to just randomize the heck out of it, right? If we can randomize to an intervention that would support emotion rag and we find that kids with that intervention support demonstrate not only better emotion rag or behavior rag but also greater academic outcomes.

We feel more confident in making that causal inference, right? We essentially introduce an instrument, they ran them as status to treatment versus control to be able to make that story more, believable, to be able to make that inference. So Steph and I, Steph Jones and I, just put together this model, just at the time that the Bush administration was doing the good start grow smart initiative which was sort of the young version of no child left behind where there's a strong emphasis on language and math for preschool aged kids.

A strong emphasis on really trying to boost pre-literacy and pre-academic outcomes. We said, okay great, so we understand that kids come to school with a certain profile, and that teachers are going to be expected to put a lot of input and do some instruction for kids language and literacy and the kids are going to, over time, show increases in language and literacy, that's what should happen.

That makes total sense to us, but what we feel was left out of the model was this whole bottom half, right? Kids also came in with a co-varying profile of emotional behavioral adjustment. But that, if it was, if the kid was super well-regulated, might draw on greater teacher instruction or make it easier for teachers to provide more instruction.

But if that child was highly dis-regulated that might actually pull for a less instructions specifically the teacher also had set the emotional skill in terms of classroom management. And that teacher, if she was fantastic and veteran and knew what she was doing, she could be able to move a kid into a more positive trajectory with gains in emotional and behavioral adjustment.

Or if she were super detached, super harsh and punitive, you might actually imagine that kid with behavioral difficulty might become exacerbated in his or her profile, of emotional behavioral difficulty. So Jay Belsky's work, way back when he was saying that child care might be really bad for some kids, might be right in this zone, right?

That kids in their deregulated T-1 profile might actually not be benefited by a setting where there was not sufficient support for that kid's emotional behavioral development. That might be, substantially moderated by a family and neighborhood risk. So what could we do? Well, let's put a huge number of services right there to see if we could actually improve this trajectory.

So we've basically targeted the kids' social self, I mean, emotional and behavioral self regulation right here. To see whether we got any changes right there as well as right there. And if we did then we would feel more confident in making a causal claim that emotions matter, that self regulation matters for academic achievement.

Not only that, but while we were doing that, can we actually also ask a question had some policy relevance so specifically, for the price that we were willing to pay or for the price that they're willing, government was willing to fund us,. To provide intervention services, we should pick an intervention that was actually implementable in the real world.

That might actually yield some information to preschools about whether that was a good way to go, a good road to travel. So it was really important not only to pick up an intervention, but a good counterfactual that was actually within the range of feasibility for programs. And I'll talk a little bit more about that if I have time later on.

But, basically, in the short run, we really to know, do kids in treatment assigned classrooms show lower behavioral problems, higher self rank, greater gains in pre-academic skills, than do kids in control classes. And that was specifically in a field based experiment. How do we recruit kids? I was lucky enough to work with at Chicago, and he was great at training me to think more like demographer, in terms of sampling.

And he said, Well, you don't choose just 2 preschools and then go to town. You don't actually choose ten preschools and go to town. You choose the number that's going to give you sufficient power to find your effect. By the way, that's a lot more than you're funded for.

Good luck with that And pick it so that, pick those preschools in a way that you can say what it's representative of. And so we used exclusion criteria basically to rule out neighborhoods that, didn't fit what would make sense. So we ruled out neighborhoods that didn't have a lot of poor kids.

We ruled out neighborhoods that were having tons of, housing mobility because I wanted to be able to follow kids and I didn't want housing mobility to be, basically confounding my intervention in fact. We picked communities with higher than median levels of crime, because we knew that kids at high levels of crime were probably gonna be at, at most risk.

And we didn't want it being classrooms that were at low risk, cuz this is the whole point with intervening for kids at high risk. And, so, doing that, we did it, we drove around, seven, we picked thirteen neighborhoods, randomly selected to seven. Then did, block by block, surveys in every single block within those seven neighborhoods to identify all child-serving agencies that had a little banner that said preschool.

We called all of them, so do you collect any Head Start Dollars, and do you have at least two classrooms? That narrowed it down substantially, and ultimately we ended up with 18 sites that were willing to be randomized to treatment or control.

>> Two questions, so you were doing the randomization within?

>> Doing the randomization at the site level. But I wanted enough kids, I didn't believe that, I wasn't fully convinced by Steve and Howard Bloom's estimates that you could. Basically, go with low and within sight, I wanted enough and that, I felt like I had a robust chance of implementing and getting program impact.

So, I went for two classes, just to get a big end, yeah.

>> Two classes, it's a big end, you know?

>> So, I had the great staff. They worked incredibly hard, and, we, they got between 66 and 100% of, kids in each classroom recruited. So, it felt like, okay.

We didn't get some bizzare-o portion of the distribution, we got all the kids. And you could've sampled within the classroom, but we just went with everybody. Tons of data, don't have time to talk about it, but basically at the classroom level, at the teacher level, I could have given you a whole different talk on teacher stress.

You know, and then at the kid level which I think you guys are probably more interested in. Specifically on behavior problems, and then this direct assessment they'll talk a lot more about administered both in Spanish and English, and then a Kindergarten follow-up. Yeah?

>> I'm just confused, I thought usually of, of, an intervention in terms of how the teacher, like the teacher is trained to deal with How is, if a parent doesn't agree to let their child to be part of them, How can you, how can you have not of been being treated, if they're in the classroom?

>> They're treated, they're just not evaluated.

>> Okay, I see.

>> It's the evaluation.

>> They're dosed.

>> Okay. Got it.

>> I mean sorry, Charlie, but you kid is.

>> They're just not tested.

>> And on this new CRT, that's what's really hanging me up. Right, is that I'm thinking oh great I'll randomize at the provider level and then everybody's gonna get dosed but it turns out providers in this new one, have enough parent child home visiting program, can completely subvert the plan.

Here the teachers actually liked the training and I'll talk a little bit about that. Okay. So, what did I do? I first ran a trial ever, and first intervention study ever. Don't try this at home, you know? I mean, it was fun, but it was stressful. So, what I did was I talked to everybody I knew who knew anything about prevention science, which was a good thing.

I talked a lot to Lori Miller Bratman which was great. I talked a lot to a couple of other colleagues who saved me from certain perdition. And they said you definitely wanna do coaching that's evidence-based because coaching is the big new thing. So we did teacher training of, of six, or five sessions using Carolyn Webster-Stratton's model.

And then we did a mental health consultant with the masters of social work serving as the coach. Why? Because it was really clear that teachers who go to trainings, go to trainings then don't show up on Monday doing any of the things that you trained them to do during that Saturday training.

But in the heat of the moment, it's very hard to keep the momentum of what they learned. They too, are having EF difficulty right? They too, under high arousal of trying to manage 17-22 kids, can't remember what it is they're supposed to do, do not yell at kids right?

But that process really benefited a lot. But the other thing was that I realized that head start teachers are on average earning at this time \$22,000 Are themselves single moms. Are themselves highly stressed, and really needed some emotional support. So I specifically, put in a unit that the mental health consultants got to do whatever they could think of that was evidence based on reducing teacher stress.

With the idea that if teachers themselves, felt emotionally supportive, that they in turn would be interested in providing better and thorough, more thorough emotional support to kids. And then on top of it, I decided well, you know what, maybe teachers aren't the ones that are supposed to be service providers for kids with the highest level of emotional behavioral problems.

I don't expect my kids teacher, you don't expect your kids teacher to solve every significant clinical issue within that classroom. We figure out how to shift our kids various kids for services, and so this is really about time to get our kids to outpatient preschool behavior problem clinic that was run in Chicago that was run by a wonderful college Lori Turns out I can tell a whole story about that, none of our kids actually made it to that clinic.

But, there was an attempt to provide one on one services by the mental health consultants to these kids, because after all these mental health consultants have a masters in clinical support. They actually know how to deliver clinical services. So that's the package, if you know anything about RCT, you know you cannot unpack the package.

Once you put the package together, you have to look at the treatment effect as a bundled group of services, which has some distinct drawbacks. But that's okay. Okay, so.

>> Can I ask you a question?

>> Yeah.

>> Have there been changes, it feels like for state funded preschool test prep, there's some, aren't those teachers, preschool teachers, required for additional sort of units in their own There a higher level of training required?

>> No. So there is a requirement that at least one teacher should have a BA. And that is met as best as program's can; in ways that are occasionally correct and through, and right. But often teachers are their way to getting their BA, or there's someone in the way, with a BA in the building; who is phenomenally in that room.

>> I mean, honestly, it'd be great if all programs could meet that standard, but the additional specialized training in early childhood is valued CDA, a child development certificate, is something that associate's degree, is that many of the teachers had, but not, consistently. Okay, so just to brief through treatment and practice here for just a second, cuz this is actually not the point of this talk, this is the way that Fourzi, one of my post-docs, taught me to graph, treatment impact and I love it.

Which is to give you the, estimate of the treatment impact so that this is basically treatment versus control difference graphed, as, and you can see that it was a difference of three points. With a confidence interval grasp so that you can see when it crosses zero. And what's nice is that you can see that, that estimate of treatment impact for all the sub groups in terms of sub group analysis are all roughly in the same, of the same magnitude and in the same direction.

Thank goodness, right? There's no kids. There's, you know, none of my ethnic minority groups have, you know, actually iatrogenic effect. And, in some cases, that confidence interval crosses zero. So, the treatment impact is not actually statistically significant for, for Black kids, But, it is statistically significant for Hispanic kids.

But, what is more important is that it's roughly the same. That the, the, this, the impact, is A not small, and B nicely demonstrates a reasonable, consistency across heterogeneous groups. And the only reason I care about that is it tells me that my treatment impact is not being carried only by girls, or only by Latinas, or only by kids at the very very high risk, it's being carried pretty much across the board.

Well, that tells the behavior problems index. But you could say to Belle, teachers knew their treatment status. Duh, you're not gonna, of course you're gonna get a redact.

>> Can, can you go back? What does that scale mean?

>> Sure, thank you.

>> I'm, I'm thinking that.

>> Hillary, it's so good you're asking.

>> If you have the scale going, instead from 0 to minus 5.

>> Yeah.

>> To kind of blow it up.

>> Yeah.

>> And then, if you tell me something about the scale, and I'd say, wow, you know? The boys and girls look really different. Different the Hispanics and blacks are really different,

>> Yeah.

>> But you know what I mean? Kind of the way you framed it, it, I, I totally agree with what you said but maybe knowing the scale would help.

>> Yeah, thank you it's the behavior problems index

>> Yup.

>> So the scale is zero to one.

>> Right.

>> And I think it was on a 20 item measure, and this, this is, was on kids externalizing so this is literally on all the points that there are.

>> A number of externalizing.

>> Yeah.

>> Okay, but absolutely fair. So, we did direct assessment. That's one of my favorite things to do, it's to actually look behaviorally at self regulation, not just to rely on teacher report.



We took a bunch of lab-based tasks, tasks that colleagues have done a ton of fantastic lab-based work validating, so things like Luria's pen tapping task which we used a pencil for, a balance beam motor slowing measure. Some people don't feel that that is a measure of executive function but I was willing to, go with it.

Cohansca is measures of compliance. I was really worried that maybe kids would be hyper-compliant in very at risk situations, and, measures of effort to control or inhibitory control. Really thinking about, how kids deal with snack delay, and, a task called gift wrap where you basically see if kids can inhibit the impulse to peek when you tell them don't peek and you make a lot of rustling noise.

And you can see we were able to administer those to lots and lots of little kids, all of the kids in our study. And what was nice was that I tacked on 28 item, just cooked up in the lab, measure called the preschool self regulation assessment where we wrote behavioral anchors.

For attention and impulse control as well as emotion, that the assessors filled out after kids were assessed. So I had a 3rd reporter, the teachers, parents, and now these assessor reports. And you can see, we found beautiful impact, these are quite substantial in terms of their effect size, for kids executive function, for this global measure of attention and impulsivity, assessors were blind to treatment status.

And then what was the real gay kind of version of my life, with that we got big impacts on kids vocabulary, letter naming and early math skills on a standardized measure of preschool readiness. Now you could say well yeah kids are better regulated, we see that they're better regulated and they're able to sit more appropriately during that assessment and so they're able to demonstrate higher performance.

Maybe it didn't actually improve their learning, but I'm actually okay with that. If it means higher performance on a standardized assessment, that, that teachers are then gonna understand to mean that kids understand more and are capable of learning more, I'm, I'm cool with that. It would be great to see, actual evidence of growth in learning.

But that was not the, opportunity that I had in this study. So do you believe my findings? Well, I was really, like, okay, that was a once in a lifetime, I'm terrified to publish because, you know, it's scary when you're doing your first RCT and things work out.

So luckily I had this wonderful colleague, Pamela Morris, who said the ballet would really like to implement your new intervention at that scale, cuz she was working at MDRC. She said what you just did with the pilot, and I'm like, oh, okay I just devoted five years of my life as a pilot.

So, see, she did another pilot, the next year, in Newark, in, in nine and eight, and then did a full scale randomization trial in fifty-one sites, and then another. In Chicago, because we were interested in going back to the original city to see if we implemented at scale, when we basically subcontracted out all of the coaching services to a local community based agency instead of me running the whole thing whether it would work.

And basically the findings are kind of what we'd hope and what we'd expect. Which is not as massively huge impact. The effect sizes are smaller, the findings are more dilute. That's understandable. The treatment is more dilute, but what's nice is that we found significant impact at the classroom level in terms of improved classroom management and decreases in negative climate.

Which I had found with big effect sizes in my study that I didn't talk about just now. But, nicely, also, significant impact on kids task orientation and behavioral self control. So, the model's replicating nicely in, other labs, run in other contexts. So, what do I take from it?

Well, that the model's, dems, basically demonstrates to me that self regulation is malleable and can be shaped by the environment. That was the big piece of new in the late 2000s when there were some folks in my field, in executive functions saying that this was a. Trait like characteristics that was genetically driven and quite fixed.

It was very nice to find evidence that it was actually relatively plastic and at least in this intervention context. It also

interesting for me was to make the point that self regulation can be targeted at the classroom context so this was not a pull out program, I did not pull out kids at the high or low end of the distribution via.

And work individually with those kids. It's great that those, that EF training studies can do that but this was actually at the classroom context. Which has really big implications for intervention or prevention that you can dose the classroom rather than the kid. It might be beneficial to dose the classroom and the kid, but nice to see impact.

And when you say to me, Isabelle, did you get it? Do you think you got it mostly for the kids at the low end of the distribution or kids at the high end of the distribution in terms of behavior problems? I think on, on, net, everything else, on average, most of the treatment impact was probably in my elevated kids.

The kids who really could basically show substantial shift without that level of serious clinical intervention. We still had kids that were way, way above clinical levels of behavioral difficulty, but the kids who are in the elevated range I think are the kids that benefitted the most.

>> So the next point was, okay, so now I'm going to go onto kindergarten, and what am I expecting?

Well, an optimistic hypothesis would be that kids are going to carry like little suitcases. Skills, right? I just built their self rank skills. Or some team built their self rank skills, and we're gonna watch these kids march into their new classrooms carrying their little suitcases. They're gonna be so much more advantaged.

They're gonna be on the trajectory that looks way better than they would have otherwise, but a less optimistic hypothesis, you know. Thinking a lot about what Anne Ziegler taught me, and his other students was. You know, there is no silver bullet. You can't have magical thinking when you're dealing with anti-poverty policy and education.

You have to actually think quite sanguinity about the likelihood of an outcome that's gonna be good. Yeah?

>> So recognizing that, could you comment on what you, what you think you actually Sounds like you didn't get to

>> We did see a big reduction classroom negative climate. And we did see a significant improvement in teachers behavioral management.

We saw no change in teachers in structural prime. That's largely because some teachers were actually, there was no instructional time in the beginning and no instructional time at the end. Right, so, I came in with this like, very, very bright eyed naive notion that teachers, as soon as kids were gonna be better behaved, their, their teaching skills were gonna be unleashed and they're gonna pile it on, right.

In fact, the same teachers, you know, just remains relatively detached and talked about their weekends over the kids heads at the beginning and at the end, right. So it would have been good to tie it with more instructional support, for example. But I do feel that we did make a big difference in how classes were managed in terms of the overall sense of chaos versus the overall sense of well-ordered, well-organized, emotionally supportive climate that kids were in.

And I've talked a lot with Karen Speerman and she said well Sabell, my early, my head start classes in the control group already look like that and I said that's because you are in rural Pennsylvania and I am in Chicago, which I am going to tell you a little bit more about in a minute.

But if I were to put my money on that's where I would place most of my bet.

>> What was the effect of the intervention on the academic team mediated by the increase in self regulation?

>> So yes, but I leave it to Stephanie Jones to try to write that up and she has successfully but.

I was around Harris school folk enough to know that if I can't break it down. Because I didn't randomize at the mediating mechanism level, I can't make that claim. I can only make the claim that randomization to treatment and control leads me to find support for that mediating mechanism.

In fact specifically it is nicely mediated but it's also mediated by increased improved teacher student relationship for example.

>> Where are you describing in terms of classroom atmosphere perhaps you mechanism sounds lot like what would

say to describe good behavior.

>> Absolutely, I was reading his work like a fiend when I stared down this road.

>> So, so, so in that sense you weren't replicating his procedure. It seems to be replicating the pattern of where the important mechanism would be effected.

>> Absolutely and I think the pure effect component of that is non trivial. Right? That kids were having their attentions not diverted by the two or three kids who are increasing deregulating, and the teacher who was getting increasingly deregulating as she got increasingly ticked off at those kids, right?

But in fact, now when the teacher would say everyone should sit criss-cross applesauce the, that teacher was being trained to positively reinforce the little kid sitting quietly who was in face sitting criss-cross applesauce. And the whole class's attention would be directed to that kid, and to the way in which that was the, the, the mode that the class could travel.

>> I'm trying to get a sense of, sort of on the, on the treatment and, especially the, sort of what we think on big the effects are. So, how, how intense is the treatment, in terms of, sort of, like, you know? Like a light touch to a complete overhaul of the classroom?

>> Yeah, sure. So, it's 30 hours of training, which is a lot, And, that was over and above the end services that teachers had to participate in for everything from toothbrushing, to. Food storage to you know, safety lockdown procedure to all the other things that preschool teachers have to do for in service.

And-

>> It's over the course of the year but primarily during the fall and winter. Because then mental health consultants sh, will have pulled back from the classroom based coaching and to focus more exclusively on direct. Meant to help the complications to the kid individually.

>> No interestingly the intervention was right in the classroom.

It is a very strong model of the consultants saying, okay I see that the aide can handle snack, come over here. Let's talk about what you learned on that Saturday training. Pick one of those objectives and strategy you're going to use to try, okay, now I'm going to watch you while you use that strategy.

And then, pulled her back either that day or the next to say, you did really well on some things. There could be some more work on other things. How did you feel? A lot of, that was sort of the coaching model. So, with respect to that do you have one cohort, are you looking at one, two cohorts?

So you're seeing also the cohorts in the after

>> That's about to come.

>> Okay.

>> Yeah.

>> I guess, wait, just want to ask you this, completely separate group of kids.

>> Separate group of kids. Separate group of teachers, separate group of kids. Separate teachers?

>> Separate teachers.

>> So I was interested though in

>> Yes, or course you are.

>> this year.

>> Work force.

>> Well one is the kid in the future but the other is the

>> Teacher in the future. Right because think of the saving.

>> all of this.

>> Right you might reduce turn over, you might increase teacher's health.

There might. You know.

>> Does she remember.

>> Does she remember what she did?

>> Cuz if you've got someone holding your hand, I mean, I know when I have someone holding my hand on those things I can do better, but then do I remember

>> So Pamela did that on the teachers and the treatment group, and we thank you Paul, but not on the, control group teachers and she found that the teachers continued to demonstrate, The the classroom management strategies the second year over and above, in fact improved even more in the second year over and above the first year without booster.

>> Without booster.

>> Ideally I would have loved to have boosted them. I was planning this for a two year intervention, but when I realized I was underpowered at the site level, cause remember that was when Howard and He came out with a whole, we can't calculate power at the kid-level.

And then mid 2000 they came out with a huge paper that freaked us all out. We've been calculating educational trials at the kid-level. And they were, like, No, you actually have to cluster. And we go, oh God, right? Because that means I can't just go get four pre-schools, I have to get 20.

So I was funded to do 10 for two years and I realized I had to do 20 for one.

>> Ma'am can I ask you a question?

>> Yeah.

>> Was their variability within the teacher's implementation?

>> Huge.

>> So how do you account for that?

>> So this is intent to treat, so this is the ITT rather than the treatment untreated estimate, so it's actually averaging over teachers who did nothing and participated in none of the training.

And teachers which of which there are two and teachers who did everything and wrote us notes after wards saying how much loved it. And the mental health consultants and they thought that this was something that everyone should do.

>> I'm Ann Stevens the director of center for poverty research at UC Davis and I want to thank you for listening.

The center is one of three federally designated poverty research centers in the United States. Our mission is to facilitate nonpartisan academic research on domestic poverty, to disseminate this research, and to train the next generation of poverty scholars. Core funding comes from the US Department of Health and Human Services.

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