**Episode #35**

**Speaker 1** [00:00:01] Welcome to the Cabrera Lab podcast.

**Speaker 2** [00:00:06] How you doing?

**Speaker 1** [00:00:07] I'm good.

**Speaker 2** [00:00:08] I read a disturbing statistic I want so desperately to talk about, and it's a frightening statistic. There was a recent Gallup poll about education, and only 9% of Americans are completely satisfied with our education. Eugenius. That's a single-digit number, 9%.

**Speaker 1** [00:00:28] Yeah, and that's yikes and also not at all surprising.

**Speaker 2** [00:00:34] So say why it's not surprising, because I actually was a little surprised by it.

**Speaker 1** [00:00:37] In order to really understand the education system, you have to understand it as a complex and adaptive system with many emergent properties. And we've talked about CAS's complex adaptive systems on previous episodes. But one of the keys to sort of understanding a CAS, a complex adaptive system, is to understand the agents. Yeah. and The agents are the different people in this case. With the actors. The actors. In the system, yeah. And there's different types of agents that are part of the system. And so if you just kind of like run through the agents, parents, not happy. They're not seeing what they wanna see. Students, not seeing what they want to see in the education system. Totally not engaged. Parents, they're worried that their kids aren't. developing the skills that they need to succeed and thrive in life, right? You know, teachers are super not happy. They really deeply want to teach and they find on a daily basis that most of what they're doing prohibits them or inhibits them from just being able to do the thing they love, which is to teach. Superintendents, principals, business leaders aren't getting the talent that they need. We talk to business leaders all the time. They're constantly saying they're creating whole internal education programs in their companies to remedy the problems that they're seeing that people aren't ready, job ready. And then of course, you look at all the... Various statistics on mental health and you know all the kinds of things that that show us that people aren't Learning the skills that they need whether it be grit or emotional intelligence or thinking skills or whatever Just to deal with everyday life. So I people people like the product of education people hood Right. Yeah, the product education isn't even happy with education, right? Like we're not We're not prepared for life College faculty, not happy, they're finding that their students aren't even prepared for college. And one could even say that college isn't really preparing young people for life either. So that's part of the education system. So I mean, as you go around to all the different agents in the system, all the the different actors in the system, who is happy? Nobody's happy. 9% I don't know who those 9% are, but they probably, maybe ostriches, and have their heads stuck in the sand.

**Speaker 2** [00:03:31] Maybe.

**Speaker 1** [00:03:32] I don't know who's happy with the education system.

**Speaker 2** [00:03:34] Well, I mean, I can imagine.

**Speaker 1** [00:03:35] I know who's happy with the education system, the people that are making money off of it.

**Speaker 2** [00:03:40] the big company.

**Speaker 1** [00:03:41] Yeah.

**Speaker 2** [00:03:42] Yeah, I mean, I think that's interesting. And I guess the bigger picture. So I think we should go bigger picture and then look at all those different.

**Speaker 1** [00:03:52] But by the way, superintendents, principals, you know, they're not happy with it either. I mean, they are constantly fighting against all these structural problems that...

**Speaker 2** [00:04:04] Well, but if you look at it at a system level, and I think we've talked about this a little bit, it seems like the whole system was designed in a certain way around content mastery, but the world has changed around the speed of information, the type of information and the kinds of things we need to learn. So our practices are sort of, I think you've called them even actually, from the agrarian society. where the system was built, in other words, for a very specific purpose, which has not evolved to meet the things we need today.

**Speaker 1** [00:04:43] I think that's fair. I mean, I think one is the educational system was essentially designed to produce factory workers, right? But we don't really have a factory base anymore, and even factories have changed the way they work to the extent that the types of skills needed in factories in today's world are very different than the types of skills that were needed before. And you can see that by the Bell system and the, you know, just like, you go from the 50s and the Bells. So I think the education system was designed in a previous era. is still functioning roughly in that way. Post-COVID, lots of things have changed in education. The social-emotional issues that are occurring are tremendous.

**Speaker 2** [00:05:48] Yeah, meaning kids aren't even showing up ready to learn. They're just not, they're.

**Speaker 1** [00:05:52] They're just not emotionally ready to learn. The distractions that we have in modern life are also decreasing readiness to learn, so teachers on a daily basis are dealing with just chaos. I mean, they're dealing with chaos, like the last, and then we're like, and teach them, you know, this, teach them this standard or something like that. That's a rough job.

**Speaker 2** [00:06:21] The emphasis is on learning facts or learning content. teachers are having to deal with all of those other things that are happening for these humans that they're trying to develop. Not only they're not gonna meet those benchmarks, it's just we're almost focused on only one part and not the whole system, which is a student, right? And an agent inside of that larger system.

**Speaker 1** [00:06:49] Yeah, I think, you know, when I was a kid, I took a, I think in high school, we took economics and they taught us about supply and demand, you know, and like when the supply is really high, the demand is less and the price is less. The supply of information in this information age is not just high, it's astronomically high. Yes. Which means that the relative value of any given piece of information is practically zero. Right. Right. And now with the advent of AI, I mean, the entire world's information is readily available. And even before AI, just Googling, information was readily available. Well, that didn't used to be the case. It used to that you, you, those who had the information were unique.

**Speaker 2** [00:07:49] Do you remember going to the library? Yeah.

**Speaker 1** [00:07:51] Yeah. And the art catalog? I remember when I was climbing down in Chile and places like that, we literally had to like go into small villages to find out where the trailhead, or if there was even a trailhead to be able, we could see the mountain, but we didn't know how to get to the beginning of the climb. And we would have to go talk to people in the villages to, find where would you even start.

**Speaker 2** [00:08:21] Right, because you can just Google it.

**Speaker 1** [00:08:22] Because there was no internet, right? So the information, what we call in climbing the beta, the beta was like the thing. Like, hey, do you have the beta on that climb? Do you have that beta on the route? Do you the beta? And what we meant was, do have the information to even know what the climb is, where it is, has anyone done it, how do you get there? All that, you couldn't even go to the library. There were no books on it.

**Speaker 2** [00:08:47] There weren't even books on the mountain.

**Speaker 1** [00:08:50] on that particular mountain. And certainly those books wouldn't be up to date on where the climbs were or anything like the routes. So, you know, information was valuable. If you had the beta on a climb, that was valuable, well, today you can literally type it in and watch a whole video on YouTube of somebody climbing it.

**Speaker 3** [00:09:14] I like this experience.

**Speaker 1** [00:09:15] He's going to experience and be like, oh, OK, yeah. Not only do I have the route, but I can literally kind of co-experience what the route is like, right? That was not available. And that's the case. I'm not just saying for climbing. That's the cause for everything.

**Speaker 2** [00:09:33] Yeah, it's hard for people to imagine that. It's hard to imagine. Is when we talk about it. They don't understand what it would have like, it had been like not to have a cell phone, not to the internet. That's how it was.

**Speaker 1** [00:09:45] Not only that, but let's say I want to, you know, let's I have, I want learn to do a pushup, right? I want the perfect form for pushup. Not only can I look it up, but when I look at it up I'm going to get 38 different variations on who, what everybody thinks is the perfect pushup and which, and then this guy says this and this guy that says that and this person says that one's stupid and you know. too. I'm overwhelmed with information, like there's so much information that it's more than I even want. I would love it if there was just like one way to do a push-up, but there's deeply divided fashions on how to do push-out.

**Speaker 2** [00:10:30] But then that means that what you need to do is figure out how to decide which information is the information that you need.

**Speaker 1** [00:10:38] Yeah, so the skill in life, what I'm getting at is that any given piece of information is relatively not valuable. The ability to find relevant information on the spot about a very particular situation that you're in is the skill. The ability that take a bunch of information sources and organize it in such a way that you can immediately, pretty quickly utilize it in a situation, which is novel. The situation is novel, meaning I can't watch a video on exactly this situation that I'm dealing with. I've got to bring. some information together and utilize it to, to deal with this situation that I'm in.

**Speaker 2** [00:11:26] But that has huge implications for schools. Yes. Schools as they are today. Yeah. Meaning there has to be a pretty, I would say seismic shift in their focus given what you're saying. And so what does that look like?

**Speaker 1** [00:11:41] Well, I think, to put it simply, and then you can unpack it, there's an equation which is mental models equal information and organization. So the way we organize information is what creates meaning or mental models. Mental models are just the things we build in order to have meaning. To understand stuff. To understand how we understand something. So the meaning that we make out of any given situation or whatever is called a mental model. And that mental model is made up of information, which we get from interacting with reality and the way we use our brains to organize that information. That's how we make meaning. Okay. And believe it or not, learning, all learning, the thing education should be based on. The focal point. The focal is education should but is not necessarily, is simply defined as a change in mental model. So when we change our mental model, that is learning. So if we have mental model at time one and then mental model at time two, the change between mental model here and mental model is learning, that's what learning is.

**Speaker 2** [00:12:53] Right, so using your push-up example, I have an idea of what I think a push- up is. That's my first mental model. Then I go and I get more information, I organize it differently, and I have a new mental model, which is the understanding of how to actually do a proper push-ups. That is...

**Speaker 1** [00:13:08] That's learning, right?

**Speaker 2** [00:13:10] And that's true of anything.

**Speaker 1** [00:13:11] That's true of anything. That's learning. Now, you know that we've been working in schools for a very long time in education. And, um, There are schools. I think the general public will be shocked to learn this, but it's true there are schools that Say when you go there, they say we are learning focused schools Yes, and now, you know at first you might go is there a is there another kind of school other than a learning? Focused school isn't isn't that the point of school? Isn't that? The point education, but its gotten so far away from the original intent of education that we now have to come up with new qualifiers to say this school is gonna be learning focused.

**Speaker 2** [00:14:01] Yes, yes, but learning focused, I know it sounds silly, but it was a response to no child left behind and the emphasis on test scores. So it was the way for schools to be like, hey, by the way, we're not gonna just focus on test score.

**Speaker 1** [00:14:17] Absolutely. This is the this is the point that that I'm not criticizing learning focused schools That's what all schools should be learning focused. Schools. What I'm what I'm saying is that is the fact that we have to make that distinction

**Speaker 3** [00:14:32] Yeah, it's whack.

**Speaker 1** [00:14:33] is an indication that education has somehow gotten divorced from the very underpinning of what education is, which is learning.

**Speaker 3** [00:14:43] Yes, I think that's a fair.

**Speaker 1** [00:14:44] Learning and, and the preparation for essentially adulthood, the preparation for not just jobs, because we're more than jobs, but for life, for, for a job and for a life and to, to live the best life that you can live and have the best job that you could have and all that kind of stuff and be the best person you can be.

**Speaker 2** [00:15:07] I think a lot of people, when they think about fixing education, I mean, obviously, there's a lot people who are, if 9% are completely satisfied, that means there's 91% of that are not in some way. So when they about fixing eduction, I think people think it's just too big of a system. They don't know how to approach it. So I guess maybe that ties back into when you were saying it's a complex adaptive system. Maybe we can co-locate that with. fix a seemingly intractable problem inside of a really big system.

**Speaker 1** [00:15:42] Yeah, and that's the beauty of understanding systems from a complexity perspective, from seeing systems like education, which are overwhelmingly problematic. And they just are overwhelming when you try to look at it and go, how do we fix this? But when we see it as a complex adaptive system, all that complexity that we see is the emergent property, meaning the outcome. And we're trying to fix the outcome, but the outcomes already happened. What we have to understand is what are the inputs? And the inputs in complex adaptive systems like education are the agents and the rules they follow when they interact with each other. So what we want to do is sort of think about the agent of information. That can be an agent, the agent of a student, the agents of a parent, the agent of a teacher. And in particular, what happens when those agents interact with each other? What do they focus on? What are the rules that govern their behavior? And right now, the rules that govern our behavior are completely out of whack with learning and preparation for real life.

**Speaker 2** [00:16:53] because those rules are set from almost an external force focused only on a particular outcome.

**Speaker 1** [00:16:59] Somewhat, in the case of standards and test scores and all that kind of pressure, but they're also based on just our cultural understanding of what our current education system does and why it does it. Sometimes we don't even know why it doesn't. But for example, if information has relatively low value, any given piece of information, then why are we so focused on relaying information? If a mental model, the change in mental model is learning, so if we go down to the mental model level and we know that information organized is what creates meaning, and information is relatively free for everybody, then what we really want to focus on is the well, the O part. How do we organize information, which is called thinking? How do organize information better? How can we get good at organizing information better.

**Speaker 2** [00:17:55] Well, one of the ways that you've said that, that I think is really easily understood is, it's a shift from what we're thinking about to how we're think about things. So, in a large system that's focused on, so far has for a lot of reasons focused on sort of content mastery and information, you're saying, I think what you're saying is, well, we need to now focus on how are we processing all that information to make it meaningful, and that that is a skill set.

**Speaker 1** [00:18:23] Yes, and predominantly what we're doing is we're teaching what to think rather than how to think, number one. And number two, we have this very, I would say, dysfunctional paradigm of education, which is that when we teach something, it is learned. We call that the coverage curriculum, right? So if a teacher teaches, then the students learned it. We kind of have that assumption. What did we learn in class this year? Oh, well, we learned this and this and this and then we go through the curriculum. What you covered. What we covered is what was learned. But we know for a fact that that is not true.

**Speaker 2** [00:19:03] Based on all the data on retention and things.

**Speaker 1** [00:19:05] and tests and all, you know, all of it, right? So there's an assumption made, which is what the teacher covers is what that students learn. And that is a false assumption. So what we wanna know is what are the students learning? Not necessarily what is the teacher covering. And we wanna focus on the learning part rather than the teaching part.

**Speaker 2** [00:19:29] Yes, and I want to slow you down for a minute. Because we have a lot of friends who are educators and who are teachers. And this whole idea of covering curriculum comes from the pressure to teach to a test, comes from a pressure to meet standards, and is the thing that you started out with, which is teachers want to teach. Teachers don't want to be paced. Teachers don' want to scripted. Teachers don''t want to have these external forces that have to change the way they interact with their students.

**Speaker 1** [00:19:57] Teachers want the same thing that parents want, right? They love their kids. They love the kids that are in their classroom and they want those kids to just be like, do amazing things. They wanna see their kids do amazing thing. By and large, most teachers, I'm not saying every single teacher is that way, but by and large most teachers want that for their kids, they want to develop their kids they wanna see the kids learn and change over the semester and become. remarkable adults that get all the things that they're interested in bringing to their life.

**Speaker 2** [00:20:33] Right, and if you go back to agents and outcomes, I guess what I'm wondering about is, you said to change the outcomes of a system, you have to focus on the dynamics of the agent. So what does that mean in terms of teachers and students?

**Speaker 1** [00:20:51] I think we have to change our mental model. We have to learn what is important at the simple rules and agents level of the complex adaptive system. So that means, first of all, we have differentiate between what learning is. Learning is a change in mental models. So we want to be in the business of changing mental models, that's what we want to be the business. of. We don't want to be in the business of telling kids what to think. We wanna be in the business of telling kids how they think, right? How does your brain work? How do your emotions work? How do you have emotional intelligence? How do have higher order thinking skills? How do things like grit and resiliency that are gonna be so necessary in life? And that's all the kind of the O part of the M equals I O. The information. less relevant, meaning if a kid tells me that, hey, I'm interested in skateboarding, great, you're interested in skating, that's the information. I'm gonna show you how to think deeply about skateboarding.

**Speaker 3** [00:22:02] and master me.

**Speaker 1** [00:22:03] You can be interested in whatever you want, and that's the beauty of life, and that's real preparedness for life, is you're gonna be interested in all kinds of things that other people aren't interested in. You're gonna want to explore all kinds of information that other people don't want to explore. That's the uniqueness of your life path. What we want to do is prepare you to be able to do that in whatever way you want to do it, because you're going to find some unique way of doing something that puts your unique. Fingerprint on the world.

**Speaker 2** [00:22:34] Yeah, no, I get that. I think also what you're alluding to is, stop searching for a right answer per se and start exploring and building knowledge on a path for yourself. You know, like understanding how you are coming to understand things is like a toolkit, right? You can take it in any subject. That skill of understanding is for any topic.

**Speaker 4** [00:22:58] I agree with that.

**Speaker 2** [00:22:59] Okay, so you were talking about information and you were taking about how we organize information. You're talking about this is a skill. Well, why do we need that? What is the value of that skill?

**Speaker 1** [00:23:09] Well, again, if we just, learning is equal to a change in mental model. That's what learning is. So we wanna be in the business of that. Okay, in order to be in that business, we have to understand what mental models are. Mental models are meaning. Meaning is the most important thing in the world because the way we make meaning is gonna determine the actions we take, the behaviors that we do, the decisions that we make. in every single aspect of life, in our job, in our families, in all the things that are important in a life. Meaning is the thing that's gonna drive those things, right? The meaning that we make. Okay, well, then let's develop human beings who are really good, not only at changing mental models or meaning, but at building meaning. What do you need to build meaning? You need information, and you need. organization the way we organize information which we can also think of as thinking that we use thinking. organize information. Yes. To make meaning. And then we make all of our decisions, all of our actions, all our beliefs, all the things that drive a life are made from this meaning. I see, yeah. If we get different information and we organize it differently, you're going to get different meaning. So what we should be focused on is this whole thing. And in particular, we should be focused on the O. In our education system today, we have made a fundamental math error, which is that we believe based on our behaviors that meaning is equal to information. We believe that meaning is equal information that once you have the information, you have to meaning and look at our curriculum. We teach this and that there's a right answer, there's wrong answer, We test it. The kids don't care, they memorize it, they forget it. We do studies 24 hours after the test, 36 hours after a week after the tests, 30 days after the testing. And what do we see? We just see an absolute decline in the student's understanding of that information because it was just memorized and regurgitated. That's an information world. I call that content tyranny, right? Education today is ruled by a king. And the king rules through content tyrannies, right, which is these are the subjects we're gonna teach, these are, this is the content that goes into those subjects, and this is how we're going to test whether or not kids learn those subjects. Right? That's content tyrannie. First of all, that's saying that these subjects are the important subjects. Right. That the content inside of these subjects are the importance content. And that being able to memorize, simply to memorize. Not the ability to do anything. The ability to memorize that content and regurgitate it back to us on a test is the end all be all of whether or not they learned something.

**Speaker 2** [00:26:33] Right, that's the measure of 6S.

**Speaker 1** [00:26:34] That's the measure of success. Yeah. And then, let's say they're right. How's it working? How's that working? Let's say that's right. Let's see that that equation is right. M equals I, we see. Okay, if M equals, I then do it all this way. And let's see they're, right. The proof is in the pudding, as my mother used to say. Yeah. How's the pudding? 97% of people, 91% of people think the pudding sucks. Yeah. So maybe there's something fundamentally wrong with the equation, with the recipe. Yeah. That's what I think of. With the recipe to the pudding, the recipe is off, right? We got to add something significant into the recipe and that, that thing is, how do we organize information? And the beauty is, one of the chief complaints that superintendents, principals, teachers, and students have is engagement. Yes. The students, they don't use the word engagement. They say boring, which is the same as not engaging. And the teachers and the principals and the superintendants all say, we're trying to increase engagement. Yes. Well, why do we want engagement? Because when people are engaged, they're motivated to learn. When they're engaged, they're curious. When they're engaged, they have agency in their learning. So engagement's absolutely critical. Well, what are they not engaged in? They're not engaged in the information. Right. Well, but the beauty is, there's an infinite world of information out there and you can be interested in anything. And there's plenty of people that are interested in things in life that aren't covered in school. Yes. And they're making whole lifestyles and living out of things that are not covered in school. So why make the information the gate to engagement? Let's open up the floodgates of information to say, hey, you're interested in skateboarding? Great, let me teach you thinking about skateboarding.

**Speaker 2** [00:28:41] Right, meaning develop those thinking skills in content that's really interesting and impressive.

**Speaker 1** [00:28:47] Or you're interested in in this war instead of that war great we can talk about that war, you know, right? That's fine. Mm-hmm. The information is not the thing the information is is Exponential it's it's infinite. There's so much of it

**Speaker 2** [00:29:04] Well, and it's always changing.

**Speaker 1** [00:29:06] And it's always changing. And the information that we teach today is going to be wrong tomorrow. In fact, a good amount of information that's in textbooks today is already wrong today. Yes. So the information is changing constantly. So the innovation that we're teaching a kid, sophomore year, most assuredly is going to change in its relevancy at the very least or in its validity at the most by the time they're 22 years old.

**Speaker 2** [00:29:34] Hundo P, definitely.

**Speaker 1** [00:29:37] Now you could argue that some things like mathematics and things, but what is math? If you think about what is Math, Math is a form of thinking, right? That's why Math is so important. Math is important because Math is the form of Thinking. It helps develop that thinking skill of, oh, if this is equal to this and it's not equal to that, then this is not equal to the Distributive or something like that. So I'm not saying that there's not certain subjects that are really important that we should be covering and students should learn. Or the fundamentals they should be learning. They need to learn how to read and write. They need learn some math skills. They need the learn. But as an example, what do you think is more important in terms of math skills at different levels? Right? Is it finance? You know, you could probably. get kids way more engaged if you showed them finance. Yes. Or statistics. Yes. Before you showed the calculus.

**Speaker 2** [00:30:44] A lot of, a lot of students I've talked to say, if only as our statistics, it's actually relevant to us in everyday life.

**Speaker 1** [00:30:51] Because it's relevant and the relevancy is so critically important. We built a school system that either trains people for factories or hazes people along the way towards higher degrees. And the idea is that you've got to get them ready to higher degrees, but generally speaking, what we want to do is prepare people for life.

**Speaker 2** [00:31:12] Well, and also the many possible paths that people can take.

**Speaker 1** [00:31:15] the many possible pa- his life y'know

**Speaker 2** [00:31:16] Because, you know, when we were in school, it was, are you going to be a doctor, lawyer, or an accountant? And that was sort of what people thought of successful.

**Speaker 1** [00:31:23] Yeah, I always tell this story, but with our kids, like we go down to Gettysburg or something, and any time you're driving near Gettiesburg, you'll see stuff that inevitably relates to some kind of reenactment happening at Gettisburg. But when you're drivin', on the way down, like one day we were drivin' and the kids are all in the car and this guy's drivin, passing us, and he's got this trailer, and it's like. historically accurate, you know, Gettysburg costumes and paraphernalia, you now, Dr. Joe Schmo hit, hit cock or something. And I just thought, this is so amazing. Like this guy, he's a, he has got a PhD probably in history. He probably loves reading about the Civil War. Yep. And you know probably knows, I mean, and you go and see these guys. They know what. instruments were used and not used, what drugs were available and not available, how people cut off legs with what things and what saws. Roosome. Roosem, right? And they know what wool was used and what the insignia was and what shoe technology was and the sole technology and how they were stitched. They know everything. Is that information not valuable to those guys? That's what they spend their whole life and they're fast, they're motivated, they're engaged, they love it. This guy's built a whole business around it. I'll bet you that business not only serves Gettysburg reenactments, I bet you that business serves Hollywood when they do Civil War movies. That they go to that guy and go, what did they actually wear back in those days? Is this shoe appropriate? How cool is that? Super cool. Super cool, like that, I would be like, that's a cool job. That's a great job. It's a really interesting job, right? Nobody told me about that job. Nobody said there's a job like that. You don't go to college and they go, do you want to sign up for the Gettysburg reenactment department? They don't say that.

**Speaker 2** [00:33:40] No, that's right.

**Speaker 1** [00:33:42] There is a crap-ton of information about that kind of stuff. And that person spends their life thinking about and being engaged in that kind of stuff, and what I'm saying is our schools should prepare you for that life. Our schools should prepared you for a piece of software that society hasn't even imagined yet that you're going to develop. And in order to develop that software, you're gonna have to organize information in a way no one else has organized information. Yes. And you're going to have kids that have never been had before. And you are going to a family that has never been have before. And in that family, you are gonna have problems that are unique to that family. And you gonna have organize that information at that moment. when your teenager is having that problem, at that moment, you're going to have to organize it and make meaning out of it and help them change their mental model. Yes. As a parent, 30 years from today, you're gonna have that experience.

**Speaker 2** [00:34:51] And what you're saying is that skill set of knowing how you're thinking through things, being a, having that facility with building knowledge is the skill set that we need to leave with because everything is going to be changing constantly, everything, all of the informational content, what you are interested in, what's possible even in the future, nobody knows.

**Speaker 1** [00:35:12] And it's a big world being in, you know, even if we sampled the world and said these are the most important pieces of information. You're right. There's so much more information and there's so many more cool things in the world that you could be doing. Well, we want to prepare our children. I mean, this is what every parent wants. This is what ever teacher wants. This is every principal, every superintendent wants. We want to prepared children. to live the most kick-ass lives that they can live. That is a multi-dimensional set of, kick- ass means multi- dimensional, right? We want them to be emotionally centered with appropriate amounts of grit and resilience so they can deal with the bullshit of life.

**Speaker 3** [00:35:59] There's a lot of it.

**Speaker 1** [00:35:59] And there's a lot of bullshit in life. We want them to be amazing information organizers so they can organize it in unique and creative ways that serve them and their families and their jobs and their people. Uh, and, and we want them to be deeply curious and engaged in life, right? I want them, to have agency feel like they can affect their world, right. Have agency be curious.

**Speaker 2** [00:36:31] Yeah, and you also want them to have the combination of sort of emotional intelligence and awareness of self that they can have healthy relations.

**Speaker 1** [00:36:39] healthy relationships, we want them to have character and integrity. Those are the things that we should be teaching and learning in school, right? So, and again, I make this distinction, we've got to make this distinction. First of all, to cause learning to happen, we need information and organization. In the teaching and learning, we have to realize that teaching doesn't mean learning. Teaching doesn't equal learning. Teaching could happen, and learning could not happen.

**Speaker 2** [00:37:15] I'm thinking about that. I think when you say teaching, you mean covering in for me.

**Speaker 1** [00:37:20] I'll see you in the next video.

**Speaker 2** [00:37:21] They don't see teaching as the fine art and science.

**Speaker 1** [00:37:24] Yes, no, exactly.

**Speaker 2** [00:37:25] The features are amazing.

**Speaker 1** [00:37:26] No, teaching is amazing. And teaching built into deep, authentic teaching is the desire to get feedback as to whether learning is occurring. That's what teachers want to be doing. They love that. That's why teachers love doing. They love to see the learning process. But what we've done in our current education system is we've made the mistake of saying what teaching is is standing up in front of a room and talking. and then we govern what they talk about. This episode is sponsored by Training Camp, the ultimate online spot for building the mental fitness that drives personal and professional change and success. At Training Camp you'll have access to the science and practice of thinking with personalized thinking assessments, tiered training and best of all, practice that improves skill. Go to CabreraLab.org to learn more. And now, back to the episode.

**Speaker 2** [00:38:28] Yes, I think the real question is, how do we kill the king? Yeah. And free the king.

**Speaker 1** [00:38:33] There's no reason for me to-

**Speaker 2** [00:38:35] to free the superintendents and all of them.

**Speaker 1** [00:38:39] Well, that's the beauty of CAS's is that when we talk about CAS's and the agents, the actors that are in complex adaptive systems, those are semi-autonomous or autonomous agents. They just, they just kind of do their thing. What the hell did they do?

**Speaker 2** [00:38:54] Semi-autonomous and a sorry, let's speak English for a minute.

**Speaker 1** [00:38:58] The actors in the system are autonomous. They have agency. That's why we call them agents, because they...

**Speaker 2** [00:39:04] Meaning they're independent.

**Speaker 1** [00:39:05] Yeah, they're kind of in, they are not like, they aren't globally independent, they are constrained by certain things. They have some. But they have some agency. They have the ability to make choices and things like that. They have freedom. They have degrees of freedom.

**Speaker 3** [00:39:22] Yes, okay.

**Speaker 1** [00:39:23] And I think probably what most teachers would complain about is the lack of degrees of freedom in their current job. Definitely. They have a lack of degree of freedom. We need to give them more degrees of free freedom. First of all, we got to pay them. I mean, there was a study that was done.

**Speaker 3** [00:39:42] Oh gosh, yeah, I remember.

**Speaker 1** [00:39:43] There was a study that was done that said, what is if we paid teachers based on the return on investment, the impact of what they do, we would pay them $300,000 a year, $310,000. That was years ago. That was a years ago, I believe that's true. These are the people that are raising our children. These are people that literally creating the future. They are creating in the present, the future That's not a bullshit statement, by the way. I think a lot of people think that's just some like, oh, you know, platitude. Yeah, no. That's a not a platitude, that's a.

**Speaker 3** [00:40:23] That's the reality.

**Speaker 1** [00:40:24] That is a reality. Those teachers are building the future in the present. Yes. We should pay them for it.

**Speaker 2** [00:40:33] Yes, and they have access to our children for a very long time and they have a lot of influence.

**Speaker 1** [00:40:39] And think of how much wealthy parents spend on their kids. Take all that money that you spend on your kid and spend it on our education system, our teachers. And we won't need all those things. We'll get kids that do these amazing things.

**Speaker 2** [00:40:58] I say we stop spending millions and millions of dollars on textbooks, which are out of date two to five years later, and put that money into teachers' salaries and use the internet for information.

**Speaker 1** [00:41:11] This episode brought to you by Pearson.

**Speaker 2** [00:41:13] No, no, no. I'm saying, literally, if you think about it, if we're right that the information is changing so fast, think about how much money schools spend on text.

**Speaker 5** [00:41:23] I agree.

**Speaker 2** [00:41:24] That's a lot of money that could be redirected into the place that matters, which is teachers, right? Other types of resources for students that are more meeting the modern complexity of what they're dealing with. I mean, that's a fantastic.

**Speaker 1** [00:41:38] And if you talk to teachers, which we do a lot, and you talk to administrators, which, we do, a lot. They will tell you that another thing in education, which is so important. And it certainly was for me as a, as a high school dropout is the connection. Every kid needs to find at least one. that they can connect with, and hopefully that's happening at home, but that's not always the case. And so school can be the place where that kid finds an adult that they connect with. Yeah. That connects to them. if we pay teachers what they're worth, you will get more of that connectivity. If we give teachers the range of freedom to actually do what they are trained to do, we should also increase their training, increase the sophistication of that training, focus more on these kinds of things. In other words, if we do that, we will have so many... We will solve so many knock-on effects in society that are so expensive.

**Speaker 4** [00:42:47] Oh yeah

**Speaker 1** [00:42:47] that are so expensive. I mean, just think about like prison and all the expenses of those kinds of things. We will be remedying so much of that that we will have a net, remarkable net savings in our society. For sure. But we have to change those economics, right?

**Speaker 2** [00:43:08] 100% right that if you solved or if you dealt with this problem in education and you really changed the system so that teachers could be teachers and they could connect and develop to kids, you would reduce so many things, poverty, all of it, incarceration, mental health, mental health, physical health. Yes, because, yeah. I mean, all of it, it's definitely the root.

**Speaker 1** [00:43:36] My God, just take a snapshot of that, right? Like, look at what we're teaching in schools about nutrition. Oh. Look at what were teaching. I don't mean a nutrition class. I mean, look what we are teaching every day about nutrition, just by the foods and drinks that are in the schools. What are we teaching kids every day about nutrition?

**Speaker 2** [00:44:03] Yeah, well, I mean, the first thing we needed was to get coke machines out of cafeterias. They're terrible for s—

**Speaker 1** [00:44:08] Sugars, goop, all of it.

**Speaker 2** [00:44:10] I mean, look at childhood obesity.

**Speaker 1** [00:44:12] It's crazy, and what is the cost of that? Massive. And we can't pay teachers what they're worth?

**Speaker 2** [00:44:18] There's just so much to do.

**Speaker 1** [00:44:19] There's so much to do, but simple rules.

**Speaker 2** [00:44:23] So this is the equation. And you're talking about this equation lives inside of a big complex system with a lot of actors in it. We've talked about teachers and how we can help empower them to be the actors they want to be in the system. So what does that mean in terms of changing? I mean, is that really enough to change a big system like that? Is just starting at the level of teacher-student dynamics store.

**Speaker 1** [00:44:52] It absolutely is. I mean, that's how any, I mean think of the transportation taxi system, right? You have this big, hierarchical taxi system that's run by a few taxi companies that have taxis and taxi drivers, taxi logistics, and this big hierarchical, mechanical system And then somebody says, well, let's look at this like as a complex adapter system. Let's look, you got a person who really wants a ride. Okay. All right, they wanna get from like here to five blocks away or here to 15 blocks away. And you got another person that's just like sitting in their car doing nothing. Yeah, and would love to earn some money, but doesn't have a job, you know, whatever. As a car, doesn't a job and would love to learn some money and isn't doing anything.

**Speaker 2** [00:45:55] put two and two together.

**Speaker 1** [00:45:57] If we can change the rules of what happens, if we can make it so those two people know about each other, if we make it that they can connect, and we can do it in an easy way, the whole system changes. Because those agents have incentives. They're agents. They have ANC. They're incentivized to do what they want to do. They're incentivized to f- get that person a ride, to show up, to get good ratings. All those little incentives are part of the rule structure. So we create a little rule structure between these people that is in alignment with the reality of those agents. Yes. System changes overnight.

**Speaker 2** [00:46:43] because of the change at that local level across many, many, many, many, many, many, many people becomes the outcome of the system is what you're saying.

**Speaker 1** [00:46:55] So if we change the relationship, if we allow the connectivity between teacher and student to happen, that's really important. Just let them connect. Let them connect, let the teacher do what the teacher knows how to do, which is connect to students, connect to every student. Get out of the way of that connection.

**Speaker 2** [00:47:18] Definitely.

**Speaker 1** [00:47:18] Right? Number one. Number two, we don't base that connection on the transfer, the one-way transfer of information, right? We base it on M equals IO and change in M, which is learning. We don't based this whole thing on information. We base on deep connection and deep learning, learning how to learn. learning how to think, learning how to organize information, any information, not one particular kind of information. If we just change the dynamic between those two people, by the way, they're both incentivized to do exactly that. They're both, as humans, learning is the thing we're deeply good at. We're actually really good at it. We're born good at, it. We love doing it. In fact, look around you at how many people give up high paying jobs because they're boring and they're not learning anything. Learning is so deeply deeply part of us as humans that these humans want to do it. I want to learn

**Speaker 2** [00:48:37] Think about the teacher side, too. Teachers go into what is a very difficult position at an underpaid and undervalued job because they want to change kids' lives. They want to make things.

**Speaker 1** [00:48:49] So if you're asking, can something as simple as changing that relationship change the whole ball game? Absolutely. It'll change the hole ball game overnight. That's the only way you're going to change this. And the reason is, because if you try to go in and be like, Hey, taxi industry, we just want to fiddle with a few of your systems. They're gonna be like Get the hell out of Dodge, man. We don't want you fiddling with our systems. Our systems are working just fine. That's crazy. This is the only way it's gonna change. And everybody wants it to change. Yes. Everybody wants it change.

**Speaker 2** [00:49:35] That is true.

**Speaker 1** [00:49:36] That's what we're starting off the episode with. I know. Maybe 9%. I don't know who the 9% is. I've never met one that says we got a stellar education system. It's pretty good.

**Speaker 2** [00:49:47] Or making money off of it, I would imagine.

**Speaker 1** [00:49:50] I had a teacher, she taught Shakespeare. She loved Shakespeare. She taught me English. And I was like, you know, I was not a good student.

**Speaker 2** [00:49:59] You are a problem.

**Speaker 1** [00:50:00] I was a problem student, yeah, I was very difficult, disruptive, I didn't know I had autism, I did not know I have ADD, those things didn't even exist, and I was very disruptive, and disrupt, I could shut down any class that I wanted to shut down with my disruption, and if I felt animosity from the teacher, that's exactly what I would do, I would shut down the class, I just shut it down. But there was a few teachers who didn't do that. They tried to connect with me, and I never shut down their class. Didn't need to.

**Speaker 2** [00:50:44] saw you.

**Speaker 1** [00:50:45] They saw me.

**Speaker 2** [00:50:46] They saw you for who you were.

**Speaker 1** [00:50:48] They saw that I didn't actually want to be that.

**Speaker 2** [00:50:50] And maybe they saw that you were a fish trying to climb a tree and they knew that.

**Speaker 3** [00:50:56] they helped you get some legs.

**Speaker 1** [00:50:58] or arms. I had this one teacher who, she was so into Shakespeare, man. She, like everything in her room was purple. Yeah. That's how into Shakespeare and it was like velvet and stuff, like these curtains, the whole room. Right. And she taught English. And I remember, like she, I was like, there's no way I'm gonna do terrible in this class. And she said, you're not doing terrible in those classes. You're gonna love this class, she would have none of it. She just was like, you are gonna love Shakespeare because I love Shakespeare. And she had so much passion and she just never, like when I walked in to that room, I was treated the same, even though she knew my reputation.

**Speaker 3** [00:51:43] Seems smart.

**Speaker 1** [00:51:45] To this day, I still remember the sonnets, like I have them memorized tonight, and I use them all the time.

**Speaker 3** [00:51:50] He recites them in.

**Speaker 1** [00:51:52] And then I have like a deep love of Shakespeare and how remarkable he was.

**Speaker 2** [00:51:59] See you as a teacher.

**Speaker 1** [00:52:00] And that connection around the right, the right stuff, which is learning. There's just nothing more important than it. Yeah. And it'll change society for the better. Most of the things that we're trying to solve downstream will get solved here. That's right. Most of things that were trying to solve that we gonna spend billions of dollars to solve down stream would be resolved, resolved. if we change this system, if we get this system right.

**Speaker 2** [00:52:34] Yeah, and get the kids on the right path, a path that they.

**Speaker 1** [00:52:38] I'm not just talking about the pitfalls, right. I'm, I'm not talking about just prison or just, you know, mental health issues or just physical health issues or, you know, all these multibillion dollar problems, trillion dollar problems. I am talking about more patents, more entrepreneurial endeavors that the engine that makes America so remarkable.

**Speaker 2** [00:53:04] our competitiveness.

**Speaker 1** [00:53:05] Our competitiveness, our ability is envision a future that nobody can envision because we can organize information in any way we want to organize it. And we can organized information that people told us we couldn't organize.

**Speaker 3** [00:53:18] Yeah.

**Speaker 1** [00:53:19] And we just don't have constraints. There's no constraints. There's like, I can do whatever I want because these people taught me to think. Right? These people taught me to think and they taught me to learn. They taught me how to learn, they taught me how be a great learner and how to be a great thinker. And it wasn't focused on like you must learn the 62 counties of the New York state. You know, like I can get that information. I've never not gotten a job because I didn't know that information, I've not gotten a date because I don't know that information.

**Speaker 2** [00:53:58] I know I should have been harder on you. Set the bar higher.

**Speaker 1** [00:54:03] You know, and then it goes back to the training programs for these teachers, right? That needs to change, because it needs to focus on this. We should not, we have to change the training of teachers to make it understand, make them understand, to train them in the deep understanding that we are not teaching subjects, we're teaching humans. A teacher in their training should be trained to be experts in humans and human learning and how human learning happens. They shouldn't necessarily be trained in subjects.

**Speaker 2** [00:54:53] Right. And I think there has to be space for that at the level above teachers because teachers aren't in control of that. Teachers aren't control of what kinds of training and opportunities they're given. It's coming from the top. And so what you're saying is there needs to be a space to train teachers in a way that allows them to be in this connection in the M-I-O space rather than just the I space. which is where they wanna be. But the system is not working in their favor right now, in that sense.

**Speaker 1** [00:55:30] A great teacher can teach any subject. It's the exploration of the subject. It's, the exploration of the information and the student is doing the work. The student is due in the practice. The student is building the models. Now I'm not saying that a great teacher who understands humans and human learning, who also doesn't have a passion like the one I told you about a passion for English and a Fashion proof. for Shakespeare's remarkable utilization of the English language in the crazy ways that he did it. Yeah. That's the making of a great teacher because they're passionate about this information. But her passion about that information was infectious. Not about that, information, but about, wow, I'm passionate about being passionate. Exactly. That teacher showed me what passion can do for you. That was, that's a great teacher.

**Speaker 2** [00:56:31] That is a great teacher, for sure. So there is hope. Well, there's tons of hope. We can get the numbers up. For 9%.

**Speaker 1** [00:56:39] Not if we don't focus on the Asians, right? I mean, I think a lot of times we think we're gonna fix these systems like, by understanding all the compression, no. That's not how you gotta fix these system. You gotta understand this person and this person and this interaction, and then multiply that times all of those agents. If you get this interaction right, then we're just multiplying that interaction across the whole educational system. just like the driver and the rider. If you get that interaction right, then just multiply it. Yeah. But you gotta understand the simple rules between that action. We gotta understand what incentivizes one and the other to be in that interaction. And then you're gonna get the multiplication that's called collective dynamics. And the collective dynamics lead to the emergent properties. You're gonna to get the emergen properties you want.

**Speaker 2** [00:57:34] Meaning if we improve this interaction, help free this interaction up, all of those interactions combined are gonna change what we get out of the system. So kids won't be just on the MI, they'll be on the MIO train.

**Speaker 1** [00:57:48] Yeah, it's a tremendous efficiency of the system because you just, you don't have to go to a taxi stand. You're standing at this corner. I want to stand on this corner because that's where I'm standing and I'm going to click. And then that person is going to know where I am. And then I'm gonna know where they are. And then, I know how long it's going to take. And so I can, you know, go inside and get a coffee because I know they're going to be here in five minutes. And like, it was just good. It's just good for everybody. It's just win-win for everybody. Yes. Right? And that guy's like, I can own a Tesla, because I have all these people that I can pick up. They all seem to own Teslas. Really? Every one I've ever taken has a Tesla. I've not noticed that. That seems like the Uber car, or whatever it is.

**Speaker 2** [00:58:36] I have no idea.

**Speaker 1** [00:58:37] I'm saying, it's like win-win for everybody. Yes. It's win-win for everybody

**Speaker 2** [00:58:43] Yeah, and it's not just win-win at this level. This perturbates out into all the other stuff that we're dealing with, that we talked about, like the mental health, the physical health, poverty. Like, if you get education on the right path as you're talking about, it changes all those downstream effects that we see.

**Speaker 1** [00:59:04] Yeah, I mean, I just can't tell you enough. I just wish I could spend, you know, I could spent a whole, education is the most important thing. And that is not, and we say that a lot. Politicians say that, everybody says that. If that doesn't... punch you in the gut, the reality of that statement, that education drives all else, education drives the health of a society, education is building in the present, the future. If that doesn't like hit you in a different way, then you don't understand the statement.

**Speaker 3** [00:59:47] I think that's fair.

**Speaker 1** [00:59:48] then you don't understand the profundity, the dynamics. You know, because it's easy to say it. But if you don't go, oh, shit, that's a big deal. We are literally building the future in the present, in our children. I just don't get it, because when you're a parent, you get it. You're like, everything I'm doing today is for a future. That's very tangible to a parent. But then for some reason, when we put all our kids in a collective in education, we kind of lose sight of it all.

**Speaker 3** [01:00:27] Yeah, I mean, I think that's the nature of how big the system is and all the external forces and

**Speaker 1** [01:00:32] But again, it's because we get overwhelmed by all that complexity. And I'm like, it just this relationship between teacher and student and what governs that relationship and what degrees of freedom are available in that relationship. And what is incentivizing each of those people to genuinely authentically be in that relationships. And if you get that figured out and then you multiply it in the collective dynamics, you get the immersion properties and it's fixable. It's fixable and it's the most important system.

**Speaker 3** [01:01:08] We could talk about this for days. Maybe we will. Maybe we'll have a whole series.

**Speaker 1** [01:01:12] Well, I mean, I feel like we're talking about it all the time, really, because I mean, the other, I guess one last thing I'll say, because it feels like we are rapping, right? We should never confuse this beautiful thing that we call learning with schools or education, because learning is happening all the time across the whole lifespan. And everything we just talked about can happen across the whole lifespan. Yes. It's really, really important that we do it for our young people because that's the future that we're building in the present. it's important to get them so that they're so capable of doing it that they can do it across the lifespan. Because the number one thing that's gonna make them successful isn't this or that or the other thing. It's their ability to adapt and learning by definition is adaptation. It's change. It's changing what you think, changing your mental model. So if we give them the gift of learning, We're giving them the keys to the castle. We're given them the gift of living a great life because they can adapt to whatever happens. Which is what they need. Which is they need because who knows what they're gonna do or what they are gonna be interested in or how different society is gonna be or what's gonna change or what is gonna get upset or you know, innovated or. We're preparing them for a future that we don't know. No. We don't what technology is going to be out there. We don''t know any of that.

**Speaker 3** [01:02:57] But there are skill sets that will equip them to meet that future. That's what we're talking about.

**Speaker 1** [01:03:03] Learning the ability to adapt the ability what we're talking about is building learners. Yep I mean that's the that's so what is learning learning is a change in meaning mental model Well, what's a mental model? It's information and organization. Well, what's the thing that the person's doing they're organizing information to make meaning Yes, they change their mental model to make learning That's That for sure Is what they're going to be doing in life So we're just building those people. We're building great learners.

**Speaker 3** [01:03:34] and we need to help teachers free up to do it.

**Speaker 1** [01:03:36] Exactly.

**Speaker 3** [01:03:37] because they want to do it.

**Speaker 1** [01:03:37] They want to do it.

**Speaker 3** [01:03:38] They know how.

**Speaker 1** [01:03:39] They wanna do it. Yes. We need to stop beating them up. Yeah. We're making the job so difficult and teachers are leaving in droves. We need we need to give them the respect and the cash.

**Speaker 2** [01:03:53] for allowing me to engage there as a Bartice.

**Speaker 1** [01:03:55] Ha ha!

**Speaker 2** [01:03:57] Free them to do what they want.

**Speaker 1** [01:03:58] lead them to do what they want to do. For sure. That's a wrap.