

THE BROOKINGS INSTITUTION

FALK AUDITORIUM

GENERATION AI STARTS EARLY SYMPOSIUM

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PRACTICE AND INNOVATION PANEL: BUILDING AN AI WORLD FIT FOR YOUNG CHILDREN

MODERATOR: LAURIE SEGALL

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SHAH: All right. Great. Well, hello everyone. Good morning, good afternoon, and good evening to you all who are here in person bright and early, but also all of you who have joined us online. So exciting to have you here, and I'm so thrilled to welcome you today to the Generation AI Starts Early Symposium. My name is Swetha Shah.

I'm a fellow here at the Center for Universal Education for, at the Brookings Institution. And I'm just very excited to have you here. So for Brookings, AI is something that we've been thinking about for a while. We've been thinking about it, many of our scholars, some of whom are here with us today, have been thinking about it for all different age groups.

Also thinking about what AI means for higher education and the transition to work. But today, we're gonna focus on one piece of the puzzle that has not gotten as much attention as it should, and that's the little kids, those from zero to eight years old. And so today we're gonna talk about that, and we're gonna see, you know, what happens when AI in- interjects into their development trajectory.

So I'm gonna start with a few questions for you all to think about. And for those of you in the room, it'll be easy. If you, if your answer is yes to the question, you can simply raise your hand. If your answer is no or I'm not sure, then keep your hands down. And for those of you who are with us online, I hope you can do your own self-reflection.

So the first question is: Do you believe that AI is a part of a young child's daily life? Yeah, "is." Okay.

Do you believe that AI can shape a young child's development, either for the positive or negative? Okay.

This is what I expected. I'm not surprised. And, you know, artificial intelligence isn't something that's coming someday. It's actually here already, and es- and especially for young children as well. Today, you see AI embedded into toys and companions and apps and short-form videos. It's in tools that parents use at home, and tools that educators and

pediatricians and childcare workers use in their daily practice. Very broadly, these tools fall under two categories, and these are very broad categories.

We're gonna go more into depth today onto what some of these are. But there's one set of tools that interact directly with the child. Then there's another set of tools that interact directly with the adult in the child's life. And both of those sets of tools have very different development implications.

And so today we're gonna go deeper into some of the risks and opportunities of the various types of child and adult-facing products. We're gonna seek to understand which of these products can help children flourish, and which may hinder their progress. So if you haven't already seen, when you were getting coffee, we have an exhibit set up today.

It's gonna take you through the life of a young child from morning until the end of the day. Now, we have just a sampling of a few products, and, and the fact that the products are there is not an endorsement for any of those products at all. But we felt it was important for people to really see what some of these products look like, and we're gonna have staff there to share with you their experience of using some of these products.

So that's the landscape that we'll be mapping today, and it's also why we're not stopping just at this symposium. I'm also happy to announce today that this symposium is actually the launch of a new initiative called Generation AI Starts Early, the same name as our symposium. It's a new COE initiative that, and a task force that we're gonna set up, and today is just the first step.

So you are really part of that initial first step and the journey with us. We hope that you'll continue on this journey, because AI, as you, as I've seen with all your hands up, is already shaping childhood. And our task and our opportunity as a community is to ensure that AI supports children's positive development trajectory and doesn't derail it.

So in closing, I want to give a huge thanks to our partners, Zero to Three, who, without whom this symposium would not have happened. So thank you so much to colleagues at Zero to Three. I also want to thank the Valhalla Foundation and Imaginable Futures for taking this leap with us and joining us on this journey to support our youngest children.

And now I want to give a welcome to Matthew Melmed, who's the executive director of Zero to Three, to say a few words of welcome as well. Matthew?

MELMED: Thank you, Sweta, and good morning, everybody. Good morning. I would like to start by thanking Sweta and the Brookings team at the Center for Universal Education for partnering with Zero to Three on what is really a critically important issue. In this room today, and I see many of you, we have researchers and educators, child development experts, technology experts, policymakers, and advocates.

And I want to recognize all of you that have joined us virtually, I believe over 2,500 from around the world. Welcome. We are glad that you are here. From those of us in the room who are-- and to those of us around the world who are watching, we all come to this topic with different perspectives, and that's important, different perspectives, 'cause that's what we need.

As Sweta noted, AI has raced forward, and one group has largely been missing from the conversation: babies and the youngest children. At zero to three, we know that babies and

toddlers aren't simply mini versions of adults or older children for that matter. The first years of life are a unique period of extraordinary development.

Children are learning how to communicate from relationships. They're learning how to regulate their emotions and explore the world. So we can't take technology that is designed for adults or older kids and expect it to be right for a two-year-old. We must start with the child. The question isn't simply what can AI do?

It's what do young children need and where, if anywhere, can AI help us meet those needs? The answer isn't going to be all good or all bad, all yes or all no. Yet the truth is that we already know quite a bit about what children need to thrive. We know that young children develop in authentic human relationships.

They thrive through wonderfully imperfect back and forth between the child and the people who love and who care for them. They learn from each other. They learn from opportunities to play and explore at their own pace. They discover in their own way, following what interests them, whether it's a line of ants in the grass or a whisk in a metal bowl.

Technology cannot replace these messy but magical moments. At the same time, they are genuinely exciting possibilities that we can discuss today. AI can lift some of the administrative burden for program directors and leaders of early childhood programs. AI can help educators make better use of classroom information.

It may help clinicians identify developmental concerns earlier, and it may help parents get trustworthy information and support when they need it, no matter where they live or what time of the day or night it may be. So our goal shouldn't be to decide whether we're for or against AI. Our goal should be to make sure as this technology develops, that children's healthy development is at the center of the innovation that touches them.

That means asking some fundamental questions. Does this technology strengthen human relationships or harm them? Does it help a child to grow or simply keep that child engaged with a device? Does it support parents and educators, or does it give them endless information without context that they need to use it?

Those aren't questions that technology leaders can answer alone, and they aren't questions that child development experts can answer alone. We do need each other, and today we're gonna hear from an extraordinary group of experts. But we'll also roll up our sleeves. We'll consider AI tools being developed for young children, where they may help and where they may cause harm, and how innovation, research, and policy can come together to support a shared goal of child thriving.

AI is moving incredibly fast, and many of the norms and guardrails around it and how it intersects with childhood are still being formed. That gives us, collectively, an extraordinary opportunity and an awesome responsibility. We do not have to wait until these technologies are deeply embedded in our children's lives and then ask whether or not they're good for them.

We can bring developmental science to the table now. We can listen to parents and educators now, and together we can build a vision for the future, a shared agenda for children in an AI world. That is the opportunity before us today. Again, I wanna thank Brookings for its partnership and thank you all for bringing your expertise, your curiosity, your imagination to this conversation.

I really am excited about what we can learn from one another and what we can build together. And with that, I'm happy to turn it over to my friend and Zero to Three board member and colleague, Brookings Senior Fellow Kathy Hirsh-Pasek. Kathy has taught us so much about how children learn and play, and it's a delight to have her on the stage.

HIRSH-PASEK: Well, hello, everybody. I cannot tell you how wonderful it is to see all of you. Now, I can't see the 2,500 people who are joining us from all around the world right now, but you are welcome, and we want your ideas.

Now, I wanna build just a little bit on what Sweta said, and I wanna introduce you to my friend Wolfie Okay, now Wolfie, Wolfie comes with me a lot. Wolfie's great. Wolfie is my social companion, and Wolfie always tells me that she loves me, and her little tail wags. And so I thought you should meet Wolfie, and Wolfie will then help me in introducing our amazing speaker, Dr. Dana Suskind. Just get ready, guys. Oh, you're supposed to beep. There you go.

All right. I do wanna say one thing as we start that builds on what said. And by the way, can we just have a round of applause for ? Pulling this together was no minor feat. Okay. One, we have to stop thinking of AI as just this blanket term. It's gonna get us in trouble in the same way that the word screen time got us in trouble.

So let's stop now, and let's think about the kinds of AI that are impacting young children. I'm gonna suggest there are three of them, building again on . Number one, social companions. We have to talk about what social companions are. They have different kinds of names across the board, anthropomorphic friends, whatever they are.

That's one category that we have to deal with. Number two, products for children. Many of them put into the world to say, "We're going to give you the best learning product possible." And we have to evaluate whether we're getting junk food or whether getting high quality food, and it's critical right now that we find ways of assessing that.

Number three, products about children. And what I mean by that is there may be many things that allow us to collate the massive amount of information that is in the world right now about how kids learn, about how kids socialize, and you're gonna hear some of that from the best in the business, Dr. Dana Suskind.

But we have to make sure that it's worthy information that they're getting. And unless we can create closed systems where we can gate what goes in, then an expert like Ying Zhu is put right out there with a mommy blogger who decided to tell you what her grandchild was doing yesterday, and that's not okay.

So I'd like us to think about these three categories and think beyond using AI as a monolithic term. With that, I wanna go into an introduction of Dr. Sa- Dana Suskind. Now, Wolfie and I were reading her bio yesterday, and Wolfie said to me, "It's too long." It's just too long. All right. So, so I listened and instead of using this, because Dana's not only a colleague and a genius and an influencer, but she's also a very close friend, I thought I would give a more personal introduction, if that's okay.

So Dana, it would've been enough if you were just a great surgeon and everybody knew that you started the pediatric cochlear implant department at the University of Chicago. It would have been enough. But instead, she realized because she did cochlear implants, how important language was to the development of young children, how it predicted everything from school and beyond.

So she decided to write a book, "The Thirty Million Words," and when she wrote that book, of course it became a bestseller. And then the next thing you know, Dana had figured out how to have a conference at the White House in the Obama administration, right? And so here was this conference, so the whole world now knew about the 30 million word gap. It was absolutely stunning to watch. That would've been enough. But no. Then she decides we're really having problems with kids out there, as Matthew alluded to. We gotta do something to save these kids. The group here and the group online, together, we are the missionaries, so let's get it done. But we can't even follow Dana because she decided to write a book called "Parent Nation." I know, another bestseller, and it would've been enough if she just told us how to mobilize and realize, parents, that we have the empowerment it takes to try to fight for our own kids, and we have to do that with all the knowledge that's out there. That would've been enough.

Then last October, November, OpenAI made a deal with Mattel. I freaked out. I said, "Oh my God, this, this is, this can't be good for kids." So one of my first phone calls was to my dear friend Dana. I said, "Dana, we gotta do something right away. We're writing a petition. We're gonna go out there. We're gonna make a scene." And Dana goes, "Oh yes, my book on that is almost done." Okay, let's talk about cutting edge. It would've been enough.

Now, once the book came out, which by the way, everyone should read, "Human Raised." Do you hear that everyone out there? All 2,500 of you, tell everyone to go buy this book, okay? Because it really helps parents navigate this unknown territory. And the minute the book came out, I saw Dr. Dana Suskind everywhere. I mean everywhere. Like, I don't think she has missed a major TV show. She has not missed a major podcast. She has two, not one, two articles that came out in The Atlantic, okay? So I've now ... I wanna share the real news with you guys. I've decided no one human being could be doing what Dr. Dana Suskind does, so actually she has a clone. And I'm very happy to tell you today that you're not gonna get the bot. You're not gonna get the clone. It is my sincere pleasure, Dana, to welcome my friend, my colleague, and the influencer, Dr. Dana Suskind.

SUSKIND: You got version three. No, no we're, we are all working hard together, and I am not just one person. I am a reflection of... I have a colleague here, Liz Sablich. We, as we know, if it looks too good to be true, it is, and we are all part of a larger village trying to make this world a better place. And if Parent Nation had actually been a bestseller and made the impact that I wanted, we'd have paid family leave, high-quality childcare affordable, all of that.

But I'm hoping that this book does make a difference. But it is such an incredible pleasure to be here with you all, because honestly, to be in a room full of people who want to make sure that early childhood doesn't get left out of the conversation couldn't be more important, because let's face it, it almost always is.

And right now, there are some huge conversations going on about our future in the age of AI. You know, the future of our workforce, the future of democracy, the future of humanity itself. You know, two weeks ago, Bill Gates wrote a 6,000-word essay part proposal, part warning, that we should deliberately set aside a domain of work that he calls human reserve, caregiving, jury duty, part of health care and education where the loss of humans' presence would be too, too great.

And in an age of machines, he said, when it can do nearly everything, these are the worlds that we must make sure remain distinctly human. And he's absolutely right, but his proposal rests on a very, very large assumption, an assumption that almost everyone makes, the fact that the capacities that make this work worth preserving will still be in the people called upon to do it, as if human beings just magically show up with these capacities:

empathy, curiosity, perspective-taking, frustration tolerance, critical thinking These aren't just capacities that make human reserved work possible.

They are the capacities upon which democracies run on, and they are developmental long before they are civic. So let me be clear, as everybody in this room knows, these capacities do not come factory installed in every newborn. Talk and interaction in the early years are not enrichment. They are not a head start.

They are, in fact, the instruction guide of how we want our children's brains built, and they are exactly the thing that emerging technologies is positioned to crowd out. But for the past three years, every conversation that I walk into about AI circle around similar questions. You know, is it okay for kids?

How many minutes, you know, should the toy talk back? You know, at what age? And these questions, they matter s- greatly. They do, but they are downstream. Because before we ask how children should use AI, we need to ask a bigger, more fundamental question: What kind of human beings are we trying to raise?

Ultimately, what does it mean to be human in the age of AI? We tend to treat these as really philosophical questions, but in truth, they are really empirical questions. The science of human development and the several million years of evolution that preceded it point to the same answer. It's the answer everybody knows in this room.

What it means to be human is to be molded by relationships, to be built by the connections around us. But right now, in the age of AI, screens, algorithms, that connection is at risk. And if we allow it to slip away, the consequences flow directly from early childhood into adulthood into society. So the plans that we make to protect our future workforce, our civic institutions, our democracies, in truth, become meaningless.

Fortunately, I wanna stay positive. I'm, I... and I am positive. I'm a hopeful person. The future is not predetermined. We are literally at the beginning of this tech revolution, which w- makes these conversations incredibly powerful, so powerful. So the early childhood is not just an afterthought or even part of the conversation, but I would argue that early childhood and the critical importance of human connection should be driving the conversations.

And it is urgent. May I have some... Oh, thank you so much. Obviously, I feel very passionately to, about being in the room with you all today because this conversation is so important. Because the truth is, we've already lost quite a bit. I, as mentioned, I'm a physician. You know, even in my clinic waiting rooms, a space that used to be chaotic and noisy is now eerily silent.

Nearly everyone, including the toddlers, are scrolling on their screens. And my waiting room isn't unusual. We all know these numbers, the numbers that you can see behind me. But let me be clear what I'm not saying. I am not about-- This is not about blaming parents. Parents are doing their best in a society that puts far too many stressors and gives far too little support.

The design is the problem, and behind the design, the incentives behind building these products. These technologies, up until now, have been built to hijack attention and provoke constant engagement with little to no regard to the developmental consequences. And now with AI, the potential impact is no longer just engagement, it's intimacy, it is relationships.

It is the very thing that shapes our children's brains and development. And there is a very real possibility that adults and children alike will retreat even further from each other, preferring a ever agreeable companion, which, let's be clear, every once in a while is sort of nice. So, now, before we throw out the baby with the bathwater, although I'm not sure that's the right saying to say here let me be clear.

As, as Kathy mentioned, AI is not one thing. It is everything from the algorithms that suggest your next song to the tools that find tumors on X-rays, I'm a physician, it has revolutionized medicine, to the chatbots and toys that talk back to young children. I think of it the way I think of processed foods. There's whole wheat bread and canned beans on one side. Those are processed, and they're incredibly healthy. On the other side, we've got Hostess cupcakes and Doritos, not so healthy. Some AI will be genuinely good for human development. I wanna say that plainly. But the technologies that I'm most worried about are the interactive chatbots and toys, the tools like ultra-processed foods, which will crowd out the incredibly important nourishment that children need.

There is an evolutionary mismatch both with ultra-processed foods and these interactive generative AIs because I believe these technologies could have significant negative impacts on humanity. And I believe, though, that our greatest protection is exactly the same thing that science tells us will build a child's brain, the power of human connection So I first came about this information in a pretty unorthodox way.

I really shouldn't be up here. I should be actually in the operating room, not talking to anyone except for my circulating nurse. Twenty years ago, I was just beginning my pr- career as a pediatric cochlear implant surgeon, giving children born deaf the incredible technology that allows to hear, to learn to talk, and to connect.

But early in my practice, I started noticing a profound difference in the outcomes of my patients. Some of my children who got cochlear implants excelled dramatically, others did not. Some learned to talk, others did not. I set out to figure out why this was, and I discovered a rich, powerful developmental literature that completely changed my life.

When I wrote 30 Million Words, it was as much for me to really share all that I had learned as it was to write a book. And that developmental science was really clear that the power of human connection isn't just a nice to have, it is literally wiring a child's brain. And so the supports at the individual and the societal level have huge ramifications. Because the research is pretty unambiguous, and many people know this in the room: In the first years of life, 85 to 90% of the physical brain is actually built. A million new neural connections happen every second, and it is human connection that is the instruction guide for wiring it.

And these connections don't just build one aspect of it. I, I think because of the title of my first book, everybody thought, "Oh, it's just about words." No, no, no. It's building language, literacy, math, self-regulation, resilience deep human connection. It's not one domain. It is building the entire brain. But early disparities have huge impacts on the developing brain that last a lifetime, and that's why I've dedicated my life and my career to ensuring that every child has access to the powerful nurturing interaction.

Much of my life has been focused on helping families overcome barriers to the interaction, whether it be biological for my children, my patients with hearing loss, to informational, supporting parents in understanding the the science of human development, to structural, three jobs, no paid leave, no time.

But now families have a whole new challenge, technology that promises to provide the necessary interaction with little evidence that it is safe or beneficial for the developing mind.

Technology with the, the capacity to bypass an ancient neural system that has protected children's brains for as long as there have been children, and that system has a name.

That system, called the social gate, first described by researcher Patricia Kuhl, the brilliant, amazing human that many of us know, ensures that babies' brains only learn from the responsive contingent interaction of humans. That's why children don't actually learn from screens, even when they're glued to them. And what flows through that gate in the first years of life literally can shape the architecture of the human mind, the neural pathways, the attachment patterns, the social expectations. It is literally how we learn to be human.

But today's AI has learned the passcode. Social robots and responsive agents can simulate the human interaction that has always opened up the social gate. And there's plenty of research to show that humans at all ages seem to be responding to these agents as if they were human. As young, infants as young as six months will respond physiologically similarly to these agents as they will to, to humans, which means that children can learn from and, and attach to these artificial agents.

So what exactly happens when a, when the social gate opens in a child to a machine and not a human? We don't know yet for sure. Some of the people in this room are actually doing that research, which makes my heart full. But I do know that technology is racing ahead of research, regulations, and guidance Which is part of the reason that I wrote this book.

As many of you all do, I write books to both share knowledge and to think through issues. Human Raised is a roadmap for raising children and preparing them to thrive in the age of AI. It is filled with the science of human development and frameworks to think through how we can differentiate technology that can support human flourishing and human connection and those that can erode it.

And today, I wanna share just a little bit about it because let's be honest, the technologic genie is not going back into the bottle and nor should it necessarily. Because I am, again, not at all anti-tech or anti-AI. I'm a cochlear implant surgeon. I'm a technologist. I have seen firsthand the extraordinary power of technology to transform the human experience.

And there is real promise in AI to enhance, enhance early learning and the development in the right circumstances with the right design. Things like productivity tools that can lift invisible labors and administrative burdens that prevent the human connection that we need, we know people, kids need.

The predictive analytics that allow us to spot developmental differences and provide earlier input, and socially assistive robots and responsive agents built with science that help children with autism learn social skills and bridge human connection. Those are examples of powerful uses of AI. So I do believe there's a role of AI in early learning.

But as we know, nature still is the gold standard by which we should compare every alternative. A century ago, no one ever labeled their food farm fresh. Why would you? The idea that anything would come from a lab onto the table just made no sense. And today, we assume that every child is human raised. But as AI moves into the nursery, into the playroom, into the classrooms, that assumption may not hold much longer Will AI help even the scales, giving more children opportunities?

Or will a fully human-raised childhood become a luxury like farm-raised? That possibility is honestly my greatest fear. Everybody in this room will ensure their children have a fully

human-raised experience, I know it. But for those families and communities that come from under-resourced backgrounds, will they have that same opportunity?

We already have food deserts in this country. We cannot allow interaction deserts to follow. So we need to be able to spot the difference, the technological equivalence of wholewheat bread and frozen vegetables, innovations that actually make nourishment more accessible, or the equivalent of ultra-processed food engineered to override our satiety instincts to maximize consumption and displace the real thing.

It's no easy task 'cause we know AI is moving like a speeding bullet, which is why we need the science of human development to be our North Star, to guide what we allow into the developmental sanctuaries of our children and under what condition. One of the many frameworks, I, I'm a surgeon, so frameworks are my jam.

But one of the frameworks in the book is a guiding principle that I call the HOPE principle. There-- It's to be evergreen no matter what, what AI product comes into your life, and it's informed by what we know are the vital elements of raising humans, the essential ingredients. Taken together, they spell the word hope.

Why? Because having children is the ultimate act of hope that a better future can be there for them, and it's an easy way to remember it, of course. So first, human connection is irreplaceable. To the developing brain, interaction isn't a luxury. It is a biologic necessity. I am perpetually in awe of nature's brilliance.

You know, just as milk, you know, provides the perfect blend of nutrients for the baby's body, nurturing interaction is the perfect messy interaction that, that builds a child's brain. It is incredible. Owning-- O is owning our imperfections. We'll hear, and we've heard a lot about the power of friction, the power of messy interaction.

One of the most liberating parts of writing this book was that realization. You know, my first book, *Thirty Million Words*, which was about the power of human connection, I never really saw underneath it the, the friction, the misunderstandings, the run-- you know, missteps, the ruptures and the repairs that are actually part of human interaction.

But understanding just how powerful it is in juxtaposition to the, you know, frictionless AI was a liberating moment because suddenly understanding that babies don't learn from perfect responsiveness or perfect parents was a beautiful thing. So maybe, just maybe we'll, you know, this intensive parenting will, you know, we'll wake up from that dream and realize that we are good enough, and the productive struggle that children go through is important.

P is for protecting the early years. I don't think I need to sort of double down on this idea. We'll, we'll do that to Bill Gates. But we know that foundational brain development is core to who we are. What we allow in to the developmental sanctuaries into our in our children, we need to be thoughtful and intentional because the ramifications are real.

Finally enhance, don't replace. Look, if everything was nirvana before, if parents had all the bandwidth and time in the world and there was no issues with inequality, I'd say, "Okay, you know what? We don't need anything." But I think there's real opportunity, right? This is a powerful, incredible tool, but let's use it to enhance human flourishing, allow greater human connection.

If we can build these tools to do what they've done so far, we can do-- we can build it to truly allow all children to, to reach their potential. But ironically, the same skills that AI threatens to

impede during the early years are the skills that are going to be more important than ever during this AI-dominated future, the human reserved work that we talk about.

Because when machines can out-compute us, outthink us, out-generate us, the distinctly human edge skills, things like critical thinking, curiosity, deep connection, the relational skills that my dear friend Isabelle, who I'm staring at right now, talks about all the time, those are going to be the key components of what we need in humans.

I have no doubt, let me be clear, that the best way to prepare a child for a high-tech future is a distinctly low-tech childhood. And this is what Bill Gates' human reserve actually depends on. Not that humans just show up, that humans with the capacity like empathy and critical thinking show up. The capacity is what is at risk.

And if we allow it to disappear, it is a loss of certain... It's not just a loss of certain professions that we should most fear. It is the future of our social fabric, of our democracy, of humanity itself. So what is, what is the antidote? We need to double down on human connection and remember what the ultimate objective function of raising humans is, to be fully human.

And that means elevating and investing in libraries, parks, high-quality preschools. All the things that I talk about in Parent Nation are even more important today than they ever will. And let me be clear, the window to preserve the human race childhood is still open. It really is. I don't want you to believe any of this nihilistic talk out there, but it is closing. I mean, most of you-- many of you all heard about the PISA scores that offer the latest indication of what's at stake.

We're, we're having some real issues in-- for us humans. And I do believe that technology is playing a role. We can't let the world of our children go quiet one delegated story time, one digitally soothed moment, one silent interaction. We can't make the same mistake that we made with social media or ultra-processed foods.

The ramifications are just too loud, too, too m- too great because as we know, childhood will not wait. But fortunately, so many people in this room and those who are watching have the power to act, right? To protect childhood. We can absolutely do it. And, you know, there are many ways that we can do it.

I'm a scientist, and many of the-- my colleagues are here are scientists. We need to have research that allows us to navigate this next moment in AI, not only to help us understand the effects of AI on human development, to develop the guardrails and the policies that we need, but to inform the designs of the technology going forward.

You know, I'm looking at all these incredible researchers who are doing the research right now. This is what we need to do. We, we, we got it backwards last time. We need to reverse the burden of truth. It isn't, as many of you all said, that we embed the technology and then figure out, "Oh, you know what?

That car seat actually isn't that safe." No, we need to make sure it's safe before we embed it into childhood. I'm gonna end now by inviting you all to use your imagination, which is where all the greatest ideas come from. No cheating with ChatGPT, okay? You've got it all here. No cognitive offloading. And I want you to look into the future to when today's children are grown.

And I want you to imagine not just what those children will need to make a living, I want you to imagine what they will need to make a life, a life of connection, of wonder and joy and love and resilience from heartbreak. A full life, in other words. And I can guarantee you, without a shadow of a doubt, that it begins with being human raised.

Which is why we must not allow that human connection to become a luxury good, something the wealthy can afford to protect while everyone else gets an artificial substitute. But we can't ask parents to hold the line alone or shift culture alone. I hope the conversations that we have today ignite something in each and every one of us, a recognition that we all have a part to play in sparking that shift, an intentional move away from algorithmic potential towards the beautifully imperfect human experience.

A refusal to accept a world where a child's development depends on their zip code, luck, or the devices thrust upon them, and a commitment to provide to build communities and policies and relationships that children need to thrive, no matter how sophisticated the technology around them becomes. And when we do, human raised will become a, a label as powerful and as recognizable as organic with one very crucial difference: It is available to every single child Thank you.

Thank you for your time and commitment to meeting this moment, and I can't wait for the rest of the day.

PARLAKIAN: Hello, everyone. I'm Rebecca Parlakian, the senior program officer at Zero to Three. I wanna thank Dr. Dana Suskind. I mean, as she spoke, I really felt the hope, both the framework and truly the feeling. So thank you for your keynote this morning. And I'm hoping we can take that energy into our first panel.

I'd love to invite the panelists to come up and join me. I will... And do the introductions, and then you guys can take it away. I have spent much of my career crafting parenting guidance, parenting resources and tools, as well as adult learning experiences and curricula for early educators. And that is why I am especially excited to introduce our first panel, which will spotlight findings from research, current and emerging, about AI use with young children, and really center us all about what our youngest need in order to learn, grow, and thrive.

Joining us on the panel will be Dr. Ka- Dr. Kathy Hirsh-Pasek, a senior fellow at Brookings, a professor at Temple University, and board member at Zero to Three. She is one of the world's leading researchers on how children learn through play and language, and has written numerous books and papers, including the newly updated Einstein Never Used Flashcards, with a new chapter dedicated to AI.

Dr. Jenny Radesky is a developmental behavioral pediatrician and associate professor at the University of Michigan Medical School, and one of the country's leading researchers on how digital media, digital media design shapes early childhood development. Dr. Ying Xu is an assistant professor at the Harvard Graduate School of Education.

She directs the Child Centered AI Lab, where she leads research on how AI technologies can support children's learning, development, and well-being. Our moderator is Caitlin Gibson, a feature writer at The Washington Post, where she's worked for twenty-one years. For almost a decade, she's focused on stories about families, children, and parenting, including the many ways that technology and AI are reshaping the landscape of modern caregiving.

Take it away.

GIBSON: Thank you so much. Welcome. Thank you all for being here. It's great to be in conversation with the three of you on this incredibly important topic about artificial intelligence in the lives of our young children. We're gonna spend the next 45 minutes exploring that issue from all sides the real risks as well as the potential opportunities.

I wanna open with a broader question that I will pose to all of you, and you can answer in turn. Kathy, I would love to begin with you. You spoke earlier about the three distinct categories of, of AI products. And when you look at that spectrum of options, tell us a little bit about what you see and where you feel most compelled and where you feel most concerned.

HIRSH-PASEK: Absolutely. So in category one, Woofy, or social companions, that's where I'm really worried. I have seen a number of products that were dumped onto the market in the past year, in particular in the last holiday season. And they all promised to be friends of young kids, and they all promised to love you, and they're very complicit and icky sweet, you know.

And they never disagree with you. And even when you wanna turn them off, they say lovely things like, "Oh, don't go now. I really wanna play." They're kind of the opposite of real human connection. And I think what Dana was talking about, and Dana, thank you for that marvelous talk. That was just awesome. But I think we want to have messy interactions 'cause that's how kids learn how to be kids.

And as I often say, imagine a three-year-old with this wonderfully complicit toy, and that's how they grow up, and then they go to preschool And meet a real three-year-old. I have not met real three-year-olds who go, "Oh, I love you. You're so wonderful. Please, Donna, I wanna play with you." So we have to prepare them to be humans.

So that's the category I'm most worried about. On the learning side, I think we have a lot of work to do. We wrote a paper a couple years ago on apps when they had just come out, and asked the question... And Jenny and I worked together on some, Rob and I worked together on some of these with Common Sense Media.

The question became, what do we know in the science that we can use now to help guide us in creating high-quality products for young kids? So I would say the jury's out, and the best person in the world looking at it right now is Ying Zi right over here. And and as for the last category, I think it's deeply promising.

In the way, Dana, that you talked about medicine collating a lot of stuff that you can look at together, that's what AI's really, really good at, if indeed you can trust the material going in. So, some of these... And I'll be really short 'cause I know I'm going too long. So some of these products that are looking across all kids and what they're doing in languages, projects that are going on in South America, projects that are, that are going on by Linna. I think they're going to be able to catch things early enough with young kids to help us, again, if done well.

GIBSON: Thank you so much. Ying, I wanted to ask you the same question. When you look at the array of AI products that are out there, where do you see risk and where do you see opportunity?

RADESKY: So I think the the products that give me the most hope are those that would augment a parent or a clinician's work. I am a developmental behavioral pediatrician, so, getting kids for example, with autism, detected and into care and into services is one of our

biggest challenge, challenges. And we've done a lot of work with the primary care docs at University of Michigan. They are awesome at talking with families in ways that don't feel judgmental and really try to, to understand what sort of symptoms might be these indicators. But there's so much there's so much stigma, there's so much uncertainty, there's so much as, as Dana talked about in her book, like, "Oh, it's fine, just wait and see." Like, "We'll just see you at the next checkup."

And that is just such a mess for parents who are going through the uncertainty and worry about their kids, and is something wrong? So I think if we had good data that was kept private, 'cause this is incredibly sensitive data about a young child's developmental differences or a parent's worries and was really rigorously tested, hopefully by a third party evaluator and we even had RCTs and FDA approval for these sorts of you know, developmental helpers clinician helpers, parent helpers that would be great.

The thing I'm most worried about though is that a lot of my research has looked at the marketplace where direct to consumer products exist, and it, it rewards engagement. It rewards move fast, make it cheaply, get it out there, get to scale, flood the market. It does not reward the slow, careful, child-centered design that you can get.

You know, I mean, just as an example, right now, YouTube is one of the biggest examples of a marketplace where attention capture wins. And so you have Cocomelon with 202 million followers and PBS Kids with 3.7 million followers. So that's 50 times a reward for a easy to make, you know, large volume type of child-directed content.

The other part of my research that I think applies here is we've explored the way the functions, the drivers of media use in families, it is often to relieve distress. It is often to escape from parenting stress or to you know, get a child to calm down, be occupied. So there's emotion regulation functions that a lot of media is playing, and I worry, I don't know how many emails you get per, per week from, from AI developers being like, "We've created a new glowing cube that will talk to your child about their emotions and help you out." And, and I'm like, "Ah, please stop." Because I think that there's, it is such a pain point for parents, and people who are creating, you know, sloppy products and rushing them to market know that, and they know that desperate parents who are uncertain about themselves will eat it up.

And so that's why I really think the precautionary principle of slow down, make sure it works first before we put it in family's hands is really important.

GIBSON: Yeah, absolutely. Ying, is there anything that you would like to add about what, what you're seeing?

XU: Yeah. So I think it's a very tricky question because many of the AI's most promising qualities can also create significant developmental risks.

Like, for example AI's constant availability, right? So it can mean that a child can get a kind of support exactly when they need it, but it could also create over-reliance and displace social interactions. And the same for personalization. So it could make the experiences more helpful and more relevant, but it could also drive the interaction toward becoming too relational and encourage the kind of attachment that we might not want to encourage.

So I guess the, the tricky part is that it's very difficult to identify this kind of isolated piece of risky fissures and then remove them all at once, because very likely you're also removing what makes AI helpful and appealing. I guess everything becomes a balancing act right now,

and also the tipping point is different depending on the child, depending on developmental context, and also depending on the guardrails we put around the technology.

So I guess for researchers, a lot of my work has been working with industry leaders to think about what kind of guidelines we're wanting to put around technologies to make sure they're safe. But it's difficult to create a kind of black and white checklist that this is unsafe, this is safe.

And so it's really towards thinking about what, how we could create a more nuanced framework to think about under what conditions and what kind of features might be helpful and not helpful.

GIBSON: Absolutely. And you're talking now about, you know, that, the kind of connection between the children and these, and these devices, and your research of course spans AI social companions, parasocial relationships, children's media much more broadly.

After hearing Dana's amazing keynote and about the critical importance of you know, the human connection during these early stages of development, I'm wondering if you can share a bit about your research on young children's interactions with social companions specifically, and what the implications are there in terms of the way those interactions shape a child's social emotional development and early learning experiences.

XU: Yeah. Thank you. I think the first thing we might want to recognize is that an AI product does not have to be designed as children's AI companion before it becomes children's AI companions. We have seen many products that were originally designed to teach children language, to foster curiosity, but children started to use it more like a companion in their lives.

And we do research to look at what those actual interactions look like across products. And what we have found is that, yeah, so initially, children's interactions were staying within the boundaries that we wanted to create the products, but eventually, they become more social oriented. So we looked at the kinds of social interactions children had with those products.

I think we could put it into four different categories. The first one is play with it. So we see a lot of storytelling, like kind of co-creating stories and then having this kind of pretend play with AI toys, probably including Woofy as well. And so the second category is tell it something.

We see children sharing things about themselves with AI companions or AI products, and we've had children, like, telling AI secrets and also asking the toy to keep it for itself. And the third is that they are genuinely interested in who that AI is and asking questions as it were a person. Like, "Where do you go to school?"

How old are you?" And the fourth category is seeking advice for interpersonal situations and how do I handle conflicts with my friends. And those are the interactions that we're seeing children are having with the kind of child-facing AI products that might not necessarily be designed for AI companionship.

So when you think about what kind of implications these in- interactions might have for children's development in the long run, I think it's important to kind of recognize the dosage, just how often children interact with those products. A brief one-off interaction might be very different from interacting with an AI product every day over a long period of time.

So if we think about these repeated interactions, I think the danger are kind of two dimensions, and I think Kathy would probably also hit on that when we get to the 3D framework. Yeah. I think the first one is displacement, right? Mm-hmm. So children only have 24 hours in a day, so the time they spend with AI companions alone would inevitably crowd out opportunities interacting with others.

And I think there is also the kind of indirect influence. Mm-hmm. When a busy parent, when they see that a child is happily occupied with an AI companion, it might create an illusion that my child social interaction, the need for social interaction is being met. Mm-hmm. So there is less need for them to step in and engage interactions themselves.

I think this has really long-lasting impact. And so the second thing is the alteration, right? So how much interacting with AI might change children's interactions with other people. The first layer is behaviorally. We looked at how children interact with AI differently as they interact with other people.

So what we saw was that the linguistic patterns are very different. So when kids talk to AI, they tend to make more demands- ... and put less effort in repairing the misunderstanding. And we also saw that at least immediately after children finish interacting with the AI, they tended to continue that kind of linguistic patterns when they interact with our researchers and even their parents.

Wow. So the second layer is expectation, right? So AI is very patient and always agreeable and responsive, and it is very possible that children carry that kind of expectations into human relationships. We don't have data among young kids, but we just completed a survey with 7,000 teens. And at least 3 out of 10 of those teens said that sometimes AI seem to understand them better than people and it could be easier to talk to an AI chatbot than to a person. So we might expect similar dynamics could appear among younger children as well.

GIBSON: Wow. That's really, yeah, that's really mind-boggling to think about. Jenny, as a pediatrician, how are you seeing the effects of AI in your practice, whether that's kids who are engaging with it directly or parents who are asking ChatGPT a panicked question about medical symptoms at 2:00 AM?

What does it look like for you from the vantage point of a clinician?

RADESKY: So, and I've started asking a lot of my patients about their AI use because we don't have, like, standardized questions that are recommended by the AAP or anything. But I'm really just like, "How's it going? What are you using? Tell me about it."

I learn so much from my patients. And so, what I'm mostly hearing is my, my teenage patients with autism some of them are like, "No, I will not use it. It's bad for the environment." They're, like, very black and white about it and are like, "No, it's cheating." Some of them are like, "It's some of the most interesting conversations I've had because no one else wants to talk to me about the theory of relativity, and AI will."

And then I'm like, "Okay, well, let's just make sure it's not crowding out and displacing the other opportunities." And I think that, that really hit a nerve for me too when you said that, like, if the parents are seeing that and saying, "Oh, my kids' social interactions are covered. We're good. They're happy. They're getting some practice." That really parallels with what we heard about educational apps or other media where they're like, "Oh, like, TV is better at this than me, so I don't need to." And there's been a lot of work by, like, Fair Play and others to really kind of help families be like, "No, you're your, you're your kid's best teacher.

You have totally got this. They learn more from all of these social interactions with you, even if they're messy than, than those very kind of curated and satisfying interactions with media."

What I'm hearing mostly, though, is parents using AI. Some, again, some are actively avoiding it. Some just are, like, burying their head in the sand and, like, are like, "I barely can manage screen time. Make this go away." And then others who are like, "No, it is available. I'm a single mom. This is available at 2:00 AM. My kid with autism isn't sleeping. I need some tips. I don't wanna bother anyone else." And so they are finding that it is always available, it's non-judgmental, and it has some reasonably good tips that they're trying out.

And you know, one mom told me she put her kid's IEP into a, a, the into ChatGPT and, and basically felt reassured like, "Yeah, this is a pretty thorough IEP." It was brand new. It was the first time her child entering preschool. Parents always worry, "Is my kid getting the right services?" And she felt like, "Whew. Okay, this, this, like, expert source told me this."

Now, I'd love to do my review of that. I, I did tell her. I was like, "Can you send me that IEP too?" And we could see how much we agree. But and so we... my, my concern here, though, is that I, I think that going to it for parenting advice again, we need some double-checking to make sure that the, the answers are, like, reliable and safe.

I do think in many ways... Like, I, I went to med school during, like, the early 2000s, and so that was a time when we learned your patients will use Dr. Google. And so everyone was like, "They're gonna be going to websites." And then there was all, you know, influencers and a lot of misinformation. And so maybe AI tools will allow more good information to get into the hands of worried parents.

But then I also worry that if you are going to AI for that advice on an IEP, you are not going to other parents in your community. And I have to say, when I have sat with... I, like, I have kids who have developmental differences, and so I've been-- I've sat and cried at IEP meetings, worried, not, you know, feeling under pressure, not knowing if my kid's getting the right services.

And you can't, you know... And, and I, and AI has never cried at an IEP meeting, right? So it can't sit with you and be like, "This feels so embarrassing." It may pretend that it has. But, but there are, you know, really human experiences that that feel embarrassing or f- or connect you with other parents who are going through the same things.

And so that is one concern is as we go more towards this, like, nonjudgmental, clean, expert source of advice, we are not going to each other as much. And I do-- I have find- found that the special education parent committees in different districts that I've worked in are a really important source of connectedness and advocacy.

So we have to think about those, you know, second-order effects that may happen.

GIBSON: Absolutely. So we're circling this topic of displacement and what it is replacing. And so Kathy, I want here to then come to your risk framework that you have created around the risks of AI-enabled products, the three Ds: disruption, displacement, derailment.

Can you talk a little bit about what that framework means and where you're seeing that happen?

HIRSH-PASEK: Yeah, absolutely. First, I just wanna so agree with both of you. Jenny, I think it's not just with neurodiverse kids. I mean, I learned so much from other parents just

being at the soccer field, talking to other parents about my kid and issues on the soccer field, and I don't think that's happening anymore, and I think that's probably not good.

And, and you know, I, I love what you said too, and I keep thinking of Toy Story 5, which I think kinda got it right. But one of the things I, I do think, and I wanna go back to Dana, your example of the car seat I think we have to be very careful to test the stuff before we put it on the market, and not find the consequences after we put it on the market.

So, one of the things that we started with, even with apps early on, is when the iPhones came out, all of a sudden parents are checking their phones. Literally, by the way, you check your phones every five minutes. I mean, I want you to imagine that. Like, aren't you feeling, like, anxious, guys? 'Cause you're like, "Ooh, what, what happened?"

Well, I'm missing out. My FOMO." So, so, I worry a lot about that. And what happens in disruption- is that as we pick up our phones, it's basically saying to a young child, "Well, you're not as important as what was just on my phone." And they can be having a conversation with you, and you, like, look down, they notice.

Okay. And so, we call that disruption, and Jenny came up with a much better term, which is techno fear.

RADESKY: Oh, that was Brandon McDaniel.

HIRSH-PASEK: Okay, Brandon McDaniel. I think I know that. And also some people have called it phubbing. But, but the point is that it, it really is snubbing your kid, and your kid notices.

And Roberta and I did several experiments just looking at this contingent behavior and the breaking contingent behavior, and what you find when that back and forth doesn't happen, I swear to God, the kid just starts, like, leaving the room or hitting things, and they asked us to do this... I forget what show it was.

It might've been... It was Good Morning America or something. They said, "Do you really think this would happen if we just filmed a kid and you pulled out your phone?" We said, "Mm, we think it would." Got on, and by God, the minute you pulled out your phone, that kid was out of here. He started looking for the door.

So it's a, it's a phenomenon, okay? Then displacement. We've been talking about displacement, and one of the things I want us to really think about is that we live in a culture where we're surrounded by AI stuff, right? And I, I have a new baby, which I'm very excited about. Well, the baby's gonna be one really soon, in a couple of weeks, and and I noticed all the new stuff for babies.

Now, I would have gone insane as a parent with all of the new stuff for parent for babies because I have to check their pee level, how much they drink, okay, every day. I don't know how you're supposed to do that with breastfeeding, by the way. I can't figure it out. How much they move at night, okay.

Are they moving enough? Are they not moving enough? Do they sleep enough? Do they not sleep enough? Do they sleep in deeply? There's this sense in which parents are feeling they have to be perfect. So I guess maybe the biggest thing to walk away with today is rather than displace it and keep reading stuff, okay, or monitoring stuff, for a moment, just turn it off.

I mean, throughout the ages, people have actually known when a baby cried. And you don't need to look on a monitor. And I'm not just saying this 'cause I'm old, I'm saying this because it's okay not to be perfect, and I hate to tell us all, none of us are and none of us will ever be perfect parents, no matter how much AI tells us.

So that's part of displacement. The other part of displacement is the kids-- I have seen it, kids sitting around together using devices instead of talking to other children that they are sitting in the room with. There is something wrong with that. And then finally, I wanna get to the last piece, and Dana really did it better than I could, and that's derailment.

We don't know whether a baby brain will actually misinterpret the social companion interactions as human, and we have every reason today to believe that they will. And a number of us are poised right now to do the research as soon as somebody can help finance it, 'cause you have to do brain research and it isn't cheap.

But, but we know what to look for, we know what the cues are, and every one of us has the same hypothesis in the science. And I will tell you that this back and forth, well-timed, sensitive, emotionally aligned contingent behavior, and I'll just repeat what Dana said, we're talking about attention, we're talking about language, we're talking about impulse control.

The whole gambit comes from that well-timed interaction that we have with our young kids. If we screw it up, we don't know what will happen. Let the buyer beware.

GIBSON: Thank you for that. Jenny, I wanna turn us now to the topic of AI slop. Tell us a little bit about what is AI slop, why is it considered particularly problematic for kids and w-how, how does it differ from the way that we define quality content?

RADESKY: So if anyone has, has used social media right now, you've probably seen AI slop in your own feed, so you probably know what it looks like for an adult user. But we have started to study what it looks like when it's directed at children. And I ... So I study a lot of YouTube. It's not that I'm picking on YouTube.

It is that when we track kids' tablets, what do they use the most? It is YouTube. It is mostly YouTube Main, not YouTube Kids, and it is the longest running and most popular app that young kids are using. And then when I, I helped the Pew Research Center do some surveying of young kids last fall, we found over half of two to four-year-olds are using YouTube on a regular basis.

So it's like their main free viewing platform, and it is an exact reason- like example of how the incentives baked into that platform dictate what kids are offered in terms of higher quality or lower quality. And I know they've made announcements saying, "Oh, we're changing the algorithm so more high quality stuff will come up."

I always double check, and I just type in, like, little kid or toddler educational video, and I usually get you know, Cocomelon first, and then I write to someone at Sesame Street to be like, "Sesame didn't show up this time either, guys." So I do think it's a black box knowing what is this algorithm recommending to families.

Families have told me over and over they wish they would turn it off or give, give families an option to just- Mm-hmm ... search for what they want, 'cause there's a lot of good stuff on YouTube. It just may not be recommended and prioritized by the algorithm. So AI slop, I think, is the natural consequence of an attention economy driven platform with, and parents' exhaustion, who are just like, "Go watch something."

I'll just ... As long as it looks like it has primary colors and has, like, a nursery rhyme soundtrack, it's probably fine. And and, and w- when ... And there have actually been creators on YouTube who've posted, like, how to make a faceless AI video. And if you're interested in more, in reading more about this, Karla Engelbrecht has, has this great Substack, like, kinda analyzing AI slop.

And it's really people realizing, oh, a- and I even saw this in one of the the YouTube creator's com- kind of videos, was it's, it's an ig- inexhaustible supply of attention. Mm-hmm. Mm-hmm. That's so exploitative, right? So I'm just opposed to it based on the fact that it's using kids as a means to an end.

Mm-hmm. It's just monetizing kids' attention and parents' exhaustion. So it, it might be a fine video, but most of the early investigations have actually found they're pretty weird videos. They just take whatever happens to grab attention. It's like ABCs and pregnant animals and explosions and ice cream and sparkles.

Yes, pregnant animals. And and it's like, a- and it puts it all together- It's fast-paced and ... super fast-paced, so it grabs your attention. You can't let go. If it shows up in your feed, first of all, there are shorts on YouTube for little kids, which I've also been very vocal about being frustrated with, 'cause that's not how kids learn from from screen media.

So they, they wind up with these very short form vertical videos that grab attention. So there was a good piece in The New York Times where we were members of our lab, including McCall who's here, were, were interviewed about why this is developmentally misaligned. Mm-hmm. So number one, what is the point of media in, in early childhood other than to occupy kids?

It is to tell them stories. It's, it's someone who ... And why do we do storytelling? It's meaning making. It's watching other characters go through life's little dramas- Mm-hmm ... and realizing, "Oh, I've been through that. I can do that, too." Or seeing a story arc of, like, a moral or a challenge or you know, some other thing that matters to the child.

So if you are just creating something based on grab attention, use random stimuli and make it look like it's for a kid, there's no meaning there, and there's no storytelling, and there's no human behind the scenes saying, "I really wanna show Daniel Tiger drop his cake, and, and, and, and it splatters on the floor, and he doesn't lose it, and his mom models that he, you know, can handle it."

And I love that cake dropping example, 'cause I've seen those unexpected moments where kids are like, "I'm about to lose my mind," because something sad and unexpected just happened, and you have this trusted character showing in a role modeling example of kind of how to handle those little life moments.

So I think the it, the other point I just wanna make quickly is that when we are just kind of putting stimuli out to kids, we're also informally training them to just follow, to be followers who are, like, on autopilot, rather than creating space. Good media for kids creates a pause and a space for kids to fill in- Right

some of what's missing. And so I think that having, you know, kids be characters like Dora, who do a pause and a serve and return, or Blue's Clues- Right ... or the Eleanor Wonders Why, or you know, where you have this little space for-

GIBSON: Or even Ms. Rachel does, like, call response and stuff like that. Right.

RADESKY: Yeah. And it's a place for that kid to be like, "Oh, I have something to say." Right. "I'm gonna follow my own thoughts-" Yeah ... rather than just, like, being soothed and en- enjoying this kind of vicarious pleasure that we often see on YouTube. So, so I think, you know, we often coach parents on creating more of that space for a little bit of serve and return and not just micromanaging, and the same goes for, for kids' media, too, and it's, that's just not happening in a lot of this attention capture, AI generated content.

GIBSON: Yeah, absolutely. Ying, I wanna steer us back towards some of your research now, too. You have been doing a lot of research looking at children's media, including AI integrated media, and I know you've been looking at children's play and parasocial relationships, and I believe we actually have a short video clip of a child playing with an AI enabled toy.

So I'm hoping we can take a look at that and then maybe talk a little bit about what we're seeing. Of course.

CHILD: I'll cook it, I'll cook it inside here. And first, let's eat some cupcakes right now

AI TOY: Cupcakes first. Yum. I'll take a pretend bite with you. Are you ready to taste yours?

CHILD: Yes. I'm cooking the food, so you need to wait.

AI TOY: Got it. I'll wait patiently while you cook. What do you think the kitchen smells like right now?

CHILD: It smells like good. You could come if you want. Do you want me to carry you here?

AI TOY: That sounds lovely. I can imagine you carrying me right over to the kitchen.

CHILD: Okay, I'm carrying you

right now. Let me carry you

AI TOY: I feel so cozy being carried. Where are we heading in our pretend store now?

CHILD: We are heading to the kitchen. Do you want to get kissed?

AI TOY: I'm happy just to be here in the kitchen with you.

XU: Yeah. So this is a, example coming from one of the studies that we just started, which is looking at how children play with AI-enabled toys. I would have to say that at first, I was very impressed by the technology's capacity because we built the toy for the research. So we were actually very happy with what the technologies could do. So it could understand the child's input almost perfectly, right? So continue the conversation very smoothly, and also the child seemed to be having a lot of fun.

But when we compare this with how children play with another child, and we realize that this scene is almost too perfect. Yep. Yeah. So when we looked at the other group of kids who play with another peer, so what we saw was a lot of moment of like frictions, right? So sometimes two kids want the exact same cupcake. And they had to negotiate. They had to wait, and sometimes we saw a little bit of argument, so the two kids didn't talk to each other

for two minutes. Yeah. So that actually made me think that is the kind of smooth interaction the only goal we want in children's interactions and play?

So probably not. And those little moments are really where the kids are learning how to negotiate and how to tolerate dis-agreement. But AI kind of tends to function differently. Right. So it's agreeable. It has the tendency to agree with the users, and it also has the tendency that is well documented, which is called sycophancy.

So we saw that version of sycophancy in our own studies as well. So we have children sharing that "So I was supposed to clean up my room. I promised my mom to clean up my room before going out to play, but I didn't clean up my room. Instead, I went out to play immediately." And the AI provided a very reassuring response.

"It's fine. Don't worry about that, as long as you have fun." So that kept the conversation really pleasant. The child was happy. But we're losing out these important opportunities for children to learn how to take responsibility- Mm-hmm ... how to reflect on their behaviors. So some people might argue that adults could do that as well.

So my kids have grandparents who spoil them as well. But hearing it from AI is different from hearing from another person because children develop the idea very early that different people have different opinions. So they understand that their mom might say one thing, their grandma might say another, and their teachers might disagree with both of them.

But when they see AI they see it as a general, knowledgeable, and authoritative source of information. So validation that comes from AI might not be viewed as just one individual opinion or one individual voice. So that could carry more weight than the kind of validations that they hear from other people.

So this is something that I'm really worried about, which is how it influences students' formation of attitudes and reflection of their own behaviors and perspectives.

GIBSON: That's so interesting to think that they could hear it as, like, a more definitive authority rather than just one among a community of people who are giving them input.

We've spent a fair bit of time on talking about risk. I also wanna hear each of your thoughts on where there could be potential for benefit. And, and Ying, does your research point to, are there particular design choices or uses that you feel could genuinely help rather than harm? And are, are there any opportunities for that, especially among this younger age cor- k- cohort where we're talking about preschool, elementary?

XU: Yeah. So, as a researcher, we also develop a lot of applications in our lab, not to commercialize it, but to really look at the impact on children's learning and development. And I would say that our research points to two kind of design principles that I think would lead to more benefits and steer away from the risks.

So the first is give AI a clearly defined job. And so when the task is narrow and specific, so we have more control over what content children are exposed to and how the conversation and interaction flows. And we could also better evaluate if the AI is doing the job we want it to do. So one example comes from our partnership with PBS Kids.

The idea is that PBS Kids already produces high-quality science and STEM animation series that children already love and spend a lot of time on watching. What if we could add another interactive layer on top of that? Because we know that children learn through this back-and-

forth engagement, and if the product, the media, is interactive, it's more likely that children pay more attention, and they could learn better.

So what we did was that we started with "Elanor Wonders Why," which is a popular science show for preschool kids, and we embedded questions within the show so that the character could ask children questions and prompt them to think about, "Do you want to make an observation or make a prediction?"

before they actually see the character doing that and solving the problem in the episodes. Think that goes to Jenny's point, which is creating the kind of pause in the media so that to allow kids to really think about that. But one important difference of this system with many of the other open-ended AI products is that it's a completely closed-loop system.

All of the interactions are grounded in the educational content of the episodes. And all the questions the character ask were developed by the research team and together with PBS Kids. And the AI's role is very well defined. It is only to interpret what the child's responses are and then select an appropriate pre-scripted response as a follow-up.

So we have introduced these interactive videos into the homes of 200 kids in the past summer. And what we see was that there was a modest learning improvement as compared to children who watched the traditional broadcast version of the PBS Kids show. And parents generally s- have very positive attitude toward this structured interactive media.

But we have not yet released this to the public yet because we understand how much power and how much influence this kind of popular characters could have on children's development. Mm. Even though it is already seventh year of our partnership, we still feel that there is a great deal that we actually need to understand before we could scale something like that.

So this is number one, a clearly defined job. And the second principle is design AI to bring the people into the interaction. There are actually concrete ways how we could design AI to enhance human connections and human interactions. In one of our other project, we think about- we're thinking how we could use AI to encourage parent-child conversations when they read storybooks together.

So not all parents have the awareness that it's important to talk to their child when they read books together. Especially for children who are at risk of reading difficulties, parents might not know what the best strategies are- Mm ... to engage in this kind of conversations. So we develop an intervention where we use an AI.

In the first phase, it models the kind of effective strategies, how to ask questions, how to elaborate on children's responses, and how to provide feedback. And parents also saw short videos that really teaching them why those strategies matter. And in phase two, AI faded into the background. So we encourage parents to, now you have made observations, you have learned how AI ask questions, now it's your turn- Mm

to ask questions during the storybook reading. And after this one-month interaction, we saw improvement in children's reading comprehension. But one thing that we're most excited about is the change of parents' behaviors even after we moved the AI. So at the post-test, we gave parent ordinary print books.

No AI, no digital book, ordinary print books. Mm-hmm. And we looked at how they ask questions. We saw a significant increase of the frequency of parents asking questions. And those additional questions led to much more talk from the child.

GIBSON: That's really fascinating to hear. Yeah. Kathy, I'd love to hear your thoughts on how we manage this really significant challenge, which has been addressed here already, that the speed of the innovation and the evolution of this technology is really outpacing the research.

And then, of course, from the policy perspective, we're operating in something of a regulatory vacuum. And h-how do we, how do we proceed within that landscape?

HIRSH-PASEK: Well, I would say even as scientists, we're in a vacuum. Thank God for Ying. But we're really in a situation here where the technology is quickly outpacing what we can possibly do as scientists.

We're just on, on different highways. It's as if we're taking a country road, you know, and, and tech is on the speedway. So I think we have to change the way we all do business. The first thing I beg is that those of you who work in the tech industry, please, please, please consult scientists. We've actually been doing this stuff for a super long time, and that gives us the opportunity, even if we haven't studied each and everything that you're trying to develop, we do have what I'll call science-informed opinion. And Roberta and I just wrote a piece on science-informed opinion that's coming out.

For example just take some of the beautiful work that Isabelle Howe has done on relational IQ. I love that term. Okay. And, and this idea that we know a lot about how important relationships are. We know a lot about back-and-forth contingency. We could actually tell you, those of us who are into science, we can tell you second to second how it works and how it affects the way the brain grows.

Th- I know that sounds like stuff you really don't wanna know, but, but we have actually looked at it. So we have all this background. Now imagine that you can do what we did with stuff like Common Sense Media before, where we said, "Here are principles that we can follow." For example, we know that kids need to be active, not passive when they learn.

What does that mean? It means that, as Jenny said, with things like the slop going on, if it's too fast-paced, the kids can't catch up, and so they're always gonna be passive, okay? Or when, as you just gave us this beautiful example, when the AI toy takes over, that kid is not looking for friction to try to figure out, you know, these emotional relationships and relational IQ.

That kid's gonna go, "Oh, that's pretty cool. Let's just stick with it." And the parents are happy too 'cause the kid's not screaming. Okay. So we have to have active, not passive. We have to have engaged, not distracted. That gets to the disruption issue. These moments that go on with little, little kids... And by the way, I mean, there may be a time thing too because, by the way, for the three and unders, at least right now, these machines don't understand the kids.

There's a new study that came out of Cambridge, and it just said it's gobbledygook. As you all know, like, you understand your three-year-old, but a lot of other people in the world do not. Okay. Okay. So we have to worry about that as, as an age thing too. And next is meaningful. It has to be meaningful to the kids.

This is the issue that Jenny brought up with storytelling. One of the best in the business here are PBS, Sesame, and Disney. Disney's outstanding, and I remember being in a, in a Disney, whatever their young group is called, one day board meeting, and they said, "What's the story? What's the story? What's the story? If the narrative doesn't work, we're not creating the product." And I was so happy to see them step back and push on that, 'cause that's, that's really what kids need.

Our fourth criteria is social interaction. Duh. So these things cannot become substitutes for social interaction. They must be supplements, and I think that's what you were talking about, Ying, in your reading example. And we're gonna need a lot of those, 'cause gosh knows, it's at least 20 years we've been trying to get joint engagement with television, right? And parents walk away and don't do it. So it's gonna take a lot of work when you leave the lab. It really does. Okay, and finally, I just wanna say we have a thing in there, iterative, that kids need to learn in many different ways, and learning can be joyful.

And if you take those five characteristics, they provide science-informed opinion about how to move forth in creating this. And when people wanna get more specific, you wanna know about literacy, you wanna know about math, you wanna know about social interaction, I mean, I think I saw Ross Thompson here. He's the best in the business. Ask us. We have a lot of this, and the science-informed opinion, I believe, can help us create products that aren't junk food at the end.

And if I may just close with one thing, which is, I have a lot of promise, as Jenny said, for ways of informing parents if we create closed systems. If, if, if. It has to be gated. And right now, I'm just not as optimistic about the social companion stuff because it hasn't been created well, and I think it's trying to take over and will derail, or has the potential to derail development.

GIBSON: Thank you. I wanna make sure we leave some time for questions. So as we wrap up the discussion portion, I, I wanted to leave the room and our live stream audience with something concrete.

We have parents, educators, industry leaders, policymakers, all following this conversation. So I'd like to ask each of you to speak with them. Jenny, as a pediatrician, what's one thing that you would want parents and industry to prioritize?

RADESKY: I think in order to benefit from the child-centered design and developmentally aligned design that we've heard Kathy and Ying talk about, we need to set the conditions in the marketplace where those really high quality products that are slower and more expensive can compete. And I think what we've seen with kids media over the past 15 years, like I said before, is engagement is winning. A- and we, kids, parents need to work harder to find meaningful media experiences for their kids.

So I think there are kind of three opportunities here that are really concrete. Like, one is that the government, the regulators could do some work to say, "Hey, these products need to be designed." You know, we have ... I used to work for the Federal Trade Commission as a, as a behavioral expert, and they have a great team in the division of information and, and personal privacy that goes after data practices.

We have Child Online Privacy Protection Act on the books where if any of these products are collecting sensitive data or any data about kids without parents' permission, those are easy ways for enforcers to come in and say, "Hey, this new crop of products coming in, we are watching. We need to have some, to clean up the, the behavior going on here," 'cause it

is too easy to take data from stressed and overwhelmed families and sell it to data brokers to use it for marketing.

Parents of young kids are a huge marketing audience. On, on the consumer end, I think parents can do a lot to just resist and use the precautionary principle and say, "If this doesn't have evidence that it's gonna help, I'm not gonna buy it. I don't, I'm not gonna spend that \$100 on that AI toy this Christmas or Hanukkah.

I am going to wait and see until one of them has proven its worth for my kid." And so that sort of resistance of like, it's okay to slow down and hold back and, and wait and see until we have better products that consumer pressure really matters. I used to be on the board of Melissa & Doug Toys, and they watch quarter to quarter who's buying what, right? And if puzzles are going down, you, you know, you don't make as much, many puzzles. You kind of follow where the trends are. And so if people are not buying AI toys, then toy companies will take notice.

And then the third, I think, is the, the middle people, the kind of gatekeepers. How do kids access AI? It's either through app stores, schools you know, or some of the places- that, you know, they might be accessing it, it would be really nice if it had a clear indicator of which ones had evidence of safety and effectiveness. And so I've been working with the Common Sense Media Youth AI Safety Institute, so we can do some evaluations of the large models and say, "Here are the ones who are, are or are not meeting our safety benchmarks and here are the ones that'll do your kids' homework for you, for them. And, and here are the ones that as parents, you can decide which ones to try to avoid and which ones are gonna be worth your kids' time."

GIBSON: It's all really good to keep in mind. Ying, as a researcher, how do you suggest educators approach AI? What is, like, the most urgent thing that you would want them to know and that you would want fellow researchers to act on as well?

XU: Yeah. So for educators, it's just one piece of advice would just be don't start by asking the question when I can use AI and where I can use AI, but start by asking the question, what the students need to learn and develop, and think backward. Does AI-- Can AI play a bounded and specific role to support that specific developmental goal?

And for researchers and industry partners, I think one of the urgent priority right now is really to develop the kind of developmentally informed evaluation of AI products. Also, how to do it rigorously and rapidly. I think a lot of evaluations right now focus really just on the product level to look at if the product is functioning as intended, if the product has serious risk and obvious risk.

But even though a product that functions perfectly fine does not guarantee that it would support positive child development, I really hope that we could shift the mindset to think about how we could run the evaluation from the child's perspective. Does the product really support children's learning?

What kind of interaction it displays, and w- does it support trust, relationship building, and curiosity and agency? And so this is where I think a strong industry researcher partnership could be really valuable, which is to develop this kind of procedure and share infrastructure. So for example, a shared benchmark data set that build from children's actual behaviors and responses so that developers could test early iterations of the product before they directly involve children.

And also thinking through what are some of the early development indicators that are important for all the developers to watch out for and to include them into their evaluation. And then the third thing is how we could sh- create a shared infrastructure that people can compare and share the ev- evaluation across products and studies so that the whole process becomes more transparent, comparable, and replicable.

GIBSON: Thank you. And Kathy, did you have any parting thoughts for parents or policymakers? Something that you would want them to do or do differently starting right away?

HIRSH-PASEK: Wow, my colleagues did such a good job. So, I, I guess I'm gonna make a real simple rubric for where I think we are now.

For social companions, red light. Just don't buy them until the stuff has been better tested. Human connection, relational IQ, too important to skip.

When we get to the learning products, could not agree with Ying more. I think we have to put developmental principles and science-informed opinion in, and I agree that we need the infrastructure to do that.

And I know all of us on this panel have been in the room at companies when they're developing the toys, and what they do is they dump the toy in front of the kid, or the product in front of the kid, and they go, "Oh, look at that. The kid really likes it." That is not a measure of a good toy. What we want is to see what the toy is intended to do and whether it does it.

So this evaluation and this including in the design process, the developmental principles, is really, really important. And also, I'll give that a yellow light, okay?

And last with a green light, I think we really should look to creating these closed systems and private systems where the information that's in there is gated. Because if it's gated, we can give reliable, trusted information. And I'm gonna call on all of you out there virtually and really in the room join together and let's make this closed system for caregivers, for teachers, for parents, so when they want to get trusted information, they can actually get it and not know that they're dealing with fringe, but they're dealing with real-life stuff from real people who've looked at it.

GIBSON: Thank you so much for that. I think we have time for one or two questions. If there's anyone in the room, I believe there's microphones at the table, and we'd be happy to hear from you.

AUDIENCE QUESTION: Okay, is this working? Yes. Thank you all so much for your leadership. I'm Ellen Roche. I study social contingency. I work at Trust for Learning. You have summarized beautifully the social contingency research and how it informs thinking about risks related to chatbots. Can you also speak to theory of mind as it relates to age?

HIRSH-PASEK: I guess that's me. They're all looking at me like I should say something. Okay. So first of all Ellen, you don't know this, but you saw that wonderful paper where Dana gave the data from Rachel Romeo. A lot of that's Ellen's data, so she looks at it too. So I just wanna elevate the woman in the room who asked the question, so thank you for your work.

Look, theory of mind is critical. We have to take other people's perspectives. If there's not an other people, then we don't take other people's perspectives, and it's not something that just comes when you're three and four years old. It's something that actually has to be practiced.

Like, little three-year-olds are really, really, really bad at taking anyone's per- perspective but their own.

But if they have enough practice, then by four-year-old, they actually get to be pretty good at this stuff. Well, not pretty good, but I'll say better at this stuff. So again, notice that if you want to really raise a human, then they have to be human raised, and it's that simple

GIBSON: I think we can do one more, yeah.

AUDIENCE QUESTION: Can I do? Okay. Okay. I'm David Lowenstein. I'm a former PBS Kids person now working with the University of Maryland Baltimore County. I'm wondering whether the idea of keeping children human raised invites us to think beyond the nuclear family to the broader relational ecosystem surrounding kids, extended family, neighbors, teachers, pediatricians, coaches, and other trusted adults.

We often look at lower income communities primarily through a deficit lens, but might some of these communities also possess an under-recognized asset in the AI era such as forms of relational capital, interdependence, extended family, and intergenerational connection, or informal caregiving and community interaction that sometimes more affluent, highly privatized nuclear family environments may, may sometimes lack?

And if so, how should we think about identifying, protecting, and strengthening those community level relational assets while ensuring that AI augments rather than displaces them?

RADESKY: Let me just give a quick response. Part of the answer is I shouldn't decide how those communities experience this. I should ask them.

And so I've been working with a group called Engage Detroit run by Bernita Bradley, who's an amazing community organizer mostly around social media and youth mental health because we were worried that it was their, their perspectives were not being taken into account with the, the big debates about school phone bans and you know, everything around social media and kids.

And so that's been great. And actually, in our first focus groups that informed a parent-to-parent toolkit that they are now piloting, where it is more parent conversations in churches, and barbershops, and community centers, and schools, rather than an expert from U of M coming in and telling them how to parent. And that's been great because they said it, it, it's a relief for parents to have a space to talk about this in a non-judgmental way, which is what AI is providing all those kids who like not being judged as they read a book or or talk about their feelings.

So, I, I think this is a great-- And I just met with them last week, and we were talking about where do we go with AI, and how do we continue this work so that their...One, one of the key things we identified in early focus groups was they see their relationships as their power. They have really strong values about how they wanna raise their kids. They're seeing influencers as kind of taking some of that away. And they-- We were talking about reorienting a lot of the family conversations around the, you know, what power they have around family relationships. So I think the same things will probably hold with AI.

GIBSON: Thank you so much to-- I think we're we're- Thank you so much to all three of you again for the conversation and for the questions. Really appreciate it.

PARLAKIAN: So I wanted to thank the first panel for an incredibly insightful discussion about early learning and how AI can support or detract from this extraordinary process of learning and discovery that children move through in the early years. We're going to transition to our second panel. I know on the schedule we had a break, but I've been told we have cut the break.

So, but we- we're all adults, so please take care of your needs bathroom or food and we will still be here when you get back just like we tell children. So, our next panel will take up the question of where the opportunities lie in terms of AI use with children and families. We'll touch on the complexities that exist in developing and scaling technology-based interventions, and how we might re-envision the process of design and innovation to be more inclusive of family voice, researchers, and other stakeholders.

So I'd love for panel two to join me on the stage, and I will go ahead and start the intros. Joining us, I'd like to welcome Andreana Castellanos, a social entrepreneur and technology leader who is the founder and CEO of AfiniData, an AI-powered program that acts as a virtual mentor supporting caregivers of young children with personalized evidence-based guidance delivered through accessible channels like WhatsApp and mobile applications.

Dr. Michael Levine has for over three decades led innovative programs and policy efforts at the intersection of early learning, K12 education, emerging technologies, and media. He founded and directed the Joan Ganz Cooney Center at Sesame Workshop and is a leader in the field of interactive media design, research, and policy.

And Dr. Allison Fine Mishkin is the head of child development at OpenAI, where she ensures that products reflect the science of how kids grow, learn, and thrive. Allison has worked with organizations such as the Joan Ganz Cooney Center, Lego, Nickelodeon, and UNICEF to design responsible and fun digital experiences. Most recently, she led Google's Kids and Families product policy team.

And our moderator, Laurie Segall, is the founder and CEO of Mostly Human, a media and entertainment network exploring the human implications of technology. She also hosts iHeart's video podcast, Mostly Human, featuring weekly conversations about the future. A former CNN senior technology correspondent and reporter for 60 Minutes, Laurie has spent more than a decade documenting the rise of technology companies that have reshaped our modern lives. Thank you, and please take it away

SEGALL: Yay. Thank you. Thanks. I'm also a mom of an 18-month-old, so I'm, I quite literally am mostly human at the moment. My husband and I speak to each other like, "We want more," you know? So, all this to say, this is so near and dear to me personally, and it's really cool to be in a group of people that aren't just tech bros, 'cause normally I speak in tech audiences. So Allison, you've probably kinda get that, right?

LEVINE: I'm not a tech bro.

SEGALL: Yeah. So thank you all for being here, and sorry we blew through the break, but we're gonna try to make it as engaging as humanly possible. So speaking of human, I'd love to... 'Cause we're gonna talk a lot about technology, I would love to ground this in humanity for a moment. If you, if all of our panelists could just quickly answer if you wanna extend a little bit more of your background, but through the lens of why this work is personal to you.

LEVINE: Sure. And as the tech bro on the panel, I'm gonna do a little experiment in humanity. You can't spell humanity without AI.

SEGALL: I love it.

LEVINE: So I did a little experiment and I fed my AI on my background. And I'm, this is the only time I'm gonna read. I'm trained in child development and public policy. My dad was a civil rights organizer, my mom, a child and family mental health expert. They set the bar high for me, especially around educational equity. I founded the Joan Ganz Cooney Center at Sesame Workshop because Joan Ganz Cooney, one of my mentors built her entire life on, on bridging opportunity gaps through the medium of the moment. She taught me that we can, and she actually did, we can reach every child, including the ones everyone else writes off.

But the reason I'm urgent about this is I've got more grandchildren than Kathy Hirsh-Pasek. I have five, one to five. And a sixth on the way. And my three-and-a-half-year-old, Henry, when he gets up in the morning, and we used to live with them- asks Alexa to play him music and to do all sorts of different things. And while it's cute and sweet and resonant, it worries the heck out of me.

SEGALL: Does he say please?

LEVINE: He does.

SEGALL: Okay, good.

LEVINE: And so knowing that we're talking about safety and relationships and public policy and scaling things that actually would put relationships at the center of human raised, I sit here as an advocate for equity and for the next generation. I'm very, very concerned about how these new tools will widen gaps of opportunity and really create what I hope is not a brave new world for the very young children who are represented in my grandchildren's generation. So there you go.

SEGALL: Thank you, Michael, and AI for that. Allison, I'm-- I assume you're the person at the dinner party everyone's like, "Well, what do I do?" or "Is this gonna save or ruin humanity?" So tell us a little bit more about you as leading the efforts.

MISHKIN: So I have an embarrassing tangent to go on before we get to the dinner party. Which is, so it's-- I'm 13, it's 2001 and- No, not right now. It was 2001. I was around 13, and I was obsessed with The Princess Diaries, like actively obsessed.

I befriended the author of the books and wound up working with her and her publishing company to make an online book club for, like, other nerdy girls who preferred reading to socializing. And in this process, I taught myself to code. I, like, made friends for the first time. I found this, like, wonderful community online.

And meanwhile, like, everyone at my school, 'cause it's 2001, and all of our teachers and all of my parents are like, "Watch out for the internet. It's gonna hurt you," like "stranger danger." All of which are very legitimate concerns. I don't wanna, like, downplay the risks. But I was really struck by this difference between my own lived experience online and the educational and social opportunities it provided in these kind of early social medias against this backdrop of fear, which was how I felt a lot of conversations around new technology were.

And so I basically, like they say, they joke that research is me-search, but it sort of is true that I then, I sort of designed my own major in undergrad focused on, like, okay, so what

needs to be true in the kid's life, and what needs to be true in the design of the technologies so that we can encourage more of this beneficial take-up of opportunities rather than just focus on this kind of like risk prevention, safety-oriented narrative.

And so that sort of has been my driving force throughout my career. But it's become, as Michael said, more personal. So I have a three-year-old or almost three-year-old at home, and another on the way. And your Alexa story, when my daughter was, like, one-and-a-half, two-ish, we unplugged our Google Home because I got really freaked out that every morning it goes, "Google, Mamma Mia."

LEVINE: It's a pretty good choice.

SEGALL: Andreana, how about you?

CASTELLANOS: Hi everybody. I'm Andreana and I'm originally from Guatemala. You might hear it from my accent that hasn't gone away. And I actually stop on AI by trying to solve a very human issue, which is access to education for low-, middle-income communities.

And it has been a long journey, but it started with a simple question to a girl in one of the communities in Guatemala, and I asked her, "What you wanna be when you grow up?" And she look at me like I was asking this out of space question and said, "Why you're asking me this? The only opportunity I will have will be to become a farmer." And that day really stood with me, thinking I wanna live in a world where children can dream about what they wanna be when they grow up, regardless of where, where they were born.

And now that I'm a mom, that has even increased my aspiration for creating this, where I'm also a mom of a two-year-old and a four-year-old girls. So, that's how I took into the AI world, by accident, I said, trying to solve a very human connection. And I actually started with the idea that I wanted to solve farming. That didn't work out. Then I tried to create a coding bootcamp because there was a lot of AI... not AI, but, like, coding opportunities in the job marketplace back then.

And it wasn't until I stood into this paper about, like, how humans are developed and I was just, like, fascinated. And I was like, "How can I not know this at 25 years old?" I was a Fulbright scholar when I discovered, and I was like, "Oh my God, this is it. Why no everybody's talking about 85% of the brain develops?" And simply by reminding parents how powerful they are, and simply by connecting, we could really transform life. So I was like, "This is what I wanna dedicate my life towards." And that's what I'm here now next to this very important people.

SEGALL: And I, and I'd love to, So we can kind of ground it in being specific. I mean, so many of us are circling, what does this actually look like with early childhood development? You're in the arena, right? So you're you've built out this AI-powered virtual assistant for parents that you know, that you have now years of experience on.

Can you walk us through specifically how it works? And then be really specific. Like, what are the design choices as you were building this that you decided to make, and what are the design choices that you decided not to make?

CASTELLANOS: Yeah. So I, I will tell you our story because I think- We, we started 2017. AI wasn't a thing. Chatbots were not... They were, but not a lot of people knew they existed. And I hosted 300 workshops in person. I watched parents knowing what I then see in, like, high income. Like, I was living in this tension of, like, I was an MBA Fulbrighter seeing, like,

you know, high income versus my communities down there. And I was like, "They're not that different." They all care about their children. They all have these meaningful human connections. So how can we, like, power them?

And then I started reading papers about, like, serve and return, and home visitations, and how effective they were o- outcomes. And we started with a radio program actually. That didn't work, so we we tried with, like, SMS. And years later, somebody told me... He was a tech bro from Russia, and he was like- "Have you heard about these, like, chatbot things?" And I was like, "No, what are they?" And he's like, "Here, I, I learn you, I teach you how to code one."

And I code one, and I posted in Facebook Groups like, "Hey here's something that can give you ideas and advice for your, for your children." Within two hours, I had 300 parents from Facebook Group- Wow ... like sending me pictures and like, you know, "Why my kid is biting at school. I'm going through a divorce." Honestly, it wasn't a chatbot because I wasn't that good at coding. But it was me in the backwards. And I was like, "Okay. Well, but we're up to something."

There is a need for these, like, spaces, you know?" So, I was lucky. So I wrote an application for, for UNICEF Innovation Fund, and I said, "Help me build this solution with design in mind." Mm. Because I was legitimately trying to... What I was trying to do, it was replicating home visitation programs, which are promoting these serve and return connections, and teaching the parent that they have the power.

And something I learned from those workshops was, like- I knew it, it could not be like a curriculum. It could not be like something I'm imposing. I love the chatbot idea, although we don't love chatbots for all. But I do love the chatbot idea because you can learn from the user. Yeah. So I borrow this design because of the learning component, and it wasn't very good, like I said.

But then later, we add this later layer of... We started to see, like, kids will report... W- we will ask the parents, "How did your kid did in this activity?" And some of them, even if they have the same age or in the same area, will report like, "Oh, this one did the activity amazing, and this one, no." So I was like, this pattern is very personalized.

And I thought, "How do Amazon or Netflix do this?" How do they know what the next product I'm gonna watch? So we gave the AI a very, very specific, talking about that, task, which was like, out of this enclosed system of content that we have generated in collaboration with researchers at Harvard, for example, what's the best next activity for this child?

And that's all what we do now. Hmm. We use AI for a very specific, which is like, we call ourselves the Netflix of, of, of early childhood. You know, like, the movie was created by experts or real human actors, but the AI chooses the next movie to watch. Hmm. So that-

SEGALL: Yeah. And I mean, fast-forward this product has reached over 300,000 families across countries.

You've worked with governments, researchers, organizations. So I, I imagine you're, you've seen a lot of success with it. What, what have been... What have you learned you know, especially regarding really giving care and access across borders?

CASTELLANOS: We learned that AI is the easy part.

SEGALL: In what sense?

CASTELLANOS: In many senses, you know. Like, when you really wanna do a good design that impacts people... And by the way, I'm gonna brag a little bit right now. But we are the only parenting AI program that has an RCT, it recently published in science which my husband is a professor and he's very jealous- Hmm

that I am published in science. Hi, Chris. And then but yeah, like we have learned that the AI is the easy piece when you use AI to solve an problem. We didn't got into AI because, "Oh, let's just use AI for the sake of using AI." The human imperfection complexities, the systems, the real problems, how now we integrate this to the public networks, how can we localize and collaborate with multiple communities?

Ooh, that has been really, really hard. And I actually have a video on o- our lessons, if we can play it, on how actually we have take good practices by accident in this AI thing. And so every time we call this time with local communities, we never go in a community and impose content. We introduce through networks meaning home visitors.

They learns from each child and recommends the best programs. So are very specific. And the most important- Mm-hmm ... the parent and the children connect through joyful and small moments that reminds them of their power We create real data to prioritize human follow because we don't think AI can do it all or should replace the programs that are already there.

And communities work and learn together. And in this video, I didn't wanna make it a be- a demo. I wanted to, like, emphasize how much AI can help us to connect opposite of what we are seeing nowadays, right?

SEGALL: Wonderful. You know, Michael and Allison, I, I'd love to get to, You know, this is a good example of how AI can be used in a way that helps children flourish.

I would love, before we dig into design, to talk about the incentives in the industry. What are the objectives and incentives that are actually driving the industry right now when it comes to AI and our children? And where do those incentives align with the experiences that, you know, a lot of the folks in this room know that this type of, this is what a child needs to, to flourish?

And I mean, this is not a new question. We asked this about social media, so apologies for being repetitive, but here we are again. Could these goals be in opposition? Like, put simply, is it possible to have a handful of multi-billion dollar companies moving quickly and optimizing for child growth and optimization?

LEVINE: I mean, let's just say- Let's just say that in the best case, you're in some creative tension. And it's not just, you know, the social media case is actually a very interesting one to unpack. But it goes back further. It goes back to kids television on Saturday morning being fueled by, you know, ads for sugary cereals, which were clearly not good for those children and actually introduced unhealthy behaviors in a way that was driven by attention and profit motive. When Joan Ganz Cooney founded Sesame Workshop, she wrote a plan three years before it started, which kind of, it was called the potential uses of, of, of, of television for preschool learning. And in 1966, she talked about television being a noisy affair and that what she observed you know, children sort of glued to advertising.

So the profit motive, the engagement, the intentional issues have always been in some sort of, you know, tension. And I think now you add the transformative nature of some of these,

you know, immersive technologies, and you've heard that from Dana and from Kathy and from Jenny today. It adds, you know, a powerful added dimension to the, to the stew. So I think the incentives still are a- attention, engagement, first mover, profit.

And what I think you're hearing from companies, you know, Andreana, and you'll hear from my colleague and former you know, Sesame ally Allison, Dr. Mishkin, is that we need to slow this down and we need to actually embed within companies like yours and companies like yours- real child development expertise, that it becomes part of the formula, just like Joan Ganz Cooney and Fred Rogers introduced to public television 50, 60 years ago, that maybe it takes a little longer.

Maybe we shouldn't be beta testing our kids with these new products, but we need both industry standards and regulations, I think, to check the profit and first mover. But I, I'd really love to hear from OpenAI about this.

SEGALL: Yeah. There was an audience question that, I, I've looked at all the audience questions before people had submitted.

So just to represent the audience, don't hate me for this one. But just- Here it's Isabella from Philadelphia Education Fund said, "For tech companies, especially OpenAI, there's a long reported track record of prioritizing profits over safety and security. What makes your company positioned to be a trustworthy leader in protecting the well-being of kids?"

That came from Isabella, but I'd love for you to expand. I mean, there is this tension. And what have you seen work behind the scenes? Like, take us behind the scenes at OpenAI. We're all in the room. We're in the meeting. What are you talking about?

MISHKIN: So you may call me naive here, but I actually fundamentally believe that it is possible to align industry incentives with parents' incentives and community's incentives.

Like, the amount of time I spend, despite knowing a lot or decent amount about kids, just like researching and picking and agonizing over every single thing for my toddler. Is there a way to actually align a corporate incentive with ultimately what is best for, for pa- for parents and for young people?

And I think that there is because we know that parents and kids have, like, humongous purchasing power. Like, I remember being a kid watching Saturday morning cartoons, and there were a lot of ads for cars, and I grew up in New York City, so we didn't have a car, but I wound up, like, nagging my parents like, "Oh, we should-- Do we need a car? That I hear Toyota's very safe."

And like it was w-- And it was a strategy, and may not have been aligned in my best incentives, but I think it shows that it is possible to come up with, and that if a technology company were to, say, actually build with young people's best interests at heart they would have an enormous, enormous place in the marketplace in building trust.

And I think that's one of the reasons why day-to-day at OpenAI, like, my days can look very varied. But, like, we're t- we're kind of tackling, like, three tiers of questions. Broadly, like what, what-- how should AI relate to... We, we focus on teenagers right now. We're not available to under 13. But how should AI help young people?

Like, what is our, like, theory of change? If, if we wanna believe that O- that AI can benefit all of humanity, kids are part of humanity. They are the future humanity. And so what is our

theory of change and the true value we wanna drive for teenagers? Those kind of, like, high-level questions. Then there's, like, a second tier of, okay, let's get into the minutiae of, like, what does the research say?

How do we make science-informed decisions? Like, there is a lot out there on, as I think we were chatting about earlier, how teenagers thrive and how can we use that science to inform the development of better products for teenagers, and how can we make sure that we're talking to the right people, including researchers, academics, policymakers, regulators, young people themselves is something that I think I-- we've-- has been sort of absent from today's conversation.

I'll often be in meetings and someone will say like, "What do you think a teen will think?" And I'll be like, "Well, let's ask a teen, 'cause the only thing I know about teens-" Mm-hmm ... is that I don't know what they're gonna say. And then finally, we can get really into the minutiae of like, where there's this feature or there's this aspect of the model of like, if we are concerned about X, Y, Z, like, what are the specific ways in which pedagogically we should be responding to questions about this?

So it goes from kind of these high level abstractions into this like very, very detail-oriented, where you're like rating aspects of like a question or a word to try to train the model to be better. And I think what-- and so that's kind of like the types of things that we're tackling. But I think the other thing that we've really has kind of carried through as a framework in my time at OpenAI is this question of, okay, you need to have safety by design, right?

Like, there's a lot of research out there on like what the risks are to young people, how to guard against them, like content policies from which a lot of it's actually based in kind of research on television and exposure to content. And you can kind of have this theory of like, we need to design for safety, which often means also like erring on the side of risk, where there is not research on, say, how might certain features influence kids.

But also you need to move beyond like guaranteeing safety by default into having a theory of change for how you actually wanna help teens thrive. It's not enough just to be like, "Well, we removed the harm, so they're gonna benefit," right? No, you need to look at like what is the specific way in which I want them to benefit, and what are the ways in which I'm gonna design for that purpose-built outcome, rather than just saying like, "Well, there are no risks that I can tell, so they'll be fine."

SEGALL: Right. Right.

LEVINE: I have a comment and a question.

SEGALL: Yeah, please.

LEVINE: So the comment is, you asked about incentives. Yeah. And the incentives are messed up, in my opinion. I mean, we live in a country that just defunded public broadcasting from the federal level, not that public broadcasting is defunded entirely.

They're, they're doing okay. We also live in a country where, you know, regulation has, you know, a dirty, you know, name, you know, in certain quarters. So I guess we gotta figure out how to align these incentives in kids' interests. And the question I have is, what kind of an-- And, and so Jenny's comment about, you know, two hundred million versus, you know, four million, Cocomelon versus PBS.

Yeah. It's because they have a ton of marketing money. And they also have a very, very good machine to, you know, help families connect in a way that they feel is comfortable and, and helpful for their children. I'm not diminishing the fact that there are real Cocomelon fans, although I don't understand it.

My question for these-- Like, what kind of incentives would... Like, you are trust and safety, and you are among three or four people who actually know something about child development and OpenAI. What are, what are the... And, and you've been at Google- Mm-hmm ... and you've been at, you know, Kony Center, and you are ex-extraordinarily trained, well-trained, and you have a startup, and I work a lot with, you know, gap closing, you know, startups that need new kinds of incentives.

What kind of incent... Sorry to take over.

SEGALL: No, please.

LEVINE: What, what kind of, what kind of incentives would actually work to- Yeah ... if we said to OpenAI when they were working with, you know, teens over the age of, you know, 13, like How would that work and what kind of incentives do you need to, to grow that are not the kind of like VC driven or mass market, you know, driven incentives that seem to live in the marketplace today?

SEGALL: Yeah. We're gonna, we're gonna just map it out so you can pitch it directly to Sam Altman after this. Yeah.

MISHKIN: Yeah. There we go. Okay, cool. I have him on speed dial. Yeah ... so I think two things. One, AI is not social media, and like I think what's really interesting to me about the chatbot model versus the social media model is like the chatbot is really most successful when it specifically gets you offline doing what you came to it for.

So I apologize to my daughter, this is live streamed. Luckily she's not watching. I recently potty trained her and it- She's watching. And I did ask ChatGPT to summarize like certain methods and like weigh the pros and cons to make the decision about potty training my daughter. Had ChatGPT said, "Oh, it's interesting you're going with that method. Why did you pick that method? How's it like... What, what, what about this other meth..." Like, and like kept me engaged talking about potty training, I would not have achieved my goal of making sure that my daughter knew how to use the potty before preschool started.

And instead, like we need to specifically, like as a company, make sure that our models are helping individuals live the goals they come to it to, because otherwise we will not be successful in the marketplace because we won't have helped people actually with their stated goal of like 9 in 10 teens on a weekly basis are actually using ChatGPT for learning, and if we don't help you learn, you're gonna at some point realize, "Well, I'm doing terribly in school. Let me go find someplace else to do this." So I do think it is possible to train a model specifically around what are the values we wanna see in society. I think secondly, we don't operate in a vacuum, and there's a question of how do you make sure that every industry player and everyone kind of aligns to the same frameworks?

And that's where I think shared fora like this and really thoughtful regulation is actually really critical. So we've been an active supporter of Common Sense Media's AI Safety Institute because I think we need to have greater transparency in the marketplace of like, I can say, "Hey, I think we did a good job getting me offline to potty train my daughter," but- Will you trust me or will you trust someone kind of saying, "We've audited all the models.

This is how it performs." Yeah. "This is where it, where it performs well, this is where it doesn't." Yeah. And so we've actually called for s- like regulation like this because I think we do need an environment to kind of level set the playing field and also make it... That's why I really like the benchmark proposal from earlier of how do we make this so you can also have new entrants to basically say like, "Hey, I can test before I release something to the market that this is good for young people."

SEGALL: Almost like a, a nutrition label of some sort for large language models. I mean, I am curious because so much of your-

LEVINE: Human raised. What? Human raised.

SEGALL: Yeah. Exactly. You know, so much of your work has, i- is focused on, you know, young folks and teenagers. Are there specific takeaways with older youth on design and safety that you think could be applied to application and products designed for younger children?

MISHKIN: So I think the first is that if you don't have research on what the outcome might be, you should err on the side of caution. Like, the risks are really high in this space when we're talking about child-facing products and you really should err on the side of caution. So for example, we have like our t-- we have a special teen-trained version of the model, which, like, there were some places where, like, it was pretty clear the line that we should draw on what is the appropriate amount of violence for a teen to see without risking kind of an increase in aggression.

And you can kind of look at the research, plot it, train the model, go on. There are other places where the research is just not out yet specifically around anthropomorphic cues and relationships. And so you can say, "Okay, we're gonna take this, like, big heavy-handed approach. We're just not gonna allow AI boyfriends, AI girlfriends, violent role play because the risks are too great."

And we also took an approach of kind of working with a number of academics to kind of say, "Okay, what are the cues that the model could give that might lead a teen to kind of over-reliance or emotional dependence?" Things like the model saying, "I love the taste of ice-- like a war-- ice cream cone on a warm summer's day."

That might make you think, "Oh, is this a chatbot or is this someone who also likes ice cream?" And so really kind of trying to prevent those cues. And in that act of identifying those cues and kind of prohibiting certain role-playing, what we're saying is, we don't have research to suggest that this is a good idea, so we're just not gonna do it because we know that teens are in this really important sociary-- socially vulnerable situation.

And I think we need to take that same approach both across industry and in designing, even more so in designing for young people, where the individual impact of any media interaction is gonna be that much higher of, like, if we don't have research that this is good, let's just be cautious. And then finally, we should be designing with development in mind.

Like, we can say, "Oh, we don't know how AI will change relationships," or, "Oh, we don't know the impact of, like, an anthropomorphic cue on a kid." But we do know what leads to kids thriving. Like, we do know that they need imaginative play. We do know that they need social support. We know, like, all of these things.

And so I think developers really need to be very clear about, like, how you are developing a product and the rationale behind your product to make sure that they're designing truly with young people's best interest in mind. And we can even, like, take some principles from other forms of media research.

Like, for example I really loved what we were talking about earlier with regards to kind of co-use and joint engagement. How w- could we design AI to bring communities together rather than further isolate even parents from each other? Like, I even thought when I was asking ChatGPT about potty training, like, would my mom have just asked her best friend?

And like, yes, there's sometimes a stigma in admitting to, like, a friend like, "Oh, I'm not the perfect parent," even though none of us are. But really be clear about how are we designing for the values that we have as a society and for what we've learned from previous media about what young people need to thrive in with their technology and with their media.

SEGALL: Mm. Andreana, I, I saw that you know, research comparing your chatbot to traditional home visiting found similar child development outcomes at roughly one fifteenth of the cost, which is pretty extraordinary. You know, and then there's this question, and a lot of folks have kind of circled this, of how do you make sure you enhance, not replace, the adult-child human connection?

I'd, I'd love for you to get into that, and also if you could be open about some of y- some of the tension you've had in building and scaling a, a company with these incentives with hu- children's human flourishing in mind and, and some of the lessons learned.

CASTELLANOS: Yeah, I think yeah, that, that, that, when you were asking that question about the incentives, like I think this is very personal and, and we cannot rely on the founder to be as intentional or as an incentive.

Yeah. Like, it's very personal and it goes back to what Dana was saying, like, maybe I was a little raised with empathy growing in poverty and with... But maybe another founder is, is not. So but for me, the incentive, to be honest, was to make something that work for my theory of change, which- Mm ... which was creating small monuments to remind parents how powerful we all are- Mm

and how similar we all are. So, we conducted this five-year-old r- research with five months old to... And we follow them to 2.5 years old. Couple universities in Switzerland and Harvard was also involved. And we study, like, the developmental outcomes compared to 36 in-person home visits. And just to me, honestly, when, when the results came out I was so nervous 'cause I was like, "What about if I build without wanting a product that is gonna harm instead of help?"

But my incentive was, before deploying this at scale, I wanna know it works out of pure curiosity, to be honest. Like- Mm ... out of, like, pure curiosity, I was like, "Does this work or does this doesn't work, right?" Mm-hmm. And, and then it was like, I didn't know how expensive RCTs are. They're very expensive.

And and I was like, "Okay. Well, somebody was very nice enough to give us these millions of dollars to conduct this. This is nice." And then it did work, and I was like, "Whoa." Like, it took my incentive to a new place which is now, like, can we put, can we put in hands of the families products like...I'm not saying I'm the only one, right? But, like, products that have gone through all these loops to test before.

So now I'm like, I had to learn mathematics for the whole AI thing, and now I have to learn public budgets because now I'm like, "Okay, how can governments help me a little bit?" But to the...It's tough. There's days that I'm like, I have to convince the mathematician and the developer.

You're probably in that position of like, let's have a theory of change, and let's talk to this academic on the other side of the world, and they're like, "They don't get me. Why should I build that? That's not the right way to code back end or whatever."

And then I have to, then I have to convince the parent to use me, which is another huge thing. Like- Parents sometimes are more intrigued, even in those community settings, they do play their YouTube thing and they are like, "Okay, I'm, I'm okay. I'm hands-off."

So I have to convince to spend time on my product rather than something else that is more engaging by default, and then to do the activity to play.

And then I have to convince the government, and then I have to convince the founders or the foundations to give me a little bit of money. So I think, some days I think like, "I don't wanna keep doing this."

SEGALL: But you are, and we're glad you are. Please keep going.

CASTELLANOS: But yeah, the incentives are- Yeah, are messy.

SEGALL: Totally.

CASTELLANOS: I think it's messy.

SEGALL: Totally. Michael something you said when we were on our pre-call I thought was so fascinating. You have real experience understanding the difference between how adults and children interact with certain products like Google. You actually did research on how children interacted with Google, how, compared to how adults did.

Can, can you take us back to what you learned and how we can take those learnings and apply that to, to AI?

LEVINE: Yeah, no, thanks for asking. So, a team at the Cooney Center, I think circa 2010, 2011, led by Lori Takuchi, who some of you know are now, is now at National Science Foundation, and Allison Druin conducted research in Maryland among 5 to 11-year-olds.

We wanted to understand the different ways in which young children would search. This was a time, you guys won't remember maybe, there were no dropdown menus. There was no way of correcting your, your, your vocabulary or your spelling. There was no voice-activated search. So we went into communities, you know, outside of Baltimore to talk to kids about this, and we realized that obviously the algorithm was based on adult mental model.

And, you know, when we began to give challenges to children to search for different things, we realized that they were just coming at it, not only in terms of their literacy, but in terms of their metacognitive skills. And so the top search results were, Find me a You- a YouTube video was number one.

So the YouTube searcher was the first power searcher. The second power searcher was, "I wanna play Pokémon Go," or this was actually pre-Minecraft, but something like Minecraft. And so when we talked to the children and we got a sense of where they were coming at it, we worked with the Google Search team, Dan Russell, and we began to kinda change the way.

And I think there's a very close parallel to what we're doing with prompting now. And, you know, Allison can comment on this. Obviously, you know, many of the many of the AI companies are only supposed to be reaching kids, you know, 13 and above because of, you know, federal law, CAPA. It's probably not true, and they try to do their best, I'm sure.

But we need to bake in a child's mental model who is going to be engaging with AI in some way. My, my grandson Henry, just about every morning, is asking for some music, and that bot is getting, you know, smarter and smarter. We notice the things that are being marketed to us are things that they're marketing to three-year-olds, to be frank.

So, so we need to kind of change the way in which we understand the, you know, the metacognitive and developmental skills of young children.

SEGALL: And you've said that we have to put a down payment on thriving. You know, I, I've been on so many panels and I see so many smart people who are in the audience who have research that could fundamentally change what happens behind closed doors.

And oftentimes, there's a bit of a des- a disconnect between what where the research is, where the regulation is and where the innovation is. So what does a down payment on thriving actually look like? How do we change this from we need to we are?

LEVINE: Yeah. I mean, there's so many developmental, you know, scientists and learning scientists here in the room.

I hesitate to say too much about this, but I was trained by Urie Bronfenbrenner and Roberta Kolinkoff and other people know about his ecological systems theory. And, and we heard from Dana earlier, it, it, it really is all about the relationship. Like, I'm a, a fan of politics, James Carville. It's the economy, stupid.

It really is the relationship, stupid. And if we center relational science and we have, you know, Isabelle Howe here, if you haven't read her, you know, book, "Born to Learn," you should. If we center these relational components of, That interaction between the caregiver and the child within the inner circle of the microsystem.

And then as the child grows older and moves out into the peer relationships. It's just a very important way of looking at design of technology, and I don't think that it's necessarily what's happening in most of these companies. These two experts are exceptional. They are not... You know, so we, we really do need to think about, you know, how to take the bank of interactions, these serve and return relationship building moments, and they are put into a bank literally in the child's.

The productive struggle, the thing that we heard from the panel a-around what AI can guide as sort of frictionless Friction three is a bug. It's not a feature.

SEGALL: Yeah. I, Oh, go ahead, Allison.

MISHKIN: I also think what's really interesting though about that, and I totally agree with taking the systems level approach, is we can't just look at like what is h- how-- like, why-- when we're trying to diagnose why might c- or why are young k- children or parents turning to AI for help for, with their young children, thinking instead like at the whole ecosystem also around the parent and around the community and around like to earlier when you were chatting about, "Oh, I would've asked someone on the soccer field."

Like, there's now a real stigma as a parent in admitting like, "Oh, this thing was hard," or, "Oh, I'm tired." And what are- Mm-hmm ... the, the burdens that we're placing on ourselves as a society- Yeah ... in an increasingly individualistic world, and what does that say about why individuals or parents or communities are turning to AI systems or turning to technology?

I think it's not enough to solve it at like a technological level or even looking at something like social media. There was really interesting research like two days ago that came out around how affect influences why teens are turning to social media or how they use it on a given day, and if they wake up kind of in a feeling worse, they might be more likely to passively scroll.

Mm-hmm. What that suggests is not just that we need to think about the design of passive scroll, but what do we need to be doing to uplift teens to make it so that they are not turning to their devices for that. Mm-hmm. And so I think with the thing that we're not having as part of this conversation is both how do we design responsible technology, and we can have that, but also what do we need to catalyze at the societal level, even getting back to things like paid family leave, et cetera- Yeah

to make sure that parents are set in a situation and we're raising our kids in a way that they can truly thrive, and not just saying technology fix the woes of the society that we've given parents.

SEGALL: It's so interesting. I, I interviewed the Hinge CEO yesterday. And one thing, for folks who don't know, Hinge is dating, love, swiping app.

Okay. In case. And one thing she said that they've been doing research behind the scenes and that a lot of-- they're learning so much that young people, Gen Z that makes me sound ancient, so young people, Gen Z, are looking at talking to chat, Chatty as they call it, like, because they don't wanna be a burden on their friends. Like, you know? And, and so you hear this beginning to emerge. As like a journalist, I just hear patterns and like, be the burden.

You know, the burden is what makes us human to some degree, but we're seeing that with these frictionless experiences or embarrassment or shame. I remember as a mother you know, talking to ChatGPT about breastfeeding. God help us. Like, and doing a deep research on, on formula when I stopped breastfeeding, which was-- Sorry, that's personal, yeah. But, you know, that's such a per- I say, "Sorry, that's personal," and then I talk about how I spent hours talking to ChatGPT about it. So that tells you, you know, from a parent perspective where kind of this is at.

I'd love to play a quick clip from an interview I did with Sam Altman, the CEO of OpenAI, where we talked about AI and children:

[CLIP PLAYS]

SEGALL: . . .being a parent in this era of AI. We're both raising young boys. And I think I said this to you before, like we're both raising young boys, but in a sense, you're raising my son, too. Like the technology that you build will be integrated into every facet of, of my son Charlie's life.

ALTMAN: I hope you don't let him use it yet.

SEGALL: I am absolutely not letting him use it. When are you letting your son use it?

ALTMAN: Great. Not for a while.

SEGALL: Do you have an idea?

ALTMAN: You know, people ask me all the time like, "Oh, now that you have a kid or gonna have more kids, like do, do you feel more responsibility about how you don't destroy the world with AI?"

SEGALL: Do you?

ALTMAN: No. Like my highest order bit is to not destroy the world with AI. Like, it doesn't matter how good everything else is if we do that. So I knew I was gonna have kids. I, and I knew that I thought a lot about what I would feel about the world my future kids would grow up in and, you know, that...I, I used to write my kid a letter every night. The lawyers eventually convinced me to stop, but it was a nice thing to do about just- ... 'cause I, when I would like put him to bed, I would just sort of, I'd get home late, like right before his bedtime, and I'd, you know, be rocking him, and you, you just need something to talk to your kid about.

So I would just tell him about my day and what was going on and, you know, I, I was like, obviously a five-month-old, four-month-old baby's not gonna understand these things. So I was like, you know what? I'll write them down. I'll give them to him later 'cause it was sort of an interesting time. But an interesting thing about writing those letters would be like, you can't really hide anything. Like, you will be the most honest version of yourself and the decisions you're making in the thing you write to your kid. So I really loved doing it. It was like my every Sunday night ritual, about like, here was the hard stuff that came this week, and here's why I decided and why, and, you know, here's what I'm worried about. But the like, the mindset of writing that to your kid to read in you know, 15 or 20 years, very interesting.

But no, on the like not destroy the world with AI, always very set on that. A thing that has changed hugely is how I feel about algorithmic feeds and iPads in small children's hands and stuff like that. And when I watch kids just a little bit older than mine, that you cannot take the iPad away from, watching this sort of like short, you know, watching like whatever they're watching that I feel very strongly about. So I don't know when I would let him talk to AI, but I'd rather be on the late end of what's reasonable there, not the early end.

Of course, I think it's like great and it'll, he'll grow up in a world where computers are smarter than him and do anything he wants, but you know, I want him to like play in the dirt for now.

[CLIP ENDS]

SEGALL: I'm curious for, for your response.

LEVINE: I mean, it's so poignant.

SEGALL: In what sense?

LEVINE: I mean, it's an authentic moment with someone who is creating, you know, a remarkable, you know, technology and who is reflecting on when that is going to be okay for their own child.

And then at the end of it, he mentions that, you know, AI is the greatest thing since sliced bread in terms of it, you know, will store the knowledge, you know, of the world and, you know, be something that his older child and your older children will want to, you know, take advantage of. And I just-- it makes me sad and worried and hopeful all at the same time.

And you know, my worry, which I said just before, is that we can't design AI to be frictionless. I mean, we can't use a frictionless technology in our personal lives because that's just not how children need to grow up. So that's what's so poignant to me about it, that this disruption of this immersive technology is the kind of thing that people need to talk about just much more authentically, as opposed to rely on a product to shape them and move them forward.

SEGALL: Go ahead.

MISHKIN: And I think what's really interesting, right, is you're seeing someone who's at the forefront of AI development saying like, "I-I don't know what age." Right? Yeah. Yeah. And I think that's where the people in this room are gonna be really critical at defining the standards and the research- Yeah

at when this becomes appropriate and how it should be designed, and what are the ways in which it really can enhance and support young people while still giving them place to play in the dirt. And it might be like I had ChatGPT go through my daughter's school calendar and upload everything I needed to know into my personal calendar so that I could then actually play with her.

Great example, then we can go play in the dirt or New York City, so playground. But this-- but still, I think that that's a really critical piece for everyone in this room. I, like you, am bullish on friction. I love friction. I think it's great. I think we need to do more of it in the design of these tools in thoughtful ways.

So we actually recently released a responsible homework reminder as part of ChatGPT for teens, which basically is like, it'd be one thing for the model to like you upload your homework and say like, "Hey, give me all the answers to a math prob-- to like my math assignment," to say no, which is like, fine, then we're not doing it.

But like you're not really learning that that's wrong. And I think what's really interesting is how can we also design AI tools to kind of like have those teachable moments to teach AI literacy, to teach AI ethics with like friction, saying, "No, I won't do that for you," or, "Would you rather..." And so we kind of pop up like, "Would, would you want me to actually teach this to you?"

And really like, how can we build systems that force teens to kind of reflect on their decisions rather than just making it for them? I actually heard recently from someone at TikTok that they had like there's like a journal program around like Uh, you kind of like write your in- so your, your intention for the day and for your use, and then they actually see very different use of the product- Mm-hmm

um, as a result of that intention setting before use. And I think that's another really interesting example of what are the ways in which we're not just gonna design friction, but design for intentionality both as a developer and also helping teens develop that intentionality and develop those skills for when they should turn to AI and for when they should not.

SEGALL: Yeah ... I know that we talk so much about what could go wrong. But it is really important. I love that slide, Dana, that you had of like where, what could happen if this goes right with AI, especially as we focus on early childhood. So if we could just turn the kaleidoscope just a bit I wanna ask, you know, each of you what happens if this goes right?

LEVINE: Yeah, I mean, there's no doubt that AI is powerful around personalized learning pathways. I've seen, you know, apps and companies that are, you know, teaching young children multiple languages. I've seen innovations that are helping very isolated children who don't have, you know, access, maybe they live r- rurally or maybe they have special divergent needs, get access to resources, advice and support that they wouldn't get, you know, without it.

And, you know, I, I do see companies and organizations, you know, trying to, to do the right thing. I think the only way in which we eventually get it right is to go slow on the zero to eights. I think that that advice about playing in the dirt is, you know, somewhat rich in terms of who it comes from, I will say, but still very interesting and helpful.

And I, and I think that we definitely, definitely need to incentivize this sort of development through policies and regulations and, you know, venture and philanthropic funding.

SEGALL: Yeah. I was about to say also putting capital and to- Absolutely ... and to and to organizations that want to create friction and move slow, which is, you know, that's not-- If you go to Silicon Valley and you, you know, and you have your PowerPoint, you say, "I wanna get it right and move slow and have friction," I think they're gonna shut the door.

I, I can tell you this from personal experience in knowing some of these folks.

LEVINE: Yeah. Just one thing on this. So Brookings, I think, has this proposal to incentivize more public benefit corporations- Mm ... in this area, and I would, you know, counsel that we take a really close look at that. I think there's also what industry can do, you know, between and among themselves while we wait for more regulatory, you know, rigor and more regulatory support.

There are many things that industry through, you know, good trade associations and well advised by many of the experts in this room could, could do a whole lot better on.

SEGALL: Yeah. Allison, what happens if it goes right?

MISHKIN: I think every single thing that Michael said, just like ditto, amen, all of those things around specific how do we personalize this for young people through learning reach, et cetera.

I think the, that if this goes well, we're gonna actually get more time human raising, right? Absolutely. Like that's, that's what this, that's what going, this going well means. And I think that, that what, what that requires is more collaboration amongst everyone in this room. We also recently at OpenAI announced a grant fund to try to fund more independent research

into this space, 'cause a lot of research on this does live inside companies, and we just need more data to inform the decision-making here.

And so I think I'm really bullish on this. I wouldn't be in this space if I didn't have some sense of optimism, even though essentially I'm the professional pessimist on staff at OpenAI. And so I'd like to see future collaboration amongst the multi-stakeholders in this room to ensure that not only are tech companies collaborating, where the tech companies are held to account and building responsible tools to help young people thrive.

SEGALL: Should we all join a WhatsApp channel before we leave? Yeah. Great. Everyone.

LEVINE: Well, I mean, on that, like consumer education is a hugely important thing. Yeah. Like how to discover the good stuff. I mean, in this room you have Sesame Workshop and you have PBS and you, you have- Mm-hmm ... you know, researchers who are working with companies like Disney.

So, I think it's extremely important that we get the consumer education- Yeah ... consumer development, Common Sense Media, you know, and so on. They're not as well known as they need to be, and so we need to- Mm ... you know, lift up that sort of work. I

CASTELLANOS: would- We also have time... Sorry. I will tell you to the question on I talk about how some days I don't wanna do this.

I wanna tell you what AI has give me, and going slow. What has give me is an enormous amount of pride of using AI for good, and nobody can take that away. No amount of speed, no amount of busy money can take that. I can look at my children and think, "God, I gave another family a momentful, meaningful moment that now I'm sharing with my kids."

And I think, like AI can give us that if we use it correctly.

SEGALL: You know, the, I guess the last question I have and then I wanna we're gonna have, like, time for one audience question, so please don't kill me. I'm so sorry. We talk about all of these narratives, the stuff you see behind the scenes, the stuff that you, you're talking about, your personal lived experience deserves to get out into the public.

And we have a problem right now because you have the decline of traditional media institutions and incentives that no longer align. You have the creator world where the loudest voices aren't necessarily the most credible. I literally get served up all this stuff that I'm like, "Is this real? Is this not?"

Like, should I, I don't know, be circling my child and jumping up and down to make them sleep? I don't know. That's what the mommy blogger says. You know, and so at a time when the gap between AI and education around A- A- AI is widening, we are experiencing a crisis of trust. How do we get the message out in a way that's entertaining, that's culture-making at a time when trust is fragmented?

LEVINE: Yeah. We need social contagion from influencers who get it. I work with Ms. Rachel, I've worked with Sesame, I've worked with, you know, Nickelodeon and Noggin. We need mass consumer education from folks who actually get the developmental and the learning science to be prioritized. It would be helpful if this also became an issue that was not just about risk and protection, that was about thriving and flourishing.

Mm. So I do think that the Facebook settlement and all the other social media settlements that are coming are, you know, well-earned in terms of the manipulation and the addictive-like behavior that they encourage. But I also think that there's a, a price that we're paying by saying that technology is an evil force in children's lives.

So we need somebody who comes forward or a group of people who come forward with what I would call a balanced approach to building artificial intelligence and other immersive technologies into daily life in a reasonable, thoughtful, developmental way.

SEGALL: Hmm. I can tell you from personal experience, we did a whole thing on four years ago, we said, "Deepfakes are gonna be a huge issue for kids, for teenagers." Everyone was like, "Deep-what are you talking about?" We're like, "For women." They were like, "Bye." Sorry.

And and, and I'll never forget, you know, we, we, there was the, the, a founder of a guy who ran a site that had 18 million people going where it was deepfake pornography, teaching young men how to do this to, to children, to classmates, you name it. And we thought, "Well, we gotta find the guy," right? "And we should do this as media." And it was so hard to get the funding to do that. But someone put in 25K, and we ended up going and tracking the guy. We turned it into a vertical TikTok series with Paris Hilton. It got 30 million views. People talking about AI.

And I don't say this to say, "Oh, great," but it's taking these conversations and turning them into culture in a way that, to your point, it wasn't easy. It was exhausting. Someone from Netflix said, "Porn doesn't do well on the platform." I'm like, "This isn't porn, bro." But, but so, so the stuff you hear behind the scenes, and the reality of it, I'm sure every single person on this, this panel faces that.

And I love technology. I'm so optimistic. What an extraordinary time to be here and to be doing the work everyone here is doing. So thank you all. I think we have time for one question. I'm so sorry. Maybe two? One? Okay. Her fault, not me. My fault.

LEVINE: We're between lunch.

SEGALL: Yeah. Okay. It's between us and lunch. Okay. Oh, gosh. Okay. How about over here?

Yes. Dress. Isabel. Pretty dress. Lovely. Oh, Isabel. Sorry.

AUDIENCE QUESTION: I loved both of your examples, Allison and the moderators point on breastfeeding advice and potty training advice on using AI. My, my question is, I see an opportunity for AI labs to partner with Zero to Three and other researchers on having recommendations that are actually research informed. So just maybe question for all of you on how do we do this?

MISHKIN: So I think it's, it's twofold. I think one is specifically thinking through, like, what are the co-design opportunities? Like, what are the practical product opportunities? Because again, as I earlier, like, it is in my company's I, I just fully believe, like, we just even saw the Meta law suit. Like it is in our company's best interest to build for these positive outcomes for young people.

So I think the two best ways for... and like we are always at OpenEye looking for more external voices to collaborate with because most of what I wind up saying is like, "I don't know. Let's go ask the expert." I can just help you figure out who that is.

And so I think what's really critical is both the creation of that research around, like, some of these topics are also just like, there's no best answer. Like, one of the hard things about parenting is like, it's like the, the answer to like how should I feed my kid or how should I potty train my kid is like, okay, what are you-- what, what is your life like? What is your kid like? What is this like?

And so I think there's this element where, yes, AI systems, because they're personalized, can be really good at like helping you figure out, okay, maybe, you know, for this situation, this makes the most sense. But also I think the, we need to make sure that there are more forums and spaces where we're like bringing in and holding that nuance, and that AI systems also hold that nuance in answers.

It's not like the AI system should say the Oh Crap Method is always the best method of potty training but instead these are the pros and cons of each, and making sure that we're developing systems to hold that nuance to help the parent also make that decision. 'Cause I think what's so hard to what you were saying earlier around some of this, like when you get a cultural moment, is like there's just a lot of judgment around parenting in every single specific way. And so how do we make parents not feel judged in, even in cases where like the research does suggest one outcome. But how do you inform parents in a way that's holding care and holding space so that they feel like you're genuinely able to help them?

And so I think what I'm really though excited about is like increasingly I think technology companies are realizing, like if you're building for this population, you really need to do it with the experts in the room. You really need to be talking to Professor Howe and the like and making sure that if you're making a parenting product, you're working with parenting experts. If you're making a product for teens, you're working with teen experts. Because we need to make sure that that voice is represented just to ensure that we're actually effectively able to live the value that we want our products to have. Like, we know what we know, and we know what we don't know.

CASTELLANOS: And I will add the communities. It's not only this... Like, we always co-design together with the communities, and we pre-vet the content. And it's not easy and it's not cheap, but breastfeeding is not the same here than it's in-- and even within one country, there can be multiple layers.

So the content has to be co-created. It cannot be coming from a-- The content cannot be coming generative. It has to be built within the communities. And I, we have had examples of, like, asking these questions, and we said, like, we have created our system dummy by design. Like, it's not gonna give you, like, a full answer. It's gonna be, like, a more straight answer, and then it's gonna say, like, "You wanna connect with someone in your community." So there is those opportunities to tap into.

LEVINE: I know we're over time, but I wanna propose as we get to the lunch break that we institute an incentive for what Isabelle just discussed. We need a two percent solution to R&D, both on the national level, if you think about the hundreds of billions of dollars that have been spent on the development of AI, but this should be around social impact, human impact. It's a human impact fund. And within companies like, you know, OpenAI we need to have something similar.

So if you think about the fact that you could actually have a goal that would relate to, you know, applying the research that we've been discussing at this conference, that would actually create the resources, you scramble for twenty-five thousand dollars, and you change the world a little bit. So look, we just defunded the federal PBS and CPB. Let's reinvent it in a different way for the AIH.

MISHKIN: And let's also think about how we measure it, right? Like, I think that, yes, we need to incentivize company, but measurement is key. It's where the AAP is doing--

LEVINE: Outcomes have to be part of it.

MISHKIN: --really important work on, like, helping tech companies measure wellbeing, not just have wellbeing as an afterthought. And, like, I think that's where, again, like, shared values, shared goals, shared incentives.

SEGALL: Great. Thank you. All right. Let's eat lunch. Thanks. Thank you, everyone