

Lillian Sugarman: Good morning. There are so many people here, I can't imagine such a soft good morning. Good morning. [Audience: Good morning.] Good. Now I know everybody is here. My name is Lillian Sugarman from the Early Head Start National Resource Center at Zero to Three. And I am so pleased to welcome you to the 11th Annual Birth To Three Institute. It's the work you do every day across the country with babies, toddlers and their families that we celebrate at this institute.

We thank you for what you do and we thank the federal government and in particular the Office of Head Start for making it possible for us to gather together this week. And I'd like to ask all the federal staff, our colleagues, to please stand while we acknowledge your presence. Come on. [Applause] And the Early Head Start National Resource Center staff who put together this institute for you, I know some of you aren't even in the room, but if you're here, will you stand and wave your hand because you deserve -- there you are back there. [Applause]

My role here this morning is to welcome you, thank you, and introduce you to the dignitaries on the stage and make a few housekeeping announcements. And if you will indulge me, I'd like to identify some of the folks that are in the audience. Would the direct service staff raise your hands, or stand. Folks working directly with our babies. No one, come on. All right. [Applause] And where are the parents? Where are our parents? [Applause] We always realize without parents, we wouldn't have the babies, and we wouldn't have our work. Right? How about managers and coordinators of our programs? [Applause]

And our wonderful TA partners -- TA folks. [Applause] All right. If I left anybody else out, we welcome you anyway. So please let's give you all a hand, too. [Applause] And I just wanted to let you know that we're making an effort-- every year we try to make an effort more and more to reach out to folks whose home language is not English, and so if we have folks who are in the audience whose primary language is Spanish, I'd love to see your hands, too, to make sure that we're really reaching an audience whose language is different from English. We have a few. Okay.

Well, I hope that you get yourself known to our interpreters, if you need interpretation, and we also have several sessions that are in Spanish. I'm going to say some housekeeping remarks and turn the mic over to Channell Wilkins, the Director of the Office of Head Start. Channell's been with the Office of Head Start for over a year now and he's provided us all with leadership and a grand vision for Early Head Start, Head Start and Migrant and Seasonal Head Start. Please join me in welcoming him. [Applause]

Channell Wilkins: Good morning, and thank you for the introduction, Lillian. I have a good opportunity this morning because I only have two roles. One is to welcome you and the other is to introduce Amanda from my staff, and that's important, because oftentimes I'll go places and Amanda introduces me. I get to say really nice things about Amanda this time without having to feel embarrassed by the good things she says about me. I go first. I know many of you just finished breakfast, so part of a lot I've learned over this past year is a lot about the brain research.

I know most of your brain now is engaged in digesting your food so you don't want me to talk too long anyway. But I am pleased to welcome you to the 11th Annual Birth to Three Institute. The theme of this conference, Quality Practice for Babies and Toddlers: Systems and Services that Work is one that really resonates with me. We, at the Office of Head Start, are trying to put in place systems that work. We know the continuity of care that you provide and the systems that you put in place and the types of training that you get either from our office or from the field or from the T and TA network is critical to the job that you do.

The research in the first thousand days is all over the place. And what you've taught me in the past year has greatly improved my ability to do the job that I'm doing. Part of that also comes from the fact that you've taught a lot of other people about the importance of early education and Early Head Start, and it's really evident in what's happening with the reauthorization. As most of you, I'm sure, know by now, both bills have language that increases Early Head Start from 10 percent to 20 percent over the reauthorization period. That's a lot to do with your effort and your work.

[Applause]

It's a lot about not only your work, but Performance Standards and how folks have come to recognize what you do as a model, not only here but internationally. A lot of the countries have come to the Office of Head Start in the past year. We've had dialogue with all who are very interested in Early Head Start and what's going on. Steps to Success is always being asked for by a lot of international countries. I've had Olmert from Israel come in. We've had folks from Japan, Korea, some of the African countries and all of them are very interested in the work you've done and the models you've put in place.

So the work is really important, and folks are watching you. So I look forward to learning more from you, from doing more with you and that what we do in the Office of Head Start as we begin to expand Early Head Start will be critical to the workforce of the 2020 and beyond because these are the children will help many us when we talk about the issues of Social Security and whether it will be around. We've got to get them ready, because most of us, hopefully me, will be retiring at some point -- sooner than Amanda. Now let me just introduce Amanda who's my director of educational and community partnerships at the Office of Head Start.

Amanda is extraordinary in her commitment. And she'll tell you a lot about what's going on in the office which relieves me of doing that because she's really on top of it. I'm privileged to have staff around me and some of them are here in front as well.

They really know this and really give me the guidance I need to advocate for you, to look on Early Head Start and look at the systems, that I can look objectively kind of as an outsider so that what they feed me allows me to be very well-fed in what's going on in Early Head Start and Amanda is probably one of my favorite people in doing that because she does it with a smile when sometimes things are tough. And we stretch Amanda quite often in many different areas.

I'm sure when she talks about all the initiatives that are going on in the Office of Head Start you'll find out that she works really hard and is stretched. I'm going to get her a Blackberry so we can stretch her 24 hours a day. With that, I'm going to turn the mic over. I want to make sure you particularly go to the workshops this year, because there's just so much coming up in the near future that I think the knowledge you gain will be great.

And I think that what you'll get out of this you'll be able to apply and take back to your communities and spread the wealth with many other folks who are going to be getting into early childhood. And Amanda will now talk to you a lot about the very particular intentional things we want to do in Head Start around Early Head Start. [Applause]

Amanda Bryans: Thank you very much, Channell, for those nice words. You failed to recognize that I'm now at the mic and I have the opportunity to say anything that I wish to about you. And let me just say

that it has been really unprecedented pleasure to work for somebody who is so enthusiastic and impassioned about the importance of early childhood education, and is willing to follow through with a great deal of his own time and commitment and resources to make sure that that work is happening in every possible those way, and I'm very excited about the Blackberry. That's going to be great.

You know, I thought that I was okay with the large screen thing. The first time I ever spoke and there were giant screens in my face, it was really not my favorite thing, but I've learned to have kind of tunnel vision and focus so that I don't see that, but unbeknownst to probably most of you there's a screen right there that's got my face on it, too. So that's-- I don't know, we need like a black cloth to put over that or something. I'm so excited to be here with all of you. I hope that during the next couple of days I'll get a chance to hear from a lot of you.

I want to hear your best ideas about Early Head Start, the things that have happened in your program that are exciting to you and that you feel really are successful and that other people should know about. The mission of the division that I work with -- and this is a mission that's been fully supported by Channell and the rest of the Office of Head Start -- is to reassert Head Start as the national leader in early childhood education. People used to say, as Head Start goes, so goes the field of early childhood, and we'd like to be get back to saying that.

We've had a couple of years where we took a much needed look at ourselves. We've had to be really proactive. We've seen some areas where we were too inconsistent, where in one region we were calling something deficient in another region that wasn't deficient. And some practices were -- in some regional offices a great deal of scrutiny about certain things and other regional offices there wasn't. And the monitoring systems and processes we had in place left a lot of room, too much room for interpretation, and we have put a great deal of energy into correcting some of those problems. That momentum will absolutely continue.

That's really important. We need to know for sure we're fulfilling our responsibility in ensuring the quality of all of our programs. But at the same time, we're now, those things are happening and there are systems in place, so we're back in a spot where I think we can start looking at the emerging best practices in early childhood and make sure that Head Start programs are places where those practices are being applied, and where we're gathering information and using it to inform our continuous improvement and progress, and to talk about ourselves.

I'm really proud of the work you're doing, and I want you all to be really proud of that work, too. The division includes many -- Well I'll tell you briefly the kind of units that are included under the division we have. The education branch or education unit, which includes talking about the best practices for zero to five-year-olds in terms of education services. We also have the health area which, of course, includes oral health, and we have a great deal going on in that area.

I'll say, in education, one of the most exciting things that's going on is an initiative around early math learning, which will be applicable for -- there will be kind of an infant/toddler early math as well because infants and toddlers are developing the beginning of mathematical thinking and some early math skills. Of course, our literacy efforts are ongoing in education. And this is also very important for Early Head Start. There's really strong research showing that dialogic reading leads to better literacy outcomes for young children.

Dialogic reading means you don't just read to the child, that you read and that you give the child a chance to, depending on the age of the child, interact with the reader. You do reading in one adult to one child or maybe two children. It's not just having children -- the whole group reading, and that reading occurs frequently throughout the day. So for infants and toddlers when we're reading to them it's important that we pause and give them a chance to respond. They may not be verbal yet, but they can be babbling, you're reading something and giving them a chance to babble back to you. They're beginning to learn to point to things.

You can ask them questions even if they're not ready to answer yet. It's been the habit of having interaction during reading time, and above all, making sure that it's fun for them to do. Recently I was looking at some research that indicated that reading doesn't happen in every Head Start classroom every day. That was shocking to me. I just thought that was an absolute cornerstone. Of course we're reading to all of our children every day. Reading is critical.

It needs to happen not just once a day, but throughout the day. Books should be everywhere in the room including infant/toddler rooms and caregivers, it's important that they be reading. You can be talking to children about books while you're changing diapers. You can be holding books up while you're doing other routine care things. Children can be holding onto cloth books and soft books while they're doing other routine care things. It's critically important that children are exposed to books, but it has to be fun for them as well as for you or you won't want to do it, so have fun with that reading.

So in education, we've got reading and math initiatives going on, literacy and math. And in health there are a number of very exciting initiatives. A lot of you by now will have heard "I Am Moving, I Am Learning" that's geared primarily at three and five-year-olds around improving increasing children's-- the amount of time that they spend doing moderate to vigorous physical activity every day. We're working on an infant toddler version of that. It's very important that young babies get opportunities to be moved around throughout the day. We think there's an increase in weight that's linked to -- infant weight -- linked to later overweight in childhood.

It has to do with the relationship between the baby's height and the baby's weight. Kids that are in the 50th percentile for height and 90th or above for weight are looking like they have a very high likelihood of continuing to be overweight throughout their lives. We think the increase is related to a number of things, not the least of which the reduced opportunity for movement that many infants and toddlers are experiencing. For one thing, you know, infants -- we're carrying them around all the time in those basket carriers.

So they're not being -- I read a little story in a magazine about a mom who said she realized she was getting her baby up in the morning, putting her in the car seat carrier which was in the house taking it out to the car so they could go to school drop the older child off. Then she would do errands on the way home she would carry the baby around in the basket while she went to the grocery store -- you know, they fit very conveniently in the top thing of the grocery, the top basket of the grocery cart. Then going to do whatever and going back in the house the baby's by then been in the car seat carrier for three or four hours.

And even very young babies are developing muscle tone and muscles when they're being positioned frequently. So when you're picking the baby up and they're trying to reorient themselves in space, they're starting to develop muscles, which, of course, is the more those get developed the more they use them and that becomes kind of self-fulfilling. The Back to Sleep movement has been incredibly

important in reducing SIDS, but it also has resulted in reduced tummy time. And when babies are on their tummies we all know they try to pick up their heads and they eventually try to push up and there's delayed crawling.

Babies are crawling later since we've done Back to Sleep, so we need to have concerted efforts around to having tummy time that's well supervised. Because we certainly don't want babies sleeping on their tummies. But when they're awake and alert they need to have some time on their tummies so they can start developing those muscles. Parents say babies hate that and they do because they don't have good muscle tone yet. It's hard for them.

If you do a little bit at a time you're there with them, supporting them and providing interesting materials and toys, then they become more accustomed to it. Do it very short periods of time at first. This is just some of the kind of research. When we come out with the infant/toddler version of "I Am Moving, I Am Learning," it will include a lot of this material. The division also -- we have a lot of things going on related to oral health.

We're working on a new agreement with the American Academy of Pediatric Dentist that we hope will encourage more general dentists to see pediatric patients and therefore make dental services more available to Head Start children. We know that that's been a big issue. It's been a very strong commitment on the part of the Office of Head Start to try to do what we can at the national level to improve the oral health outcomes for Head Start children. We also have the disability services area in the division.

And one of the most exciting things they're doing now, that I hope you've all heard about, is the otoacoustic emissions screening program. Have you all heard about that? Uh-huh! Not getting anything? A few people. All right. Well, you know that's the hearing test where babies don't need to respond in any way. Lots of states are doing it now with all newborns, but not all states. And Head Start is working with a provider to make otoacoustic emissions hearing screening available to all Early Head Start and Migrant programs.

We already know of several cases where very significant hearing loss was detected through Head Start use of the otoacoustic emissions screening. It's critical because of course the earlier you can diagnose a serious hearing loss and provide intervention the better the chances the baby will be able to develop language are. So you should have heard of that already. But we'll work on that. We also include the mental health unit in the division of mental health. We've got the Center for the Social Emotional Foundations of Early Learning. Have you heard of that? Raise your hand if you've heard of it.

Oh, that just fills my heart with joy. Thank you. I'm really glad. And one of the most exciting things with that project is the new inclusion of the Zero to Three Early Head Start National Resource Center as a partner so that we're making sure that mental health services are being extended into our -- the provision of those services are available for Early Head Start programs as well as Head Start and there will be more material that's specific to infants and toddlers. We also oversee the work that's going on in research, the Office of Head Start spends about \$20 million a year in research.

I know you're all familiar with Early Head Start research and you're going to be hearing a lot more about that this week. We've also got the Head Start impact study and the ongoing longitudinal study called FACES, which has provided a great deal of really useful information that programs can use to refine and improve some of their practices that... What I just said about dialogic reading is included in some of the

FACES findings. All the Head Start grantees got a mailing called Friendly Faces, a little brochure that gives a very kind of concise summary of the major FACES findings. Is that familiar to you?

It's a pamphlet kind of thing or brochure. I don't know if we'll have materials in the exhibit hall, but we don't know if we have that but ask for it. If you haven't seen Friendly FACES, I'd like you to ask for it and we'll make sure that we get it to you. So then of course Early Head Start is part of the division. And you all are the bearers of this most incredible responsibility. I think that you're going to be shortly hearing more about the kind of profound opportunities for development that happen during this brief window of time in infancy and toddlerhood.

I want to say to you that in many ways Early Head Start, of course, was the first big nationally organized center-based and home-based service for infants and toddlers. And it is -- we currently enroll about 61,500 children. When people talk about quality care for infants and toddlers, they often look at the Early Head Start Performance Standards and requirements for that care.

And in fulfilling the mission to reassert our role as the leader in early childhood development, it's incumbent upon us to not only make sure that we are providing the absolutely highest quality possible services to infants and toddlers and their families, but also that when we're finding practices that are effective, we're measuring those practices and that we're able to talk about them to other programs and to other providers in the community so that people can benefit from what you're learning and your program.

So it's not just that you have to do it for yourselves, and for the families, but we have to do it for the larger community, so that as a nation we can do better by all of the babies in our care. There are a great number of things going on in Early Head Start. I talked already about the "I Am Moving, I Am Learning", which we'll probably have a different name for it.

We also have an initiative related or we're beginning to talk about work in terms of prenatal care, working with pregnant women. There's been disturbing statistics recently showing that for the first time in decades, the infant mortality rate in Mississippi has increased. And there's lots of thinking about why that might be happening. Some of it is related to possibly more chronic health problems that moms are having more chronic health problems and some of it may have to do with the availability of Medicaid, staying certified for Medicaid to get care.

But what is clear is that there have been a couple of demonstration projects where they provide visits to the mom conducted by lay people who've been trained in some prenatal health aspects like the importance of making the prenatal visit, asking some questions the parent might have and some basic nutrition that they can talk to the moms about. When these relatively easy-to-provide services occur, the infant mortality rate goes way down, and becomes lower than the state average. And more commensurate with the national average even though the women are at higher risk, higher poverty level, more health problems.

So we're looking at that and we need to make sure when we're enrolling pregnant women in Head Start they're getting very good quality services and that we're following them carefully and that there have been too many cases where Early Head Start has said, "Well, we know pregnant women and that's involved sort of obligatory once a month visit or something." That's not enough. If the pregnant mom is occupying a slot she needs full complement of services. We also have an initiative related to breast-feeding now.

We know that there are many important benefits to breast-feeding related to children's health and also to their social emotional well-being and parent/children bonding. And we know that low-income and minority women are much less likely to breast-feed than other women and we want to make sure-- and we want to in the first place that we support Early Head Start parents in their feeding choices. We never want to say every woman has got to be breast feeding. It's not possible for some of our parents to do it certainly full-time, because of their work situations. We want to encourage them to do it as much as they can.

It's not-- it's a big surprise to a lot of people, but it's not an all or nothing proposition. Women can breast-feed at night and formula-feed during the day if they need to because of their work or the opposite. And then we want to make sure, though, that they have the resources and support and help that's required, so that if they choose to breast-feed, it can be a successful option for them. People tend to think it's natural and that's all that's needed and actually, it's quite difficult, and there are a lot of, for many women, not for all women, and that many supports and resources may be needed.

So we want to make sure our programs are connected to those supports and resources and that they can get our parents connected to them. I guess in conclusion, I kind of want to say that we've got this most incredible resource available to us in the form of the Early Head Start National Resource Center. And this is a center that we fund to provide all of the cutting edge information and infant/toddler care and early childhood development directly to our programs.

I want to encourage you to absolutely make sure that you're using the center and all of its resources, so that we can be the premiere provider of infant/toddler services in the United States. So I'm so excited that you're here, and I'm grateful for the opportunity to speak to you. And I wanted to mention one other thing, and I hardly had any hint at all about it. We have another resource which is very exciting, and this is where you can find everything you ever needed to know about Head Start and Head Start's history and what's happening now. It's the ECLKC, the Early Childhood Learning and Knowledge Center.

Now how many people have ever visited it? Raise your hand. That's what we love to see. It's getting over a million hits a month. We're very proud about that as well. It is a very user-friendly site. The web address -- there will be bookmarks at the exhibit hall. You should get one. It's got the web address. I think it's eclkc.ohs.acf.gov but we have the bookmarks in the exhibit hall. It's got -- what are you saying? I'm getting a lot of help up here. You can log on in the data cafe or the Internet cafe downstairs so that you can get practice if you've never used it. But it looked like many, many people here have used it.

It's got-- There are videos. Early Head Start is working on a series of interactive lessons. Have we posted some of those? I think we have, so you can get on. It's a great way to have people get continuing education or ongoing in-service training. They can log on and do these lessons. They read some material and they look at some video clips and then they make some responses, and there's going to be more and more of that kind of content available as well.

So we're working on for early math learning we're going to put up a screen shot of Early Head Start or a Head Start classroom and have it so when you scroll over the areas in the room, you'll get a drop-down that will tell you all the math learning opportunities in that area. So we've got lots of really cool stuff going up on there. And everybody who is in the know is visiting the ECLKC. Thanks a lot. [Applause]

Lillian Sugarman: Well, I don't have to ask you to applaud our federal partners. Thank you Channell and thank you Amanda, very much, for your remarks. [Applause] Now I'd like to introduce to you our keynote speaker, Dr. Dan Siegel. You going to come up? Come on up. Feels okay up here after awhile.

Dr. Siegel received his medical degree from Harvard University and trained in pediatrics, general psychiatry and adult and child psychiatry at UCLA. He is presently an associate clinical professor on the faculty of the Center for Culture and Brain Development at UCLA. An award-winning educator, Dan formerly directed the training program in child psychiatry and the infant and preschool service at UCLA.

He's also the director of the Center for Human Development, an educational organization that focuses on how the development of individuals, families and communities can be enhanced by examining the interface of human relationships and basic biological processes. He's the author of *The Developing Mind* and the co-author of *Parenting From the Inside Out* and coeditor of *Healing Trauma* and the founding editor of the Norton series on interpersonal neurobiology.

Dan is a full-time -- has a full-time clinical practice. He teaches locally and internationally, and is active in the clinical application of issues related to a wide array of sciences from attachment and neurobiology. Now, he's a very busy man, and that he made time to come and be with us this morning deserves a warm welcome from all of you, so please help me welcome him.

[Applause]

Daniel Siegel: Good morning. Can you hear me okay? Great. Is it okay if I'm not in front of the, in back of the podium? It's OK. Great! It's really an honor to be here with you all. You are really the sculptors of the next generation, and I think we need to take a moment and applaud all of you for-- [Applause] for such profoundly important work. And what I hope to share with you today is just some views from science that support what you already know, which is that what you're doing is profoundly important. So the talk this morning is entitled "The Mind, the Brain and Relationships."

And what I hope to do is walk you through a way of thinking about these three parts of our experience: The mind, relationships and the brain. You have on your tables a set of slides of the brain that come from a number of sources. It's from this book *Parenting From the Inside Out* and the specifics are from a new brain-- new book called *The Mindful Brain*, and I'll be referring to that as we go along, not just yet but just so you know it. But also in terms of all the letters you're getting, web sites that are available to you.

So, as was mentioned, there's a field called interpersonal neurobiology, and if this material that I'm offering you is interesting we actually have an entire library through Norton. And if you go to their web site www.norton.com is the publisher in New York, you'll see we have a dozen books available for people who work with children and adults in thinking about this connection of mind, brain and relationships and there's also a nonprofit organization called GAINS, which stands for the Global Association of Interpersonal Neurobiology Studies. But all you need to remember is the term "Mind Gains," g-a-i-n-s minds, g-a-i-n-s.org.

And there, there's a whole group of people gathering trying to promote well-being in children and families by understanding the science of development. So those are just some resources to start with. The first thing let's begin with is: in the work that you do, is there a reason for you to know about the brain? What do you think? [Audience: Yes.]

Yes. And why is that? Why do you need to know about the brain? You're dealing with kids and families, what does the brain have to do with kids and families? Because the brain is how we think, okay. So the brain has something to do with how we think. And why would relationships that you have with your kids in Early Head Start from birth to three, why would that have anything to do with the brain? Well, learning takes place, but then what does learning have to do with relationships? Social and emotional learning. Okay. So all these things are basic questions that we're going to need to answer.

And what I want to start with in today's talk is a notion of a triangle. So if you draw on your pad of paper just a triangle, we're going to write in three points of this triangle. One point, it doesn't matter where in the triangle this is because it's an equal-sided triangle, one point is the point of relationships -- the way we connect with each other, the way we share what's going on inside of each other with one another. So relationships. Another point is the point of the mind. And we'll have to define that in a moment.

And the third point of our triangle is the triangle that we'll just call the brain but you could just as easily put the body but we're going to focus on the nervous system inside the body. And so we're going to call that the brain -- not just what's in the skull, but when I use the term brain I mean the extended nervous system distributed throughout the entire body from head to toe.

So by the end of this brief presentation this morning, what I hope will be feeling very comfortable for you is the idea that these three entities -- what are they? Relationships, mind and brain-- are actually the fundamental parts of human experience that they can't be reduced to each other. And what I mean by they can't be reduced to each other, is if I were a straight neuroscientist -- that the folks who invited me to come, and I thank them very much for inviting me -- but if I were a straight neuroscientist I might come up here tell you something like this. I might say, well, you know, the mind is just the activity of the brain.

Like that, which is a pretty straightforward neurobiology thing to say. But that I'm going to offer to you is not the case. It's not that simple. And if that were the case, we who work with families and children wouldn't have that much to draw on from neurobiology, actually. So instead I want you to understand that I'm presenting you science of the brain for sure but we're integrating it with larger sciences like the field of anthropology, for example, how we study how culture impacts the way we develop and especially how the brain develops.

Or we're going to look at the science of relationships within families, which is called the field of attachment. And so, what I'm going to offer you today is this field of interpersonal neurobiology, not just simple neuroscience, and that's this field that draws on lots of branches of science, so that's just so you understand where this is coming from. So we've sort of defined relationships in a way as these connections we have with each other. We're saying that the brain, we'll use that term as the nervous system extended throughout the whole body, in addition to what's in the skull.

But, let's look at this issue of mind. So what is the mind? Now, we have 1200 people here this morning and I'm going to use this as an opportunity. I've been doing a study over the last eight years of people in the field of mental health and education, and I don't know in Early Head Start, I guess, would you consider yourselves people in education -- early education. Yeah. Okay. So let's try this. Please don't be embarrassed because when you hear the numbers I have for you from doing this for eight years you'll see you're not all alone. How many of you would say you're in the field of education, raise your hand. Okay, so everyone.

Now how many of you have had a lecture that defined what the mind is? One, raise your hand really high. Two, three, four, five, six, seven, eight, nine, 10, 11, 12, 13, 14. 14. Okay. So 14 out of 1200 is how much? [Laughter] That's about 1 percent. One percent. Now, that's about where it is for the field of mental health, actually. I believe it's about 2 percent. Now, if we had more time, we were just hanging out together, we would say, "What are those 14 definitions of the mind?" Well, I've now interviewed now 4,000 educators and the number is usually about 1 to 2 percent.

And actually 73,000 mental health practitioners from all over the planet, and the number is about 2 percent. Now, how many of you think that's kind of strange that mental health practitioners and educators who work with the mind, 98 percent of us have never had a lecture on what the mind is? How many think that's weird? It's the weird survey. So this is really strange. Now in my field of mental health, I'm a psychiatrist-- child psychiatrist, we're called mental health practitioners.

And I'm embarrassed to report this finding, that two to five percent of mental health practitioners of this study, of 73,000 mental health practitioners, have ever had even one lecture defining mental health. Alright. Now, we could do the same here. Let's do that for fun. How many of you have had a lecture on mental health, defining what mental health is? Wow, that's a lot. That's amazing. So what is mental health? [Laughter] Okay. Well, anyway, often in my field, what people say is, "Well, it's the absence of symptoms." Right? And we're trained to get rid of symptoms. And it's like, okay, well, you know-- I'm going to really want to go to you for help.

[Laughter] So what I've been doing these last few years since this book "The Developing Mind" came out which proposes this field of interpersonal neurobiology, is to actually have a working definition of the mind so educators and mental health practitioners can actually have a way to begin a dialogue with each other.

In addition, it invites any fields that work with human development like policy folks and people in the law or people in contemplative practices to say, "Well, can we define the mind and can we then define a healthy mind? And can we be really clear about what we need to do to bring a child up in a way that promotes a healthy mind?" So if we can accomplish some of that in this next hour, I think we'll be doing pretty well. So we're starting with this triangle and we're talking about now the mind.

And so I'm going to offer you a definition of mind that when I was a training director in child psychiatry in UCLA, I was asked to run a science group for a scientist from different disciplines at the university from people studying culture, like anthropologists, to people studying neurons like neuroscientists, and everyone in between studying language and family functions and child development. All these-- we had 40 scientists in the room, and they had no shared definition of the mind. So as the facilitator of the group, as you know from running groups, is you need to try to help people get along and communicate with each other.

So here was the definition of the mind that I gave 40 scientists, and they all agreed -- which by itself is shocking, that 40 academics would agree on anything, but they did. And so I stuck with that for the last 15 years and it's been very useful. So I'll offer it to you, that the mind can be defined -- so this is one of our three points of the triangle, the mind as an embodied and relational process. So embodied means that it's actually happening in the body. Embodied. Relational means it's happening among people. So it's both. Embodied and it's relational like it's happening right now between me and you.

So it's an embodying relational process. And the word "process" means that the mind is not like a rock, or like a chair. It's just something that sits there. It's actually something that has -- it's more like a verb, not a noun. It's moving. It's doing something. It's a process. So it's an embodied relational process. But what does this process do? It's a process that regulates the flow, regulates the flow of energy and information. Period. I'll go over that again. The mind can be defined as an embodied, which means it's where? In the body. And relational, which means it's where? In relationships we have.

Process: Embodying relational process that regulates the flow and flow means something like a river moving across time. Embodying relational process that regulates the flow of energy and information. So energy is our ability to do stuff and we feel it. Like, for example, if I were to come up to you this morning and go like this go today we're going to talk about the brain and the mind [yawning] and relationships -- like that, you'd have a different feeling than I'd say today we're going to talk about the mind, brain and relationships. It's a different kind of energy even though the words are the same.

And information -- information is something that we define as a symbol of something other than itself. So, for example, (bless you) the word "tree" has all sorts of information in it because t-r-e-e, those letters, that has nothing to do with the big thing with branches and leaves, right. But the tree itself actually has data, but it's not information, because the tree is just the tree, until we human beings actually get information from it. We symbolize things. Sometimes we carve our letters on the tree. That would be information. But a thing itself is not information. It may have data in it but we symbolize things.

Now, this is important, because the way children learn to process information is through the relationships that we provide, especially in the early years. So this notion that social and emotional learning, for example, that is so important in the early years of life -- from the time you work in Early Head Start -- is helping them influence how they process information is absolutely true when you look at this definition of the mind. That information is not just something that pops out of nowhere. It emerges from the relationships kids have with us.

So what Amanda was saying earlier about the dialogic interactions that you have during reading -- it isn't just that you're dumping information in a book onto a child, we're actually allowing ourselves to interact with children. The reason why the American Academy of Pediatrics made a statement that children under two should not see anything on a screen, computer or television -- videos, right? -- is because it's not interactive. It's stimulating, but it's not interactive. So we have to be very careful in that hearing what some people have been saying about the brain -- you've probably heard this -- the brain needs stimulation, right?

Has anyone ever heard that? But it's actually it's really a false statement. The brain needs interaction, and we confuse the word "stimulation" with "interaction." And so all the studies that show, for example, plopping a young kid in front of a television set -- set -- that is sorry -- television set. Now, that's information. [Laughter] Something that stands for something other than it was intended. So the idea that-- That's never been said at a birth to three meeting before. [Laughter] A television set. I'm going to jump off the stage in embarrassment. [Laughter] So the idea that we are confusing stimulation with interaction is very important.

Now, of course, it gives us a really important job to do, because it's a lot more involving of us as caregivers to realize that interaction is the engagement that children need, not just stimulation. Very, very important. And you know if I just stop now and you just remembered that, that would be just

enough. Interaction, not just stimulation. So, what do we know about interaction? Well, we know a lot. So we've defined the mind. We've kind of now we can move and expand our definition of relationships and say, "Relationships are the way energy and information is shared between people."

So like if I were up here doing something like this, watch this. If I were up here going all right I'm here to talk to you about the brain and the brain has 100 billion neurons in it and here's the way the neurons work. They all connect with each other and blah, blah, blah blah and I spend an hour, right, just downloading a bunch of facts to you and it really had no interactive feeling to it, it would be a whole different experience for you. It would be a different experience for your brain. The brain is designed as the interactive organ of the body. It's the social organ of the body.

And so even in teaching, especially in teaching, we need to engage with others in a way that isn't just a download of stuff. That's why this issue for example of interactive reading is so important. We don't just read with the child to download the words onto the child. We want to interact with the child, give them an opportunity. What does interact mean? It means a sharing both ways of energy and information. So we began with the definition of energy and information flow for the mind. Now we move to this other point on the triangle and now we should say that relationships are defined as the way we share energy and information.

Not the way we, in one direction, dump it on someone else. How many people have had teachers like that? Raise your hand? It is so painful as a student, isn't it, to just have someone dump stuff on you. And you don't remember what they dumped on you even. It's not even like it was that helpful. So we are designed to engage with each other, not to just have one way passage of information. Okay. So that's the relationship piece. Now, before we get to the brain, I want to just spend a moment on relationships and ask you a question. There's a field of science that I'm trained as a researcher in called attachment research.

How many of you are familiar with the scientific field of attachment? Just raise your hand -- that's great. Wonderful. Lots of people. So as you know this field of attachment research is a division of the branch of psychology and it's a part of the field of developmental psychology. And in developmental psychology there are people who are attachment researchers, and they study the way the babies interact with caregivers, and then they have followed these children now into their 20s. And if you want to see the most comprehensive books on this, there are two books I'd recommend. One is a book called "The Development of the Person."

"The Development of the Person" by Alan Sroufe. That's spelled S-r-o-u-f-e and his colleagues. So it's a multi-authored book but the lead author is Alan Sroufe. And what they did was studied high risk families in Minnesota. And they studied them for over 20 years now. Carefully controlled, carefully collected data about what goes into the interactions between caregivers and their children that lead to healthy development or suboptimal development. So I'll be summarizing some of those findings for you right now. And let me just ask you a question.

From that research you probably know that one really important interactive feature is the caregiver's sensitivity to the child's signals. And what that means is that when the child is sending energy and information out -- that's what a signal is, energy and information -- so when energy and information is flowing from the baby to the caregiver, what does the caregiver need to do to promote healthy development? Respond. Right. But for you to respond in a sensitive way, what do you have to do first

before you respond? You have to understand. And before you understand -- so we have responding, which is great.

And before responding we've got to understand the meaning of those signals, right? So understanding is really great. But what's the thing that precedes understanding which precedes responding? Noticing, perceiving, receiving, whatever word you want to use is fine. So we have to actually receive the signals and the information into us, understand it, and then respond in a timely and effective manner. And that has lots of terms you can just call that sensitive care giving or attuned care giving or contingent care giving. These are all words, sensitive, attuned, contingent that roughly mean the same thing.

Not to the researchers, they're using different words, but for us, in practice, they're basically the same thing. So this contingent communication, this attuned communication, this sensitive care giving, it's basically what kids need. Why? Because if you're a little baby and you send out a signal and someone doesn't perceive it, what does that do to you? What? You feel not seen. And actually that's pretty painful. It's also dangerous. If you're in danger and calling out and no one sees you, it makes you feel frightened. It makes you feel alone. In some cases it can actually make you feel ashamed of who you are.

So being frightened, alone and ashamed--that is that you think there's something wrong with you--is not so healthy if that's repeated, repeated, repeated over and over again. Of course, lots of kids are not seen all the time, that's normal. But if it happens consistently that a child is not seen, that's a problem. What happens if a child is not understood? He could be frustrated, you could feel frightened, you could feel alone. You could feel ashamed. Being not understood is also important. And what if-- There's a baby out there. What if you're not responded to in a timely effective way that would show in fact that you're understood and seen?

It's the same list. You're frustrated. You're alone. You're sad, you're frightened. You can feel ashamed. So all those feelings are kind of negative feelings for positive development and those feelings that a child has when they're not seen, understood or responded to, are kind of the essence of what determines-- we believe--whether we believe a child moves towards well-being or moves towards various adaptations to that- that compromise, the creation of what's called resilience. So relationships in many ways are one of the major sources of a child being resilient, which we'll define in a few moments.

But what's the best predictor of whether a parent will offer children the ability to have a healthy relationship that promotes well-being? What's the best predictor of that? Anyone know? That's right, it's the parents' shoe size. [Laughter] No. Odd shoe size is really good for children. No, it's not the shoe size. That's just to wake you up out there in the back. What is the best predictor of child's security attachment? Basically, this is how it goes. The research studies the way parents and children interact in the early years of life. About 55 to 65 percent of children, depending on the study, have what's called secure attachments.

They basically have a source of resilience. They go on to develop emotionally well, socially well, cognitively well. That's what research shows. Fifty-five to Sixty-five percent, depending on the study. That's a good thing, that's a really good thing. But that means that 45 to 35 percent of children have non-secure attachments, which, in research terms, has the word "insecure," but that has all sorts of connotations with it-- meanings to it. I just use the word non-secure. They're not securely attached. You're not talking about the baby. You're actually talking about the relationship with the primary caregiver.

And there's three kinds of attachment, and you're familiar with this, I'm sure, if you know the research. What happens, what's it called when a parent is generally not available for perceiving the child's signals, understanding them or responding to them? And so the child lives in an emotionally barren relationship with the primary caregiver, what kind of attachment is that? Avoidant attachment. Right. Avoidant attachment. These are kids who have to adapt to a lack of connection. It's called avoidant attachment. And that's about 20 percent of the nonclinical U.S. population has an avoidant attachment with their primary caregiver.

What if you have a parent who gets confused when you give off a signal of being distressed or being hungry or frightened or something and you get signals that really don't match that. Sometimes they match it. Sometimes they don't. Sometimes you're seen. Sometimes you're not. Sometimes the response is really contingent and attuned and sometimes it's not. What do you think that does to a child and what's that called, that kind of a relationship? Anxious. So that's called an anxious form. Very different from avoidant. Anxious form. That's about 10 to 15 percent of the population.

And then the studies actually add up to more than 100 percent because the way they do the numbers, so don't worry about that. What happens if your caregiver is actually terrifying to you? Not even just abuse-- abuse would certainly count as that. But what if your caregiver sort of flips out and gets frightened himself or herself when you're upset and scares you, even though they don't mean to? They love you, but they're terrifying you. Now, you could call it trauma, but it's not always called trauma. It could be overt trauma, absolutely, sexual abuse, emotional abuse, physical abuse would fit that for sure.

But even there are cases they wouldn't be called traumatic. They wouldn't call it abuse, they're not reportable, but they're actually, unfortunately very they're present and very significant. It ends up -- actually, let's just review this for a moment. In the attachment system in the brain, one of the basic purposes of the attachment circuit that we're going to go over in a few minutes are for the baby to seek closeness to the caregiver especially when he's upset. And the caregiver is supposed to be a source of soothing and protection. So the basic idea of attachment is soothing your emotional distress, protecting you from harm.

That's basically what it's about. Soothing you in distress, protecting you from harm. Those are really important and good things that we need as mammals and we need them especially as primates and especially as human beings because we're unbelievably immature when we're young. Just the way the anatomy worked. Babies come out way too soon, human babies, because our heads are so big, we'd never get out the vaginal canal if we came out any later. But we're way too young to actually be out in the world. If you have teenagers at home you know they're still waiting at home to launch off.

But it's a long, long, long time these kids are with us. In some ways we're happy about that. But some ways, I've got an almost-18-year-old at home so you know what I'm talking about. Isn't it time for you to go? He said, "It is time for me to go." So if security is based on parents' sensitivity and caregivers' sensitivity to children. And a parent, for whatever reason we'll talk about in a moment, is actually terrifying the child, not so much missing their signal, which is frustrating and sad makes you feel lonely or confusing you as in the first one was avoidant attachment. Confusing you is the second one.

First one of avoidant attachment, you feel disconnected. The second one of anxious attachment, okay, you feel confused. Now we're talking about a third kind of insecure attachment where you're feeling terrified of who? Your caregiver. But your caregiver is supposed to do what? Soothe you and protect you. So in the brain you have two opposing circuits activated. One says, "I am being terrified right now.

My survival circuits say what should I do in terms of what I do with this person terrifying me? Hit the highway, right? I'm supposed to get away. But my attachment circuit tells me what, I'm terrified so who should I go to?

My caregiver." What's the problem? So my head literally splits apart. I literally have a fragmentation of my mind as my brain in what's called a biological paradox. I have two circuits in my brain activated that do not fit with each other whatsoever. I don't just feel sad. I don't just feel lonely. I don't just feel frustrated. I feel fragmented. I'm literally fractured because I can't go toward a caregiver who is also the source of terror. And let me just tell you this -- this is sad to say -- these are not just abusive parents.

This happens in cases of families where the parents are not abusive but they have something in particular going on which we'll talk about right now. So researchers found these findings. Amazing findings now they've studied their kids into their 20s, and they were studying them in camps, they were studying them in schools and they were studying them in homes. This is the Alan Sroufe study I told you about. Hundreds of studies, his is the longest standing longitudinal high-risk study. And so what we know, actually, is that there is something that is the best predictor of a child's securative attachment which is what we know is associated with resilience and well-being. Ready.

It's not the shoe size. Here it is. It's the parents' own understanding of his or her early life experiences and the easiest way of saying a parent's own understanding of his or her early life experiences is this phrase: "Has the parent made sense of her life?" So if I use the phrase "This parent has made sense of her life," I mean literally he or she has gone back in memory and has been able to identify what their early experiences were like and his or her own childhood, and understands how those experiences were important. Some were good, some were not so good, some may have been terrifying. Some may have been disappointing.

Some may have been fabulous. And being open to all of those experiences and having a way to create a story -- that is, tell a story called a narrative that shows that they have made sense of their life, not just in an intellectual way, but in their feelings and in their body. It's not just a rationalization, you know, "I was raised by Martians, that's why I can't understand green things, or I like green things." You know? Not like that. Let me give you the statistics just so you can understand what an amazing finding this is.

If you were a researcher, you would know that you can predict with about 45 to 50 percent predictive power, if you spent a year just observing a family and interactions you could predict about 45 to 50 percent accuracy, which is actually very, very good, enough to get you published and get you a professorship and all this stuff, it's great you could predict I've watched this family for a year and this is what I think this child security of attachment would be. Now 50 percent is good. It's not super fabulous, but it's good.

With 85 percent predictability, you can actually get the interview of the adult -- never even seeing the child -- and just with something called the adult attachment interview, the A-A-I. There's a version of a similar thing in our book *Parenting From the Inside Out*, so can you see the questions. If you ask a parent about his or her own early life history, not her relationship with her child now, but just what she remembers from her past and coat it in a certain way -- 85 percent predictability. You can even do this with a pregnant couple with 75 percent predictability.

You take the pregnant woman and partner you do this interview and with 75 percent predictability, way above from what you do from the direct observation of interaction, you can predict what the child's

attachment will be to the mother to be and to the partner to be, the father to be. Isn't that amazing? So this startled me so much I decided to become a researcher in this and that's what my research training is in. And in the book *The Developing Mind*, what that book is all about is-- why is it that how a parent makes sense of his or her life is the number one predictor of how a child turns out in terms of their attachment?

They then did this in Israel. They did this in the baby houses. And the way that the caregiver made sense of his or her life determines the attachment of the children to the caregiver. They did this with foster parents here on the East Coast in Maryland, actually, and they were able to show that in fact it was the coherence of the narrative, what's called the making sense of the process of the foster parent that was the best predictor of how that foster child worked out. Unbelievable studies.

So I would have you consider, this is obviously up to you, that one thing we ought to think about doing for all of us who work with young children where it's the relationship that is so important is to give Early Head Start people, maybe all teachers, give them an opportunity to actually make sense of their own lives so that it would be consistent with the research then, the kind of relationship that caregiver can offer is going to be actually healthier for the children under their care. That's what the research suggests.

So in *The Developing Mind*, what I did was basically tried to explain in terms of the mind, the brain and relationships, why is this finding true. Why is it that even better than direct observation is the internal process of making sense within the adult the best predictor of how the child turns out? Why is that the case? And in that book I review all the science. First of all, to demonstrate, number one, that caregivers matter. And you may remember there were a bunch of ridiculous books that came out a few years ago.

Actually, how many of you know that, that there were several books out like in '99, 2000, 2001, that said parenting has no impact on children? Do you guys remember that? There was a lot of money actually removed from early intervention programs. It was an insane time, but that's what happened. So *The Developing Mind* came out and it was used as a debate against those books. So *The Developing Mind* is a scientific book. It's not easy reading. It was meant to be like a solid fort of data to establish once and for all that parents matter. And so it's a review of all the science that existed at that point in 1999 that reviews that.

And the attachment researchers who reviewed it before it went to press put in stuff that wasn't even published yet. So that's that book. Then when my daughter was in preschool, and that book came out, they asked me to teach classes. And the preschool director and I ended up doing workshops for parents and we wrote a book called *Parenting From the Inside Out*, which is basically a book that does this. It says how do you actually help a parent -- with a book or in a group -- make sense of his or her life so she can improve her relationships or his relationships with children? So that's *Parenting From the Inside Out*.

It's basically a translation of the scientific textbook *The Developing Mind* and it allows this to become available for parents and parent educators. Then we have a DVD that we made that actually trains educators on how to teach parents how to do this, and then there's this whole series of books that actually continually reinforced this idea that the way children experience people in Early Head Start, people who take care of them throughout their lives, shapes their brain. So what we're going to do now

we're going to move. We talked about the mind. We've talked about this important way of how your mind has made sense of your life.

And now we're going to go to the brain, this third point of our triangle of well-being, to look at what has this synthetic view offered us that says what is it -- why is it that how you've made sense of your life is the best predictor of how children under your care turn out? Why is that the case? I mean, we certainly should be teaching skills to caregivers. How do you promote positive interactions, how do you promote empathy, all these really important things. But I gotta tell you from my point of view as a scientist, the best bang for your buck would be to teach caregivers about their own internal world.

That's what the research says is the best predictor. So I personally feel that really this is something that ought to be worked on. Now what's really fascinating, if you look at some wonderful books, like the book called *Neurons to Narratives*. How many of you know about that? I think that's a fabulous book. But for some reason it never mentions the most important finding in attachment research. I was very, very sad about this. It never mentions that the best predictor of a child's security of attachment is the coherence of their narrative. How they made sense.

It gives you an entire beautiful book reviewing the science and leaves out the most important piece of science. And what was strange, and I think this may be why, is because when you try to sell to the American public that in fact parents or other caregivers should look inward at their internal world, at least when I tried to sell this book *Parenting From the Inside Out*, no one would buy it even though *The Developing Mind* was the best-selling book at the time in this subject. And it was a natural thing that the translation of that for parents who wouldn't buy it. No one would buy it.

Every single publishing house in New York that's turned it down, 24 publishing houses turned it down. Number 25 took it. And they-- it's doing beautifully. But each said the exact same thing. Here's what they said. They said the American public will never look inward. They will never reflect inward. They want to be told what to do, not help how to be. Now as a therapist, of course you can see how absurd that sounds to me because I'm working as a full-time person, as a doctor trying to help people reflect inward. So I'm going to these New York publishers-- I say, "What?" But this is just what the science shows us.

We don't care there's going to be no money in it for us. Screw you, you know, basically. So when the neurons to narratives came out I was shocked there was only one sentence in there that casually said something like, "Maybe parental processes are important" or something like that. It was amazing to me. And I'm happy to be on a debate with the heads of that thing and asked them why they did that. Because this finding, you know when it came out? 1985. 1985 is when we knew this was the scientific finding. And we're talking about 15 years later when every piece of research reaffirmed, reaffirmed, reaffirmed, reaffirmed it over and over and over again.

And in fact it was so blatant in the scientific literature that when co-author Mary Hartsell and I went to write this book "Parenting," people were telling us, "Make the workshop into a book." We said, "We're too busy, we don't have time to do that. And there must be tons of books that help parents make sense of their own lives because this is a research finding that's 15 years old." Someone did it. So we went to the Internet, we went to the bookstores, and we found there were zero books available. If you were a parent that wanted to actually know this literature and make sense of your own life, there was absolutely nothing available.

So there must be some kind of weird politically incorrect thing or something for why we don't realize this is the place to start. So I'm kind of running this toward you, because this is something I think that Early Head Start should consider, even though you won't see it in standard people's presentations, because it's hard work. It's hard work to look at your own past and say, "How was it good, how was it bad, how do I make sense of that and free myself in the present?" So let's do this. Let's pick out your map of the brain. You have this on your table. And I know this is a huge room.

So you can tell me whether you'd rather also see this on the screen, because I popped this on the computer, we can do that, or if you'd rather, because this is a face-to-face experience we're having and it's probably easier to see me on the screen, I can just go like that and do that kind of thing. Do you want to see it on the screen or do you want -- the screen is good? Okay. So the screen is good. I was given a pointer. So I don't know how to do this, because we have a camera I guess pointing to me.

You want to -- would it help you or is that going to be too hard for the camera to point to one of the screens, you didn't know you were going to be on this film, did you. So I'll point to it and I'll point it to here somehow. I want to get you to do it. So what we'll do now is a little bit of a switch. We've done relationships. We've done mind. We've focused on the incredible importance of making sense of your own memories of your childhood, and we know that's hard work. We know it seems to be politically incorrect. Even our wonderful science people seem not to want to put it in the book to tell us about.

We also hear that people don't want to sell it to the American public because they think people should just be ignorant of this fact, scientific fact. But in fact it's something to wake up to. And it's not just my opinion as a clinician. It's actually scientifically established. This isn't even controversial. It's not like I'm presenting this kind of this new exciting uncertain field. No. This has happened so often that the adult attachment interview created by Mary Main and colleagues at U.C. Berkeley, is the number one predictor of a child's attachment, period. Nothing even comes close. It's not even like a close contender.

Massively the best predictor. We also know, and I can tell you this as a clinician, trained in this research instrument, that we know how to help people move from what's called an incoherent narrative -- to where you haven't made sense -- to making sense. We know how to do that. So it's not like oh my God, here's a great fact -- what do we do with it? Actually we know what to do with it. We're in an incredibly exciting time to revolutionize in a paradigm shift what we do while caring for children. It's all about how you've made sense of your own life so your interactions can be health-promoting for your children.

Now, this is going to sound like a weird switch, but for me the best way to understand why that fact is true has been to turn to the brain. So that's what we're going to do now. So you have in your hands this handout where this is a diagram of the brain from Parenting From the Inside Out and the writings on it are actually from this new book I wrote, *The Mindful Brain* about the nature of reflection, and it's basically the sign collection of what we use to bring kind of a loving stance towards our own way of understanding our internal worlds. And so this is sort of a blend of those two images.

So first let's start with the most basic of basics. This is your quick review of neurobiology, neuroanatomy and neurodevelopment in three minutes. Okay, is everyone ready? How many have had lectures on how the brain works and stuff like that? Great. Good. So you can help me then as we go through this. There are a lot of these -- the basic cell of the brain and the nervous system is called a -- I don't hear you. What is it? What is the basic cell of the nervous system? The neuron. Good. The neuron. The neuron connects to another neuron in something called a synapse. Which is a space separating these two things. But they communicate with each other.

They share energy and information, by the way. And they connect with each other and they release a thing called a neurotransmitter, a chemical, across the synapse. The important thing is that these connections in the brain influence how the mind is going to be created and how relationships will be shaped. So the main reason we care about experience from a brain point of view -- here's a take home message -- is that the brain connections are shaped by interactive experiences. That's why we're even going to talk about the brain today.

Is because the experiences you provide in interacting the with the children under your care are going to literally shape the structure of the brain because you will be promoting the connections in the child's brain. I wasn't joking when I said that you are the sculptors, you are the the neuro-sculptors of the next generation. I'm not just giving you smoke. This is actually the truth. So the first thing we're stopping at is to say the connections in the brain are shaped by experience. Now, just to give you a feeling of the numbers, how many neurons are in the brain? 100 billion.

100 billion, right, and Sarah Merrill has given me extra time so we'll go over each of those neurons right now. [Laughter] 100 billion neurons. If I'm an average neuron, how many synaptic connections do I make to other neurons? Throw out a number. Three, five. It's actually 10,000. And think about it this way. If you're at a dinner party someone to your left and someone to the right someone across the table you have three people trying to connect with you. It's kind of confusing, you don't know where to have your conversation. Think about if you had 10,000 people connecting with you at the dinner table.

This is why they call us neurotic. [Laughter] You have to have your head examined to focus on the brain. Too complicated. So 10,000 connections per average neuron 100 billion neurons, how many connections in the brain are there? A lot. So it's hundreds of trillions of connections and the issue is that these connections are formed by both genetics -- genes are really, really important, super important. Especially in utero, the genes determine a lot of connections that happen in the nervous system. And then in the development of the baby, especially in the early years of life of, genes continue to be important.

So genes and genetics extremely important. Determines all sorts of things like temperament and personality features. And that's really important. So each baby has a different kind of temperament. What the study suggests, look at the work, for example, of Robert Kagen. Jerome Kagen. Different Kagen. Jerry -- Jerome Kagen up at Harvard, he studied people with genetically influenced temperamental features, and guess what's the biggest influence on their development? Their parents' way of treating them.

So even in genetically extreme forms of shyness, let's say, what Kagen studied, the way caregivers respond to a child, how they're sensitive to that particular temperament, the needs -- the temperamental needs -- that's what determines the outcomes. Not just genes. It's never just anything. Even though some people will tell you that with fancy titles and all sorts of Nobel Prizes and things. They will tell you parents have no influence on children. And you've got to know they're absolutely wrong. The science shows they're wrong. Caregivers shape the way children develop.

So genes really are important in determining temperament -- various aspects of personality, but the other areas of importance are experiences. Experiences will also shape those synaptic connections. Okay, so here's the deal. Let's just look at the hand model. Can we put that back on the screen? Is that hard to do? You can zero in on this hand model. Now if you just want to put the camera so that

everyone can see my hand. So this is actually a pretty good model of the brain and the way it works is like this. If you open up in your hand and you -- let me come right -- let me do this so I can watch what you're seeing here. Okay. That's great. Here represents your spinal cord, the nervous system going up your back.

When you come to the first part of the brain, there are three big parts we're going to talk about. This part here -- let's do the whole brain first. Put your thumb in the middle fingers over the top. That's your brain. Top of the head is here. Back of the head is here. The face would be here (Hello) and your ears would be out to the side. Everyone got that? By the way, the drawing of my hand was done by my daughter who is in the Parenting From to Inside Out book.

If you put this like this -- this is actually very useful to teach your parents when you work with them even your kids, especially the older kids -- maybe not two-year-olds, but older kids. This first part is called the brainstem. It's very early in our evolution. So it's in reptiles sometimes called the reptilian brain. It controls basic states of alertness and arousal and states of arousal in the body, like heart rate and respiration, things like that. That's the brainstem. Then if you put your thumb over. You'd have two thumbs ideally, but most of us just have one. This thumb represents an area called the limbic zone.

The limbic zone is important for emotion and attachment. Emotion and attachment are the main features -- evolved when we became mammals. And if you put your fingers over the top, this is the outer bark of the brain which is called the what? The cortex. Cortex actually means outer bark. It developed a lot when we became mammals, the front part, which would be from your second to last knuckles forward became really big in primates. And the front most part we're going to talk about a lot from your last knuckles down to your fingernails is called the front part of the frontal lobe, anybody know the name of that? Prefrontal. Don't worry about the weird name.

But it means it's the front most front part. That's all it means. It's the part behind our forehead. See. So here's your quick and dirty issue of the cortex. The back of the cortex in general is for perception. So babies are developing this back part a lot. They're learning to perceive the world and take in data and sort of filter it and create information from the input from their eyes and their ears. And then we get to the frontal lobe, that's going to -- develop later on two, three years of life -- it will develop more. And that's our ability to pay attention, think, plan and ultimately to engage in flexible behaviors.

That's the frontal lobe is, especially the first part about it right here, is for motor action. So obviously babies will begin to develop that in a very complex way as they get older. Motorabilities, and then this frontal lobe is extremely important for a number of functions that will develop especially in the preschool years. So a little later than you're talking about, however, the adults prefrontal cortex, I believe, is one of the best predictors of how the child being taken care of by that adult will develop. Let me tell you exactly what I mean by that. The prefrontal cortex has two particular sides to it.

The side part, outer two fingernails, help you focus your attention. The side part. And then there's a middle part. And you can see in your map here that if you go to the last page, page 3, you'll see we're talking about when I say the middle part, if you want to know the fancy names of these individual parts they're right there. I'm not going to even say them because they're so overwhelming, but you can see them here. For example, the orbital frontal, prefrontal cortex is behind the orbit of the eye. But there's a whole middle area. Just for the fun of it I'm going to list nine functions of the middle prefrontal cortex.

But what I'm going to do is tell you a very brief story. A very brief story, just to give you a feeling of what I'm talking about. I once was taking care of a seven-year-old girl who stopped talking in school. She had done well in her early years in daycare. She had done well in preschool. Had done well in elementary school up until second grade then she stopped talking. They brought her in to see me.

And I found out unfortunately that her mother Barbara, these made up names to protect confidentiality, but Barbara had had a terrible car accident when she was hit head on by a drunk driver and didn't wear her safety belt, in a car without an airbag. And so the car, unfortunately, the steering wheel struck her in her forehead right in front of this brain we have here, this middle prefrontal cortex, the front in the hand model represented by these two middle fingernails. And Barbara, the kids told me, not Leanne the daughter that stopped talking, but they said she was like a different person.

And Leanne, the daughter, seven-year-old brought in a videotape of her mother before the car accident and what you saw was an amazing example of a person just like the one we've been talking about. She could tune into Leanne's feelings a few years ago before the accident. She was sensitive. She was emotional. She was bringing joy to interactions. She could set limits for Leanne. She could see Leanne's inner world, not just her behaviors. Very, very important take home point.

That in an attachment, secure attachment it isn't just that parents are responding to behaviors, they're looking for the mind beneath the behavior, the internal feelings and thoughts, the attitudes of the child. And Barbara was no longer able to do that. And in this video, Leanne started talking to me while we were watching it together and said, "That's the way my mom used to be." And when I brought the whole family in for family sessions, the mom would just sit there and not interact much. She would respond when talked to, but she wasn't engaging in the interactions with her children. There were two other other kids, too.

When I had Barbara with her husband alone in the office, and I had these scans that they gave me from the CAT scans of her brain damage, I asked Barbara: "What was different since this car accident?" This is what she said. She said, "I guess if I had to put a word to it, I guess I would say that I've lost my soul." And, you know, that was exactly what her children were trying to say -- that there was something that Leanne had stopped talking because she couldn't say anything about that.

But the kids, one of them was a teenager, they were saying there was something of the essence of who Barbara was missing that was now missing from the relationship, the way they were sharing energy and information did not include any essence of Barbara and also she wasn't concerned or interested at all in the internal world of her children or of her husband. So I ran to the library, the medical school library. This is years ago, we didn't do it on the Internet in those days. With the scans, went to the book of different anatomical parts to figure out which were these parts in the scan. Then went to the primary research.

And there were nine functions that this middle area of the prefrontal cortex was responsible for, and I'm going to list them for you because they're an amazing list of nine functions. The list was created purely with me being a physician trying to take care of a family, but I hope you'll see this list of nine in many ways illuminates the nature of healthy growth and healthy development and what's essential in relationships to promote a healthy mind, by looking at these functions of the brain. So you're ready?

Here's the things that research said this area of the brain was responsible for and all of these, unfortunately, were severely compromised in Barbara, especially in the beginning. Some of them came

back. The first one, number one, is called bodily regulation. And what bodily regulation means is that from the brain in our skull we send out extended branches of the nervous system called the autonomic nervous system. It's like an accelerator and the brakes. You may have heard of the accelerator called the sympathetic branch. The brakes -- it's called the parasympathetic branch. Just remember the brakes and accelerator.

Basically the prefrontal cortex, in a way, is like your feet when you're driving. Presses on the brakes. Lifts up on the accelerator, or presses down on the accelerator, lifts up on the brakes. You balance the brakes and accelerator when you drive, right. The brain, the prefrontal region in the middle is what balances these branches of the nervous system. They were really off in Barbara, and in many ways how we regulate our bodies is how we regulate the brake and accelerator. That's number one. Number two is something called attuned communication.

You know when you look to your neighbor there on the table and you can lock in your eyes you feel like okay we're connecting. We know that this middle prefrontal area is what allows us to know when we're really zoning in, tuning in to another person called attuned communication. Essential for secure attachment -- unfortunately, not working in Barbara anymore. Number three is called emotional balance. Emotional balance means that the middle prefrontal areas actually allow the lower limbic area, remember in your hand model, we have this prefrontal region sitting right on top of the limbic area. That's literally how it is in the brain.

Take a look on your hand model. See the middle two fingernails right there. And notice how they're sitting on top of your thumb. Do you see that? That's actually how it is in the brain. And this area allows emotions to be revved up enough so you can have joy and excitement and elation and positive emotional arousal. But not too aroused so life becomes chaotic on one extreme or what happens if it's under-aroused? Then it's like depressed and rigid, right, shut down. So emotional balance means you're riding in this beautiful state of coherence flowing through that, bounded on one side by chaos, another side by rigidity.

Very, very important to remember those three. One is a harmonious coherent flow that we call well-being. Another would be one bank outside of that river of well-being would be chaos, things are too chaotic and they're out of control, not predictable. The other is rigidity. And kids need that optimal zone to do well. They don't do well when things are chaotic. They don't do well when things are too rigid. That's emotional balance. Number four is something called response flexibility, which just means, how do you pause before you act? How do you have an impulse but you inhibit it and say, "Let me think about the best thing for me to do."

I feel like doing this thing, but you know, something, as I'm reflecting on it, maybe that's not a good thing to do." So that's called response flexibility. That's number four. Number five is insight. Insight is the very thing those publishers said the American public would not be interested in doing. Right? It means -- there's a beautiful term called mental time travel by Endel Tulving, it means connecting the past to the present and the possible future. A lot of people don't do that.

But as we're seeing from the attachment research, if you've had trouble in your own childhood and you don't take the time to reflect inward, we know you will just carry out the same garbage that was done to you on to the children under your care because you've never taken the time to use insight to see, "Well, what were the things that impacted on me that have shaped my tendency to do things in a certain way

that then I can now do things differently?" That's what insight allows you to do. So that's insight, number five. Number six, these are all what the middle prefrontal cortex is involved in doing.

So insight is number five. Number six is empathy. The ability to feel another person's feelings and to understand another person's mind. That's what's embedded in empathy. To feel another person's feelings, understand another person's mind. You need these middle prefrontal areas to be working well. That's number six. Number seven is the ability to modulate fear. So let's say when you were a child, you were frightened when people would get upset. And let's say you haven't developed the ability to be with someone who is upset and maintain equilibrium.

Well, what's going to happen when you have an infant under your care who is really upset? What will happen to you? You'll get frightened. And then now your child is upset, and instead of seeing you being a source of soothing, what do they see? They see fear. And there are a set of neurons that we're now learning about called mirror neurons which tell us when one person has a feeling -- you can see where they are in this map of the brain, some of them are located in this area in the back of the brain, some of them are located to the front. See it says mirror neuron areas. We know that there's a sequence that goes like this.

Let's just talk about this baby now. The baby's upset. You haven't worked through your stuff. You haven't made sense of the fact that you were terrified of your alcoholic father when you were a child, and whenever he would come home drunk and absolutely in a rage, you would be terrified out of your mind, and you've just blocked that out. You don't want to think about that. "Why think about it? It's happened it's over, I don't want to think about it. Just give me a book that tells me what to do. I don't want to think about what happened to me. It's over. Forget, it's over." You may be like that yourself. I used to be like that.

I know what that's like. So we have to then help people say, look, we know from this mirror neuron system, here's what happened. You now have a baby under your care. You were deciding just to be someone working with computers, fine. But if you're going to have children, take care of children, be in charge of teaching children, you need to know children get upset. And if you haven't worked through this business with your alcoholic father, here's what happens. Your middle prefrontal cortex has never been engaged to help you modulate your fear.

So your lower structures, your limbic areas, contain this thing called fear in response to someone who is out of control. Now, here is the back and forth that happens. Watch this. Your baby is upset because she has irritation in her diaper or something like that. She's getting upset you try to soothe her. You think she's hungry you try to give her food. She's still upset because she's got a wet diaper you didn't check yet. No big deal. But her getting upset triggers your memory of your father. Why?

Because these mirror neurons, what they do, they take the feeling of someone else inside of someone else and they then mirror it in ourselves automatically. This is not like an intellectual exercise. It makes your brain perceive the emotional experience of someone else and then through this thing called the insula, it drives that information down to the limbic areas so you feel the feelings and into your body. We know this. It drives it into your body. So when your child is upset you start getting those feelings of being upset and you're also, because of your history, fearful. So now your baby is picking up your fear.

So she's not only upset because her diaper is wet and you're giving her food to eat. Now she's looking at you. You're showing fear because of your unresolved memories because you didn't do the work to make

sense of your past, and then what happened to the baby's mirror neuron? What is she going to start feeling? Fear. She's going to start feeling fear. Exactly. So without your intention, what you've now done is you've created this loop which is going to exactly repeat what your alcoholic father did to you even though you swore you would never do that to anybody ever.

But you're doing it because you haven't done the work to develop your middle prefrontal area is basically what it is. So modulating fear is something we can do if we engage this area of the head insight and empathy and all those things. That's number seven. Number eight is accessing intuition, which really means taking the wisdom of the body.

We actually have information processes around our intestine and around our heart that bring up data from the body back up through that area called the insula and bring them to the middle prefrontal cortex where we interpret that energy and information as a source of wisdom in the middle prefrontal region. That's how we do that. And then number nine is morality. The ability to think about the larger social good -- to imagine that is a moral imagination and to enact it, moral activity, even when we're alone. So it's not just, can we figure out what other people expect us to do so we look like nice people?

It's really about what is truly your moral essence. So let's review this list and I just want to show you one example and we'll get ready to close for today. But let's go over the nine just to make sure we have them all. The first one, these are all areas of the middle prefrontal cortex that occur actually before we do this list -- take a look at your hand model. Let's look exactly at this middle prefrontal area. Put your thumb in the middle fingers over the top. And what do you notice about the location of those middle two fingernails? Lift it up and put it back down. What do you notice is unique? This is your neuro anatomy quiz.

What's unique about those middle prefrontal areas? They touch everything. That's right. They actually are directly connected to the entire cortex. They're directly connected to the limbic areas. They're directly connected to the brainstem. They're directly connected to actually the body. And as we see in the example of empathy, they actually take in the signals and map out the neuro systems of other people. So the social, the bodily, the brainstem, the limbic and the cortical are all separate areas of our human experience that are brought together into a functional whole.

Now, does anyone know what the word is we use when we take separate things and link them together? Actually the word is integration. When you allow parts of a system to be different, called differentiated, and link them, the formal term for that is integration. So if you had to pick one area of the brain as one of -- actually, there are several, that are master integrators. That is, they take separate stuff and bring them together.

It would be this middle prefrontal region. So before we go over the list, what I want to tell you is that it's not that these neurons in this area that are particularly different or special or anything like that. It's that their location allows them to integrate the entire bodily system and social world into one. It's why your relationships with the children you take care of in these early years allows you to have the sharing of energy and information, begin to develop the middle prefrontal functions of the children under your care. So let's review the list of nine and then I want to give you an example.

The first thing is attuned -- no, no, bodily regulation. What else? What's number two? Attuned communication. Number three, emotional balance. Number four, response flexibility. Number five, insight. Number six, empathy. Number six. Number seven, modulating fear. Number eight, accessing

intuition -- great. And number nine, morality. Now let me ask you a question, how many would like that list of nine to be what you would consider a positive outcome for good development in the children you take care of? Anyone raise your hand. Okay. Fabulous. Now, guess what?

Independent -- this list was totally created by taking care of Barbara and Leanne and the family, that's how that list was created. But here are the take-home points. Number one, guess what actual research summarized by Alan Sroufe, for example, has demonstrated from attachment -- that the first seven of those nine are proven outcomes of secure attachment. The last two just haven't been studied yet. The first seven proven to be outcomes of secure attachment. It also turns out that there's a whole process called mindfulness, of getting insight into how one's mind works, that all nine are the outcomes of mindfulness-based practices.

That's a whole other topic we don't have time to talk about that. But it's a way of being open and receptive to yourself that's been proven to develop all nine of those. So the take-home message from that is, I believe, and here's the essential point -- the relationships we have as caregivers in Early Head Start, as parents, as grandparents, any way that we're helping children develop -- this is what I believe: when you're having a secure relationship develop between the child and you, you are promoting the integration of that child's brain because your brain is integrated.

When the middle prefrontal cortex has developed well, it means it's an integrated brain. And that is the essential take-home message about what does secure attachment have to do with brain development? It has everything to do with the integrative state of the parents' being through their self-understanding, which basically equals integrated brain, and that integration within the parents' own being, the way they've made sense of their life as research has demonstrated now for 15 years, is the best predictor then of a child's development. Well, what do we know from a child's development?

We know that the mental processes, some of which are included in this list of seven, are associated with well-being socially, emotionally, bodily, cognitively. I want to suggest to you the reason is we haven't done the studies yet but the reason is likely to be that those kids also have integrative functioning, and that when you give relationship experiences that promote the development of this integrated region you're promoting resilience. Here's the one little piece I want to say before we close. Let's look at that list of nine and how many of you are actually parents out there who have taken care of kids of your own?

So for those who don't have kids this may be something you know from that end but you may know from the other end. But watch this up here. But first let's first do this. Look at that list of nine. Now we've got to be honest, and if you don't feel comfortable raising your hand that's okay but I can raise my hand. How many of us as parents have ever lost a few, if not all, all of those nine when we flipped our lids? Okay. There you go, look around you. Look at the everyone willing to be bold and raise your hands.

Now one of the most powerful things of doing this <i>Parenting From to Inside Out</i> approach where you teach parents with the brain in mind is the following thing -- if you look up here, you have parents in a group, you say, "Listen, it's very common for parents to do this -- to flip your lid. And, when I, you temporarily lose the integrative functions of the prefrontal cortex, right? And you lose one or all of those nine." And just with that 30 second little thing I just did, I have parents in a room crying.

And this is what they say. They will say, "I've been doing that for years with my child but I have never been able to admit it to anyone" because, number one, they think they're monsters. Number two, they

think they'll be reported for child abuse if they tell anyone. Number three, they're ashamed of it so they don't want to say to their child, "I screwed up." And this happens so often as a pattern. Once you teach parents about their brain and they get that kind of direct insight into their mind, they come back and they say, "You know, when I flip my lid," because we all do.

<time begin="1:49:30.0"/>And parents with something called unresolved trauma and grief, they actually are what's associated with that disorganized attachment, that fragmented attachment. I believe they do this flipping of their lid more intensely, more frequently, more severely than other people, but we all can do it. But the point is that number one if you have unresolved trauma and unresolved grief that's associated with the worst outcome attachment called disorganized attachment, it's a totally detectable and treatable condition. Unresolved trauma and grief are what is the parental narrative that leads to disorganized attachment.

Those kids take up the most financial resources, professional resources. They do the worst. They're the only ones with psychiatric symptoms that develop, that's called disassociation. We can help those parents because we believe in the field of attachment that is the cause of the child's disorganization is the parents' unresolved trauma and grief. Of course, it's painful to go back to trauma and grief. People want to just ignore it and be told what to do, not how to be.

But in fact that doesn't help because we know this is what leads to that finding and we can actually help parents by naming it and, for example, just doing this. You say, "Hey, listen, any of us go down the low road, and if you happen to have unresolved trauma and grief (like that person who had an alcoholic father,) your amygdala may be just storing a lot of fear because of what's unresolved and terrifying for you. And the great news is that you may have been flipping your lid really frequently (and the person is really crying and crying) -- the great news is you can heal those traumas."

And the first step that happens is the parent goes to the child the next time they flip their lid and they make a repair. Repair, repair, repair -- I couldn't say it enough, to say that all of us... In the book <i>Parenting From the Inside Out, I decided with my co-author I would put all the ways that I screwed up with my kids, you know. And, in fact, I give an example of flipping my lid with my son. Talking about the prefrontal cortex, how I acted like a monster, all these kinds of things, afterwards how you make a repair, because repair, repair, repair -- it's never too late to make a repair.

You just have to own the fact that a disconnection happened instead of denying it. So I said to my son, I said, "Look, this is going to go to the public -- I want you to read" -- he was 12 at the time -- "I want you to read this chapter because it's about you and it's about me and I want to make sure you feel okay that it's available to people." So he reads it. And I said, "Well what do you think?" He said, "Listen, it's okay with me. But you -- you look like a jerk." [Laughter] I said, "Fine." And so the idea is there's no such thing as a parenting expert. We're just parenting collaborators, we need to help each other understand how challenging raising kids is.

And when we can have a sense of humor about it, especially going to the brain gives us a kind of distance where actually like this low road thing; you realize you can bring your prefrontal region back on-line. You can own the fact that I was acting immorally. What I did 10 minutes ago was not right. It was really bad. I'm not a monster. I've got some issues I need to deal with on my own time.

But I gotta tell you, it must have been frightening for you, I imagine. Tell me what it was like for you when I was screaming at the top of my lungs, or twisting your arm or whatever people do. You know

what I'm talking about. They do it. We have first aid measures, put your hands behind you when you're going down the low road. We have a whole chapter on it. But the point is to just own it. We do flip our lids, we fly off the handle, and we're still human and we're still loving people.

And by actually supporting each other instead of this attitude like, "Oh, there's the perfect parenting, then there's the people who get reported." It's not like that. I think we can bring a lot of healing to the kids we take care of and the parents we can work with to make this world a better place. So thank you very much for your attention. [Applause]

-- End of Video --