

>> Okay, that being said I'd like to welcome you again to our session this morning titled Literacy Data: What Stops Us from Addressing Reading Appropriately When We Know What to Do? Our presenters this morning are Dr. Reid Lyon and Miss Diane Lyon. Dr. Lyon retired from an academic career at Southern Methodist University where he served as a distinguished Professor of Education Policy and Leadership and as the associate dean of the Annette Caldwell Simmons School of Education and Human Development. He continued his role as a distinguished scholar in neuroscience and cognition at the University of Texas, Dallas Center for BrainHealth. Prior to his academic appointments at SMU and The Center for BrainHealth, Dr. Lyon served as a research psychologist and the chief of the Child Development and Behavior branch within the National Institute of Child Health and Human Development at the National Institutes of Health from 2001 to 2005. He was responsible for the direction, development, and management of research programs in developmental and cognitive neuroscience, developmental psychology, behavioral pediatrics, reading development and disabilities, learning disabilities, early childhood development, and school readiness. While at the National Institute of Health, Dr. Lyon worked closely with the White House, the U.S. Department of Education, and Congress on the development of evidence-based education policy. Dr. Lyon was named one of the 10 most influential people in American education during the last decade by the Editorial Projects and Education Research Center for his work in ensuring that scientific research occupies a central role in educational practices and policies. Dr. Lyon has authored, co-authored, and edited more than 130 peer-reviewed journal articles, books, and book chapters on developmental neuroscience, learning differences and disabilities, reading and reading difficulties, and educational policy. He currently serves as the Co-Editor in Chief of the Annals of Dyslexia.

Presenting with him this morning is Miss Diane Lyon. She's been a passionate and effective advocate for children, adolescents, and adults who struggle to learn to read, with a focus on understanding different learning strategies and approaches for the home and the classroom. In 1995, Miss Lyon founded the Parent Coalition for Literacy in Indiana and designed and implemented a state-wide advocacy initiative that brought together parents and leaders from the education, legislative, business, and medical community to build an understanding of educational access for all children in the state. Miss Lyon's passion for education compelled her to take her advocacy and management expertise to the U.S. Department of Education in Washington, D.C. where she served as a project manager for a research and evaluation division directing the development and implementation of data collection, analysis, and reporting platforms to ensure program effectiveness. And was also responsible for the management and coordination of complex higher education accreditation proposals. Miss Lyon is now Chief Operating Officer of Synergistic Education Solutions, an educational consulting company that you can access at www.ReidLyon.com. And she continues to provide workshops to share how she effectively implements research into practice in the classroom and home. She shares her story of her experiences with dyslexia, how she learned of her son's dyslexia 20-some years ago, and how he successfully navigated college and law school. It's my pleasure to present to you Miss Diane Lyon.

>> Thank you. This goes that way. We're sharing microphones. Oh, good. Thanks. I want to start out by letting everyone know Reid is not my brother, he's my husband. When she was saying "Miss Lyon, Miss Lyon" I felt like, "Oh, maybe they'll think he's my brother." But he's not. He's a wonderful husband. And I'm just so honored to be here. The other correction I want to make, we're kind of really in retirement, so I didn't take off the last few lines of both of our bios, but we come back out of retirement for Pennsylvania.

I'm going to say the reason for that is I was born and raised here. And my son was born here and started his educational career here. And so we really, really, really want to be a part of the solution. I know the culture here really well. I have my whole family here. So I have nieces and nephews here who are still struggling.

But I'm so proud of all of you. I mean, this is not easy. Fifty years ago I started school here. And it wasn't easy. But you haven't given up, and we're honored to be here to help.

I want to make sure I know who's in the room so that I can adjust what I have to say. So first all, the parents, could you raise your hands? Okay, good. Good, good, good. Thank you, thank you parents for coming. You have a very critical role. And if I can say that over and over again, never forget that. You are your child's greatest teacher. Teachers, could you raise your hands? Nice. Thank you. Thank you, thank you. Leaders, building leaders, district leaders? Good. Okay, good. We have a nice diverse group, and that just helps me adjust my thinking. I am dyslexic. I, you know, I'm ADHD, so you might pick up that I am all of that through my presentation.

So before I begin, I want to acknowledge Diane and Daphne. And then there are a whole 'nother group of parents that teamed up with Diane and Daphne from the beginning of the pilot program. And I do this because I'm a parent. I've always been a parent. I've worked through my career as a parent. I'm a parent advocate. So, you know, I just have the heart, a big heart, for parents. So Diane and Daphne, are you in the room? If you're not, it's okay. Can you raise your hand? Stand up? Okay. Okay, they're busy being parents somewhere. So I'm acknowledging them publically.

So I start out by saying I'm dyslexic. The child who needs to exert the most effort in learning to read has the most negative attitudes toward reading. With a direct approach, positive attitude, a lot of adult direction, it does not have to stay this way for struggling readers. For me, this PowerPoint says a lot. Because I'm dyslexic. And I'm going to tell you a lot about my childhood quickly. Because I want to leave a lot of time for Reid. But I'm -- Reid will talk to you about the brain part. I'm going to talk to you about the heart part. The vulnerability part. The shame part. The emotional part. It's real and you carry it if you're dyslexic and had pieces of my upbringing and pieces of my son's upbringing. And then I know a lot of other children and families. We carry this all of our life until -- meaning the shame, the embarrassment, the low self-esteem, the anxiety. So you -- I carried that into my reading experience. And I don't have the research behind it, but there is research out there that when you are in anxiety and you're afraid, you're not going to learn. Not at the level of fear and anxiety and low self-esteem that I carried. You're just not going to learn to read. So I flip it around to say with a direct approach, which I didn't have, which is fine because in those days 50 years ago, you know, they didn't know as much as they know today. So I had no direct approach. Very few opportunities in my world for positive attitudes from adults because -- and it's different for me today because it's -- time has passed. I was born into a lovely, dysfunctional family. I'm going to tell you right now. There were six of us. We had very little money. My -- both parents brought me one of my greatest gifts. Hardworking. Don't give up. They knew -- they didn't graduate from high school, they didn't go to college. Their focus was, "Are they home safe and are they fed?" We didn't have new clothes, new shoes. "Do they have shoes to get to school?" I am not presenting that to be a victim. I am not a victim, ask my husband.

So I say that because when a child like myself goes to school, and it's different today, the teachers -- if the teachers looked at me and gave me some type of positive enforcement or any kind of stroke or I don't know ... In my world it was, "Go out in the hall. You didn't do your homework." And I couldn't -- I

didn't have the language to say, "Let me explain to you what happens in my house." I just went out in the hall and I sat. So there were periods of time in my life that I was a victim. And then I turned into a bully. But I didn't learn to read until, you know, I met Reid and his research. So you'll see, you'll hear me trip over words. And that's okay because I'm way past -- you know, I'm humble, I don't care. I do this to help other people because if I can leave something on the earth before I leave the earth ... It's the vulnerability part, the shame part, the judgement part. And the teachers and parents can make the difference. I know that, I believe that. No one will convince me differently. If I don't believe that, I have no hope. So it doesn't have to stay that way.

So being positive to these children that really do struggle is really important. And I have to say, because I see my dear friend, sister, in the room. I can't even exaggerate the truth because she knows all my siblings. It was like a zoo in my house. She knows my parents. So ... and my husband's here so you're going to check with them. Is this for real? Was her life really like this? The good news is I had -- I'm going to first tell you a little bit of what I would do with a book, because that's all it meant to me. Put it on my head. You know, what am I going to do with a book? It was funny. I just kept being handed books and I -- for 12 years, "What am I supposed to do with this?" For 12 years. You know, I couldn't read it. But I did get A's. I don't know how I did that. I think it was just, "Give her an A and pass her on." Because 50 years ago, 40 years ago, what else do we do with me? I had some really good friends, girlfriends that helped me get through each class. My nieces, my sister -- yeah, my nieces and nephew are -- attended the same elementary, middle school, and high school that I attended. My son went to the same elementary school that I attended. Not a whole lot has changed. I'm trying to influence that by sending Reid to the school. By sending our PowerPoints. You know? A positive approach. And I will let them know what all of you are doing.

So developmental dyslexia. I'm not going to go deep into this at all because you've heard this over and over and over again. But if you ever have a question, feel free to call or email us and we'll answer it. We are available to you. Please don't be shy. I'm going to play this video because I believe it's my job to touch your heart. And this video does that for me.

>> And by the way,

I made it through the day

I watched the world outside

By the way,

I'm leaving out today

I just saw Halley's Comet

She waved

Said, "Why you always running in place?"

Even the man in the moon disappeared

Somewhere in the stratosphere

Tell my mother, tell my father

I've done the best I can

To make them realize

This is my life

I hope they understand

I'm not angry, I'm just saying

Sometimes goodbye is a second chance.

>> So I play that, and I want to say this because it's important. I feel like when I watch it, it really does touch my heart. And it is my story. And it's not to shame teachers or to make anybody feel bad. It's just to show the reality of what happens when a child goes through school and not able to read. And I can't get my PowerPoint back up. Can you -- can you help me with that?

That video clearly depicts every day of my life through high school. So it doesn't have to be that way. Now I'm going to go into, without my next slide, talking about ... So you heard enough about my life. Then what I did, and I'm just going to be honest with you, what I could do, was I graduated from high school and I got married and I got pregnant. And I had a great little girl that could read very early on. So I hid out. I was full of anxiety and shame, but if I got married and got pregnant, somebody could take care of me. I was home-free the rest of my life. Done. Didn't have to go to college, I didn't have to read, I didn't have to write. But as she got older, I had to write notes to the pre-school teacher because she was sick. Or I had to write notes -- you know, you can't get away from reading and writing. Just driving here we rented a car and I had to read the manual. And I had to say, "Reid?" you know, "I don't - I can't read this word." So, you know, reading shows up whether you want to hide away from it or not. But I navigated hiding out with my daughter.

But then I gave birth to a son. Very early on, whew, I saw the signs. He was not like my first child and he was not going to be a reader and I noticed it and it scared the heck out of me. Because how, as a parent, was I going to help him? And he was such a gift because he led me to say, "You've got to do something with your life." Just his example, what was I going to do? Hide out and let him go through school and not learn to read and be in the same place as myself? I mean, I remember at night thinking, "I have to get him help somehow before he shaves." I'm like, where did that come from? But it gave me a goal. That I had -- if he, like, at five years old I figured, "He'll be shaving in 10 years ... maybe ... that gives me 10 years to figure out, to build a team ..." So that when he shaves, he'll feel good about himself.

And I know this isn't the way I was raised, it was -- and I'm not proud of it, but it is what it is -- it's more important for a man to be able to read than a woman because a woman can get pregnant and have children. Now I don't believe that today, so you're going to hear a lot of my belief systems have changed because of my life has changed and I'm, you know, more educated and I'm more connected with people. I was so disconnected. I had no friends. Because I was ashamed. You know? I was going to have a lot of kids and raise them and hide out.

But Kyle, he spoke to me indirectly. Like, how could I let a child grow -- a young man grow up and not be a reader? But then I thought, "Well, maybe he'll be a reader. Who knows?" Maybe my anxiety or my fear is driving, making up a future that's not true. But it ended up being true. So I became an advocate

for other children so that Kyle -- we would create a network. And I know you've -- a lot of the parents have done that here. And so the teachers, the teachers are beginning to come out of the classroom and connect. The teachers and the parents are beginning to be more vulnerable and saying, you know, "I really don't know what this phonemic awareness stuff is. I can say it, I can define it, but what does it look like?" And teachers are beginning to connect and share with one another videos and websites and Reid's stuff and Marilyn's stuff and Margie's stuff. You know? And that, for me, is part of the solution. To start becoming vulnerable and connect and be honest with each other. And the children will end up being the winners here.

So through my journey, and it was scary but I wanted to make a difference. And didn't feel like I could because I didn't have a degree. And how can you make a difference if you can't read? You know? Only the people with degrees and real jobs can make a difference. But then I realized, "No, that's victimhood. I don't want to be in victimhood anymore. I want to be in adulthood and be a part of the solution." So, yeah, I became an advocate through the grace of God. And I developed a community coalition. My passion grew and grew because I saw once we left my elementary school -- Herbert Hoover, Bucks County, Pendo, Langhorne -- they said, "There's nothing wrong with him." I was like, "Really?" And that was hard for me because I'm not a reader. So I was like, "Wow." And then we moved to Indiana. So I -- my story is, "Yay, we're going to move to Indiana. Pennsylvania's the only state that has the problem." I really believed that. I mean, why not? If I'm not a reader, you know? I live in my own little bubble. We get to Indiana, same problem. So I thought, "Wow, if there's a problem in Pennsylvania with reading -- teaching reading -- and there's a problem in Indiana to teach struggling readers, maybe I can help." So I found on the soccer field, on the bleachers, other parents who were complaining. Complaining about their child not being taught to read. And I -- you know, again, we all have character assets and we all have character defects. My -- one of my greatest character assets is, you know, we can quack and complain or we can soar like the eagles. So I said to the other parents, "Let's just stop complaining and let's work together and be a part of the solution." So we did. We had a team -- this is a long time ago -- of moms that got together. And we were -- when we talked and we figured out how to bring people like Reid Lyon to the state of Indiana and Joe Torgerson and Marilyn Adams and ... you know, we brought so many people. And we invited them to go to the universities to speak. Because we understood that if we taught the university teachers how to teach, the teachers leaving the universities who run to the schools to teach students, maybe we would have a head start. It didn't really work that way. Because then we passed -- we wrote a bill, passed a law, and the teachers didn't want to listen to that at the university level. So we targeted different targets. We went to the Chamber of Commerce thinking that the Chamber of Commerce may listen to what we have to teach through Reid and other great leaders, and then they'll influence the schools and provide some funding, which they did. They provided funding for Pat Lindamood to come out, which she is deceased now, but wonderful lady who had a great influence on myself and the coalition.

So we did that. Why I went public was because of my own dyslexia. I felt like I had a responsibility to have people understand at the school and district and state level that if we want to impact the economic development and public health issue of Richmond, Indiana, then the adult dyslexics have to come to the forefront and say, like myself -- could I at that time fill out an application for a job? Absolutely not. Could I read the application? Absolutely not. So how am I supposed to get a job? Pre-marriage I cleaned homes. Made a lot of money doing it. Was I fulfilled? Did it turn me on? Absolutely not.

So, you know, those are important pieces because if we don't reach these children by high school or pre-school, the children that can learn to read in high school, the majority of them, are going to leave the state. They're going to go to college; they're going to leave the state. Some will come back with a degree and have an impact. But who's going to take care of the non-readers? Your tax money. They're going to end up in jail, they're going to end up being pregnant, and pregnant again, and pregnant again. So just to be able to have -- you know, in other presentations, I ask to raise your hand if you're a student because I want the high school students in this room. I want the middle school students in this room. They're part of the solution. They need to be talked to. You know? We're all a part of this. And that -- those little, you know, pieces of energy focused on that human being and that one brain is huge. And then they can begin to say, "I'm not getting this." I was too ashamed to tell anybody, "I'm not able to read this."

Now for my son that was a whole different story because in the beginning -- I'm going to share this because I'm hoping that people will pick up little pieces of their own personality. I thought the solution was I'd be a bully. Because that's all I knew how to be. My self-esteem was low. I've learned since through reading, thank God -- yes, I read now -- that if you're bullying, it's only because you're hurting inside. It's only because you don't understand what language you should be using to talk to whoever will help you solve the problem. So I learned that, "Oh, there's another way. I don't have to be a bully. I can make friends. I don't need to gossip. I don't need to judge. I can begin to be a part of the solution." And I learned that and it influenced my own children. So if we think, "If I stop bullying or I continue to bully or I continue to judge or I continue to gossip ..." These kids watch us. They're just going to grow up and be what we show them. But if we begin to work together and make friends and have some type of joy, and we see the difference that we're making because we're not being a victim, we're becoming -- you know, we're moving from victimhood to adulthood -- our children pick up every one of our actions.

This is a little tip that has really made a difference in my life. I encourage every one of you to tap into Brené Brown's study. Has anyone seen, heard, or watched, or read Brené Brown? One, two, three, four people. Five. Six. So you can pick most of her stuff up free on YouTube or TED Talks. She talks about shame and vulnerability. She has changed my life and she doesn't even know it. If you watch her and you map what she says unto you, that's great. If you don't want to do that because you can't right now, map it on to children. The shame is what paralyzed me to not even be able -- even if a master teacher came into my life and said, "I think I can help you," I would have vibrated in so much shame, I couldn't hear the adult trying to teach me. Now I don't know if that happened; I'm not going to say it didn't, but I bet it didn't. But if it did, I couldn't -- I was in so much shame I couldn't hear her. My head was down, my hair was in my face, my shoulders were down, and I was hungry. That's all I cared about. And I say that so that if you see somebody like that, you know, you might want to think maybe they're in shame from the year before or the year before or the year before. Or for going home, not being able to do their homework, and being punished at home for not doing their homework and getting an F from the teacher. And waking up the next day and going back to -- it's like, "Yo! What is --? This is crazy." Well, the good news is I held onto the memories and I was able to help my son lift his chin up. I promised him he'd become a reader, and he believed me. And he is a reader. He graduated from law school and he's doing well.

So this is just a quick slide about his life so that I'm hoping you read it and say, "Okay, well, you know, maybe she does know what she's talking about." I did go to the extreme. I didn't -- you know, I did contact the special ed people in the district. I did contact the state special ed director. But in the same

day I contacted this man Dr. Reid Lyon who was the leading scientist in brain neurology. And I said to him, "What do I need to do?" And he told me and I did it. "Call Pat Lindamood." You know, "Do this, do that." "You need a group of parents." I did everything that Reid told me to do and then I fell in love with him and married him, so ...

So these kinds of things drove me. I believed them. I'm very black and white. You tell me something, I'm going to listen today. I'm going to believe you. I reviewed the research on prison. It's not changed, it's gone up. They have great research around adult illiteracy. So it may -- this is an older slide, it may be the same but I believe it's gone up. They've done some interviewing on people in prison. They get some -- they get great education in prison now. They teach them to read and they further their education. But who's paying for that? Like, why not let's do it before they get to prison?

And yeah, we have to do it together. Teachers cannot do this alone. It's too big. It's too complex. Teachers need parents to help. And I'm going to get to that. I'm going to go over this briefly. This is how concrete we were. Kyle and I had a daily written plan. Mom -- dyslexic mom, dyslexic son. What are we going to do today around reading? You know, we had, What are we going to do today with sports? What are we going to do today with friends? We -- you know, I was smart enough, intuitive enough to know it couldn't be all about reading. We had to work with the heart, the mind, the joy. And reading. Every day. What is that plan? We turned it into a monthly plan. We measured it, How did we do this month? I encourage parents to do this. You know? Think about it. We have how many hours in the day? How many hours do we sit in front of the TV? Take a few hours away from the TV. Take a few hours away from the internet. Sit down and figure out what's important. And if reading's not important, than don't do it. But if reading is important ... It takes about 10 years, so do it every day for 10 years. Create a plan. A monthly, written, yearly plan. Did we meet --? What do you do with a budget? What does a good business do? Did we meet our goals?

We had his dreams involved in the plan. We always had it in writing. Maybe a dry eraser board. It influenced my daughter. I believed after the journey years, and I said this earlier, that it's so critical to let the child know. You know? They can think differently when you tell them what all of us, what are we trying to do here, you know? It's about them. It's about their brains. The teachers used to resist special ed at -- yeah, this was Richmond, Indiana. I'm in Pennsylvania. They resisted having him come to his case conference committee meetings. I had him at every single one. Now he didn't have to stay the whole time. But I said, "Kyle, this is about you. We're all spending hours here talking about what we're going to do. We're going to update you, and then you're going to go back to class. And then when I'm done with the experts, we're going to summarize your IEP so that you can language it." And I swear that's why he's a lawyer, you know? He was this big and we -- you know, and he had to -- and I summarized it. And then he would go to his teacher and introduce himself. You know? "I'm dyslexic. This is -- I have the long version or the short version." Because if he didn't do it, teachers didn't have time to read his IEP. I don't blame them; they're busy. But he had a voice. And I think that's critical for people to teach their child. He wasn't a bully. He was a businessman early on. These are the facts. "I'm dyslexic, I struggle with reading, my IEP says I need these things. I may need some sometimes, I may need all sometimes. I'm not sure. Will you work with me? Will you allow me ...?" So he learned very early on how to articulate his needs and take care of himself. I mean, the ultimate goal is what? Independence. Do we want to raise our children and continue to raise them until they're 20, 30, 40? No. Independence. If you said to me, "What was your goal with Kyle?" I wouldn't have said reading. That was not the primary goal. The primary goal was self-esteem, independence. How was he going to

get there? Reading. You know? You can't get there if you can't -- you know, unless you know differently. I mean, reading really impacts your self-identity and your self-esteem and your ability to go into a job interview or start a business. I mean, it's the -- it's everything to me.

So the students have a responsibility, the parents have a responsibility, and the teachers have a responsibility. And, you know, when I worked in the private business domain with business people, I always said to them, and Reid can back me up, "We've got to bring the parents into this." Because of the impact that they have. And the business community was like, "No, no, no, no, we can do this." You know, so I am true through and through that parents are certainly part of the solution. And I'm going to get to how they can be. I'm going to check my time too. So it really, really was important if Kyle was going to be a success. And I'd worked with other students.

Technology, you know, to me it's a no-brainer. We have technology and why not, you know? Why not use that early on? Until this day he uses spellcheck. Until this day I use spellcheck. Reid uses spellcheck. You ... So why? I mean, he was taught to spell; he's got the tools. But why not build his self-esteem and his empowerment with a laptop? So he was able to use laptops and software. It got him through IU. It got him through law school. If he did not have the Dragon Dictate and the books loaded on his laptop, he would not have graduated from college. He would not have graduated from law school. So having this -- these pieces in place in middle and high school helped him transition into college. And he was not a college-track kid. I was told that over and over again.

I think it's important that we, as parents and teachers, follow our student data. Have the student know their data. Maybe not as deep and wide as we do, but let them know that numbers -- speed, numbers, comprehension, we're measuring it and you're doing great. "You went up one point. That's great! Great job!" But if we don't do that, you know. What I heard was, "Well, he's cute." That's what I heard a lot. "He's so cute. And he's so social." How's that going to get him to independence and into college?

Research. Read it, know it, and then share it. I believe we should be sharing all of our information.

I say this for myself because I'm sharing my story, but I'm hoping that I share it appropriately. Keep a check on my ego. You know? I was so out of control that I didn't even know what an ego was. And I was a bully. So I say, you know, don't forget about balance. Don't forget -- I had to -- the hard way, I had to -- remember, I had another child who wasn't dyslexic. I had to remember I have a husband. I have to remember I have a life. What am I doing to bring joy into my life? If I didn't learn that, I would have burned out. And I would have done some damage.

And balance with teachers and leadership. Thanking them. You know, we're all so human. If we're in pain, I'm sure others are too. And we have to -- I believe that's all my -- you know, the ego piece.

Be a student myself. Whereas I thought I knew it all. And I don't, of course. And that was humbling to realize that -- I'm going to be honest with you -- early on, you know, teachers were not my friends. And now they are. And they know a lot. They know a lot.

Teamwork. Get along with others.

Be the mother and father that you need to be. I was not always. I took it too far a lot of times. And that's not good because that's not good modeling. So I listed that.

Have fun. You can have fun with even the coalition people. I did, eventually. It was great. They're still my friends today, and it's 20 -- over 25 years.

These are just what I learned. Don't take anything personally. I learned that. And reread and reread "The Four Agreements" if you're interested in reading a good book about how to get through hard times.

It's more fun to be friends than enemies. That's the truth. I mean, really, when I thought about it, this is my life. So I might as well really -- I can make -- I can do it -- make it hard and difficult for myself and everyone else, or I could make it joyful.

I want to get to what I did in the home to create ... If you guys can read this ... This is how I created a team. You don't need to know this; this is legislation.

This is a book that I recommend because it has chapters of individual stories from parents, teachers, superintendents, researchers. So that you get to hear their inside story.

This is -- this helped me tremendously. Reid had really influenced me on this. Why has our nation not met our reading goals? The sheer magnitude of the reading crisis in America. It's huge. That's why we need to grow our teams and realize that that little person waking up in the morning needs a parent who will then influence their drive to become readers. And then off to school they go, and the teachers do the same. And it's a positive, almost vicious cycle.

The sheer complexity of reading development and reading difficulty. It's huge. And the impact is huge. And it touches our economic development, spirituality, health, education. The complexity in effective classroom-building implementation. Huge. I don't know how the teachers and leadership do it, and that's why we're here.

Reid's going to talk about that.

I want to get back to ... No, I'm not going to do that.

These are all websites on the handout that are my favorite. My very -- if you asked me what's the number one place to go if you're at home trying to visualize -- I'm a visual learner -- what phonemic awareness looks like while you're teaching it. Because I'm a visual learner. Don't give me a book and have me read phonemic awareness. It will not help me. But if I find a video of a teacher teaching students, then I get it. I get it. I'm not stupid.

Reading Rockets has tons of videos. It's free, it's federally-funded, you can -- they have a search engine. You can say, "Need more time in classroom." They'll give you, instantly, a ton of information on how to create more time in the classroom. They'll create -- they have videos that show how to teach reading. They have huge archives for parent videos. They have it in dual languages. So if parents are -- their first language is Spanish and you're a teacher or -- parent, a teacher, or a building leader and you have many Hispanic families coming in, introduce them to Reading Rockets. They have two platforms. One for the Hispanic community and one for, you know, for the English community. And for me, the seeing everything in action, I go to another level of understanding. It took me forever to even read phonemic awareness, say it, because it's so [MUMBLES]. Now I can say it and I can show it to you on Reading Rockets. And I really thought I had it after years, but boy when I began to watch master teachers working with students, I completely had an epiphany. "So that's what phonemic awareness is. Oh, so

that's how you teach comprehension?" I have to see it. So I'm assuming that it may help people that we talk to. Reading Rockets is great.

This is another federally-funded project that you can get it free online. It's a beautifully-written tier program. And it's -- it allows -- it allowed for me to understand how to assist struggling reader's response to intervention. So that we're catching them before they're high-schoolers. Not good. But it's free. It's good. It's research-based.

Literate Nation is a great website for national pieces, which we're not going to go there right now because I want to save time for Reid.

The last piece that I want to talk about is, So what do we do at -- what could we do at home? Reid's going to talk about how important it is that we reach the goal of comprehension. And then there are all these other little important pieces to get us to help the child get to comprehension. And so what do we do at home? How can we impact our children? This is what I did with Kyle.

As a dyslexic parent, I sat and I thought. I looked at what he loved. He loved movies, he loved TV. We had to monitor the TV or he would have sat in front of the TV all day long and all night long. So that was his reward. If we do this, you get -- "If you do this for an hour, you get an hour of TV." That's it. So we created this nice balance. We looked at the reading -- required reading for that year at Garrison Elementary. Once they gave me the list of required reading, or the summer reading, I looked to see if I could find those books in a local play. So, "Snow White and the Seven Dwarves" or, you know, any match. A movie, a DVD, a library ... So I was always supporting the school. I looked at the curriculum and what they were going to do in English and in, you know, vocabulary. And I tried to map what movies -- and then if there was a movie out, "The Hobbit," then we would get the book and we would read the book to him, and reinforce it with the movie. So I always tried to intertwine throughout the year so that he could begin to hear the language. And then I would learn and use the language.

I had him publish his own books. It was so empowering for him. You know? It was kind of a trick, but it worked. You know? I gave him a camera, he took pictures, he captioned the title. And I said, "Can we turn this into a story? We'll make this a story book." So he became a publisher. You know? And that empowered him. Then he got to think through, "Well, if this is a book and I'm in school and there are books, there are people making these books ..." So it kind of gave him an abstract understanding of why it's important to read.

We used a lot of vocabulary cards that we made in the car so that he was always being reinforced the vocabulary in the car. I mean, think about how much time we do spend in the car. And those cards just stayed in the car. They were "Car Cards." You know?

We had groups of friends that would come over that needed to learn the same material, just differently. And so it became a social event.

I'm trying to think, because I think this is so important. Before I end, I want to give anyone an opportunity to ask any questions. I'm going to pass it off to Reid. No questions? Please, if you're shy and you have thoughts later, please call, email. And thank you very much for your attention.

>> This is why it's good to have your wife.

>> Okay. Okay. It starts moving ... Oh, it's kind of ... it's, like, sliding. Okay. Test.

>> Thank you. Test. Well, hi, everybody.

>> This one.

>> Oh, okay. Good. Good.

What's great is having your wife come up and talk before you is that she actually believes all this stuff about me. Oh, man it's pretty cool. Thanks, Diane. I mean, one of the reasons why we structured this presentation like that was because as a researcher all my life, I sometimes lost sight of who we were working for. You know? We're working for obviously the kids. That sounds modeling, but you know, that is the reason why we go to work. So thank you for your courage, Diane, and for all you've done for kids. I don't know about you all, but let me ask again. How many teachers? Okay. And how many parents? Okay. And how many administrators? Okay. And how many speech/language folks? How many psychologists? Okay. Who have I left out? Okay. So we have a varied audience.

And, you know what I'd like to try to make sense of is how this particular initiative in Pennsylvania can be a little bit different from many, many initiatives of similar ilk that have been put in place. I've been at this a long time. And I have watched us try and try and try to put evidence-based education in complex environments, like schools. And I have seen all of the practical kinds of impediments to making sure that works. You know? To -- we have a lot of people who do really well in schools and classrooms, and then they may leave for a different job. And we see the project start to have difficulty. We may have changes in leadership, where even if a program has been effective, that change in leadership nullifies what had been in place, with respect to the discipline of putting a new program in place. So you all, I don't have to tell you any of this. There are teachers and administrators and other school personnel here, and parents, that know that what I'm going to be talking about is extraordinarily complex. That doesn't make it impossible, but it is very, very complex. And there's some things we need to be aware of if you're in the Pilot Projects. Actually, how many of you are involved in the Pilot Projects? Okay. Great. So we need to be aware of some issues that can get us into trouble, and then could come back and bite us if we don't think about them now.

The Pilot Projects are a stellar piece of work. It's amazing to me how Pennsylvania has constantly led the way in these kinds of initiatives. It's amazing to me that you have legislation that's been passed. I don't know whose arm you broke, but that's pretty rare. It's amazing to me the talent that has been brought together to try to make this Pilot Project work. And those of you who had been in the throes of it for a while, when I say it's complex, it's hard work, it's very tiring, it's frustrating -- you know exactly what I mean. Can it work? Yeah. But again, there are certain conditions that have to be in place in order for you to actually be as good as you can be. That's an army thing, isn't it? And to make sure the kids actually do respond and maintain any kind of reading gains we can garner.

So you're going to see a bunch of slides come up. How many of you all saw Tim Odegard yesterday? Okay. I'm not going to repeat a lot of what Tim said. He did a great, great job. So I'll be going through slides. If I don't like them, they're on your handouts. And I don't want to, you know, just flip through these things.

So here are some disclosures. The reason the top one is up there is that I'm trying to sell a book. Not really. It's a book that summarizes a lot of the research we've done over the years. As it was indicated to you, I used to be up in NIH. I'm not aligning with any state standards in terms of what I'm saying. I'm

a neuroscientist and that's where I like to keep my eggs. I'm the father of three grown children. You see the question mark. I'm a grandfather and I'm retired. So it's rare that I stick my head out in public anymore, but as Diane says, we have a passion for Pennsylvania. You have all kinds of wonderful people we've worked with. I've seen Gina Colarossi back there. Did I pronounce that right? She used to direct programs in Scranton. Fran is amazing to work with. The parents have been amazing to work with. So it's delightful to actually come to a state where we feel at home and we feel the competence is very, very strong.

So let's take a look at Pennsylvania for a minute. As of 2013, these are the kids in your schools. So you can see it yourself. The one -- the second one down is one I want you to pay very close attention to, the percent in Title 1 schools, or free and reduced lunch youngsters. Sixteen-point-six percent on IEPs. You know, if you look at your special education data, and you do that pie chart, what might blow people away is that about 43-44% of kids in special education are LD. Have been identified as LD. I actually don't think that there are that many individuals with LD. It's -- you know, it's because of some of the definitions we use that identify kids. But LD could become like kudzu. You know? You plant it one day and it eats your barn the next. So we've, you know, the point being that that number has to come down. Because of the 42% of kids in special education, 80% of those have reading problems. So you're looking at the massive epidemic.

Here's your racial background. This is always important for us to keep in mind. I'll explain why.

Now here's the tough part. And I'm going to try to explain why these lousy tests called NAEP, high-stakes tests, you know, nationally-comparative tests, are critical in so many ways. My -- you'll notice I put this together I think when I was in my retirement and kind of sleepy, so the bars kind of get weird. But if you look at the number of kids reading below -- at or below basic in the 4th Grade in Pennsylvania. About 31% of kids read at or below basic. Hispanic kids, 82% read at or below basic. Eighty-three percent African-American below basic. I want you to notice low income. How that correlates with ethnicity, right? It's not race -- or ethnicity, I'm sorry -- that has anything to do with reading failure. It's poverty. And I'll explain what that means. And the reason for those hard -- working hard in the Pilot schools -- I talked to David Bracey, who's your methodologist, and quite a few of your schools have a percentage of youngsters that come from low-income homes. And I want you to keep that in mind for a little while. And then we have 97% ELL. So this not a pretty picture.

Unfortunately it hasn't changed over the years. And for the people working in the Pilot, I bring this up because we have to, in a sense, anticipate how that Pilot can be harmed by not paying attention to this. When you work with policy-makers that are funding this project, they don't care about the weeds. They want to see if lines are going up. They want to see how many people have been affected. They want to see that what they supported in legislation actually is doing well. How they define doing well in K-3 are typically on the individual school and district data that you will be showing them as a function of your Pilot Project. You're collecting a lot of data. David is analyzing that data. He's a very, very talented methodologist, among other things, and he knows the complexity of how you have to ultimately understand what are the conditions under which a particular reading program had the maximum benefit with which kids, with which children, and within which setting? Income-wise, for example. So if that sounded like a mouthful, that's basically what methodologists have to pay attention to.

Now, in the Pilot, we can have scores going up on a year-by-year basis or on a temporary period by basis. Every three months, every six months, and so forth and so on. Legislators will be thrilled. But

ultimately, everything rides in the policy world on things like the NAEP or things like your state test. Why? Because people that run our schools and run our states are always in a position where their state or their school district is compared to someone else. So what do you think gets the attention? You know? We used to call it the 4th Grade Slump. Margie Gillis reminded me we used to call it that. Where the kids are really doing fairly well, responding to good instruction, good scientifically-based instruction. They come up to the 4th Grade, take the NAEP and, you know, reading scores go down the tube. Everybody is aware of that right? So that has a couple of lessons to it. It just means that, Are these bad tests? I mean, you'll see the 8th Grade the same way. Literally identical in terms of the percent at or below basic. We have to make sure in this Pilot, and in your classrooms and schools if you're not enrolled in this Pilot, that this can't be the way that it is. Now there's some good common sense reasons why we don't want to see so many kids behind, at the basic level or below. That basically means you can't read a simple children's book. I mean, Jesus. Jeez. Where's my wife? Yes. Okay. You wouldn't believe how I've cleaned up my act.

Where was I? Okay. So these tests that are usually thrown in our faces when people are looking at education actually have some pretty good merit to them, in the sense that they measure what kids actually are expected to do literacy-wise in both school and in the world. You know? They're language tests. You've got to pull print of a page, but they're language tests. And reading is language. And reading is a gateway to look at language outside to bring it inside and compare the two, and so forth. Reading is not sounding out words. Reading is not knowing whether "bat" and "cat" start with the same phone. Those are all fundamental, absolutely essential, foundational, basic word-level reading skills. But that is not really reading. That's not going to get you a job. Unless you can do this. So those of you in the Pilot, here's what you're going to hear. "It's crazy." "It won't work." "It's a waste of my time." Then if you start to do pretty well: "It's possible, but it's not worth doing." And then finally, "I've always said it was a good idea; I'm glad I thought of it." So just -- this is what I was saying. I just want to put this up because sometimes we may get lost in the shuffle and look at reading as the development of basic foundational reading skills. But it's actually this higher level stuff. You know? When you all read, you don't pay any attention, usually if you're good readers, to the grunt work down below, right? You don't think about, "Oh, I know this phoneme," or, "This is how you blend that word," or, "This is how you sound out this and this and this ..." You don't think about that, right? As you're reading you're predicting what's coming ahead. If it's an interesting book, as you're reading, you're comparing what you're reading to your own life story. If you're reading, you're taking information to do well on a test or something. And our reading, if we're proficient readers, is not cemented down at the basic level. But you can't do all of these things unless you have outstanding basic word-level skills. And as you heard Tim point out yesterday, you've got to pull the print off the page.

So everyone -- when I first started this work in 1978 -- well, actually 1976 -- I don't know what I was thinking about, but I had these four questions, because I had been a 3rd grade classroom teacher, and it was in a low-income school. And I'd say about 30% of my kids could not read. And this is in 3rd grade. And I was such a bad teacher that by the end of the year 40% couldn't read. But I -- you know, being naïve, I didn't understand that. I had learned to read fairly easily. So, you know, it was hard for me to relate to these kids that were, you know, barking at the print and struggling and so forth. But I felt like a failure. And rightfully so. I didn't know what I was doing. I was afraid to ask questions, just like any rookie teacher maybe still is today. So I started to think in my head, "How do kids learn to read?" I mean, what in the world? What goes into it? It came, you know, somewhat fast for me. But how do

kids learn to read? What are the skills and the abilities and the environments and the genetics and the brain stuff that allows someone to actually read proficiently? What goes into it? I had no idea. And I felt if we figured that out, you know, what can you do about it? You know, why do some of these kids have difficulties? Which of those skills and abilities and environments and so forth are out of whack? You know? If we know that, then can we prevent it? That is, can we look at reading difficulties in the 3rd grade specifically, like if they have very poor fluency, and we can look at the measures that we've used to identify poor fluency and we back those up, can we predict who's going to be a lousy reader in kindergarten or 1st grade? And then since we don't do that well sometimes, How do you remediate youngster who really struggle at pulling print off a page and many more not able to understand what they're reading, even if they are pretty fast readers?

So most schools, if you may have seen, will say they're using evidence-based programs. I mean, research-based is ubiquitous, isn't it? How do we know something is research-based? Well, there's a lot of technical language that goes along with that, but what the main thing is, is that we can replicate what we're finding. So let's say somebody wants to answer the first question. How does reading develop? How does it come about? What goes into it? Well, the NICHD network that I put together years and years ago, as you can see, had many sites across the country. And let's say Ken Pugh and his group at Haskins were working on the impact of phonological processing on reading speed. Then that particular study was being done elsewhere so we could replicate the findings. If we can't replicate what we're finding in one of the sites, then we don't have much. Right? We've got to repeat it before we can actually say, "What does it take to read?" "It takes A, B, C, D, and E," as I'll show you in a minute.

So being evidence-based requires, again, that you have replication. And that you're also trying to figure out what works. Now, figuring out what works, and this is what David is going to have to deal with, is let's say that in some of the Pilot programs there's a particular intervention at play. And in another Pilot school there's a different intervention at play. Let's say we compare those head-to-head, and at the end of the year School A does much better than School B. And everybody gets all, really, either happy or very sad about those particular outcomes. But that really doesn't help us much because we don't know what was going on in either of the schools that may influence that outcome. So if we want to say, "Does A cause B in District #1 -- Pilot District #1 or Pilot School #1 -- if A causes B, if my intervention is bringing about these changes, what comes between A and B that influences the outcome?" And what comes between what we do and the outcomes are called confounds. It could be that in School A that did better had kids whose parents read to them more. It could be that in School A versus School B we had kids who were in pre-school programs to a greater extent than in School ... You see what I'm saying? So there's all these messy factors that can tell us School A does better than School B, but there's all other kinds of factors that can explain that rather than the intervention. Now that's all drilling down in the weeds, but that's what David has to do. I'm not putting pressure on David. But, you know, that just shows you the complexity. When you say "evidence-based" that's what he's providing. He's providing an answer as best as possible to "Does A cause B?" Now he's using a particular design that's pretty powerful and he'll be able to figure some of that out. Okay?

Well, I was -- that previous slide ... basically we've researched thousands and thousands of kids and we've used 60 million dollars over the last 25 years doing it. Margie and David are Haskins' Laboratory scientists. And the Haskins group is basically why we are here. Because in the early '60s, Isabelle and Al Lieberman were working on the fact that, you know, "Wait a minute. English is an alphabetic language; it's not a visual language. It's alphabetic. It's linguistically-based. And in order to attack the code, you

have to unlock the sound-symbol relationship." And that's -- you know, we know it today as, on a broader theme, phonological awareness. And on a skinnier theme, phonemic awareness. And the reason that's so hard for people as you know, is that none of us in this room can hear sounds and words. We just don't hear them because when you and I are talking with another -- one another -- if I say "cat" to you, the minute I say "/k/," then the /ae/ and the /t/ fold right up into that initial consonant blast. And it comes by the ears as one big burble of sound. That's why, and that's what the genetics go after. That brain signature that tells us that tearing apart these sounds may not be similar to a proficient reader. That's why we have to represent sometimes these letter-sound interactions so concretely. Because the kids never hear the sounds. You don't hear the sounds. You know what I'm saying? So -- good. All of you know what I'm saying. I'm just repeating what you know. So what do kids need to be able to do to read? My first question. How do kids learn to read? Well, they can read words on the page. Well, how much knowledge do they have? Because they can read words all day long, but if what they're reading isn't banked against what they know, we're in trouble. What if they don't know a lot? What if they hadn't been read to in the home? What if their vocabularies are down at the 10th percentile? What if they don't have experiences in a grocery store and you're reading about a grocery store? How motivated they are to do the work. Now Diane so eloquently taught us that, you know, all of this stumbling and grumbling with print doesn't make people happy. Kids are sensitive, they start to bog down. Motivation is very, very hard to maintain, isn't it? So we start to deal with the multi-factorials when kids don't learn to read.

Now I wanted to really point this out. And you'll see maybe something come up on it. This is what I do in Florida; I catch fish. The only way that we are going to do this job so it actually has an impact is for us to be able to talk with one another in a very clear way. So let me see. What's your name?

>> Karen.

>> Karen, I'm going to use Karen for an example. Are you a teacher?

>> I'm a consultant.

>> A consultant. Well, that's good enough. Okay. In other words, she's a quick hitter, you know? All right. So let's say that we're the classroom teacher and I'm in the Pilot program. And I'm working with a youngster, Sam, who is not responding at all to our intervention. You know? Remains very labored in trying to pull print off. He can see one word on one sentence and the next sentence same word is misread. And I don't really know what to do. And I ask Karen, I say, you know, "If you come watch this, you'll see." And Karen will say, "Well, have you assessed phonemic awareness?" And I'll say, "Yeah, and it didn't look very good. He really had still problems in rhyming. He couldn't do elision tasks very well ..." and so forth. And she says, "Okay. Well, we've got that. How about vocabulary?" And I'll say, "Yeah, you know, I can read a story to Sam and he'll get it, but when I ask him to read it, he doesn't get it." You ever had that experience? And she says, "Okay, well good gosh, that's really good." And she says, "How about speed?" And I say, "No, it's way down -- way down low." And of course it is because kid can't decode. Notice what she and I just did. We are talking with one another like all professions do, cutting through the language and using the concepts that we're going to be teaching. I asked her about phonemic awareness; she knew exactly what that was. I asked her about, you know -- or she asked me about fluency or vocabulary or comprehension or whatever it may be. A major focus of this Pilot Program has to be that classroom teachers, consultants, administrators, and specialists all have this common language. You know? There are a couple reasons for that. Number one, it cuts through the

chaff and you can say, "Okay, we need to do this because the data are showing that we've really got a hard time in phonemic awareness" if you will. And that's only going to go so far if only one half of the people working know what that is. Secondly, a common language makes everybody empowered to be part of the solution. So, you know, we typically go into these projects leaving behind a very important part of the equation, which is our classroom teachers. And guess what happens? We go into these projects frequently without thinking through what the core programs are. And I'll explain why that's something we have to look at. But common language, you'll hear me say it a couple times today, it's non-negotiable.

So Diane mentioned, and I think all of you would agree, that when we teach reading we are trying to enhance and individual's ability to read something and understand what it means and to actually use it. Reading comprehension. And then, if you ask, "Well, what does it take for kids to be able to comprehend well?" Then you get a word called fluency. You're not going to comprehend if you're taking so long to get the data off the page. We've all seen that. But to be fluent, it gets a bit more complex because here you need the word-level skills. Phonemic awareness, decoding, spelling, accuracy, automaticity, or fluency and rate, and so forth. So now we're looking at a big kind of feature called fluency, which will get in the way of reading comprehension if you don't have it. But you're also looking at all of those critical essential linguistic skills in the main that support fluency. Now if anybody wonders what all of these teachers who are non-teachers are dealing with when they're teaching reading, and people say, "Well, if you just read to the kids they'll do fine;" this is just part of the equation. And look what they have to do. They've got to be able to assess each of those components. They've got to be able to look at the data and respond to the data by changing their instruction. And when that happens, we can kick up fluency to some degree. Although it's very difficult. Right, Margie? Whoa. Fluency is a tough one. Teaching phonics, phonemic awareness, that's, you know, in the whole scheme of things, that's -- what would we say? That's okay. That -- you can do that fairly quickly. But that isn't all. Again, here we get to a very major part that I'm hoping we think about with the Pilot Project. What do the oral language skills look like with the kids? Do they have knowledge of language structures? Tim talked yesterday about syntactical issues and morphological issues. I'm not going to go into that. But what is it that when somebody reads that allows them to read it and to bank it off what they know to relate new to known, and to be able to work with that information? What is it? It's oral language. And without oral language, we can really bump up phonemic awareness, decoding, and so forth and so on. But without oral language, how do you relate what is new, which you can actually now pull off the page, and what you know? Think about -- I can read astrophysics all day long. I can sound out the words really well. My fluency would probably be pretty good. I have no idea what the heck I just read. I can pull the print off the page, but I can't bank it up against vocabulary that I know. Unless I study it and so forth. Right? That's what I'm talking about.

Now in talking with David a couple of days ago, I asked him what the demographics of the Pilot schools were. And he pointed out they varied vis-à-vis how many youngsters are free and reduced lunch and so forth and so on. Free and reduced lunch typically is a proxy for what one might call low income. Low income typically is characterized by few books in the home, many parents who cannot read themselves, many parents who do not have the time to read. The upshot is the youngsters are coming to us and they're somewhat bereft of the linguistic and language background that they need to be able to relate new to known. So a lot of your Pilot schools are working with kids who come from low-income homes. And the expectation is that they are going to have some detriments in oral language. And they also --

more than kids from middle- and upper middle-class homes will have some knowledge deficits. I mentioned going to the grocery store. Or going to a library. A lot of the kids that we'll be working with in the Pilot Programs have never done that. It is very difficult to relate new to known if you do not have a lot of those experiences that go into comprehension. A lot of our readers will not know how to actually say, "Have I been here before?" "I'm reading this; have I ever done it myself?" I know kindergarten-wise we're asking too much in some ways. But you know what I mean.

When -- just think about yourself, when you're understanding what you read, you know, you immediately know what you're pulling off the page and how that relates to your life. Right? You immediately know if you've been there before, and so on. Knowledge. So for some of the schools in the Pilot, you may have more youngsters who come to us with somewhat impoverished knowledge or experiences and language. And most of our kids even today have a problem with knowing why the heck they do something. I asked high schoolers why do you think you did them? They go, "Ugh?" You know? A lot of these kids don't think a great deal. Although they may, but ...

Okay. So metacognition. You know, do they know what they're doing? You know? Diane talked about how Kyle was taught how to navigate, how to negotiate his disability. That's metacognition. Knowing how to know. And a lot of us kind of shove that off to the side. But having kids that actually -- in 1st grade -- we have 1st graders, 2nd graders, 3rd graders that can actually know what they don't know and know what they do know. So, in other words in terms of their reading, "I'm not good at that." "I don't understand that." So all of those kinds of things are something we can teach. It's awareness of what's hard and not so hard for them. So that's what you're looking at that teachers have to do. And anyone that doesn't think teaching is an extraordinarily complex requirement or, I'm sorry, complex job, just look. It's amazing.

Now the science that developed all this has been going on for now 50-something years. And the replications are powerful enough that we can put these words up here. And the words up here are actually buckets, for example, that have all kinds of teeny details within them. So for all of the speech scientists in the room and the cognitive psychologists, you can see that I'm using the big buckets rather than the small buckets. You'll know what I mean.

Again, if you go back, how are we going to be able to help anybody if we can't ask ourselves these kinds of question about this? I mean, lawyers do it all the time. You know? I was a professor at a medical school for years and what did we teach our, you know, would-be docs? They had to learn vocabulary so that they could discuss how to solve a problem in a patient. That required a common language. A common vernacular. Again, just like Karen and I were talking about. She asked me, "How's his phonemic awareness?" And immediately I was able to say, "Well, I assessed that and it doesn't look good. He's still having problems with rhyming and he doesn't do elision well." Saying "can't" without the "/k/" sound, or whatever. Right? So think about if we had people with a common language in both general classroom settings and with the specialists. What that might look like. That's something very important for us to think about in these Pilots.

So. Now, I'm not really aware of the core reading programs that are in place at each of your schools. If you stay with me on the language part of things, if you -- if I've been somewhat clear about what the kids are bringing to your Pilots from low-income homes, you know, I would venture that they probably have lower vocabularies. So what does the core program do with respect to introducing vocabulary that actually is aligned with what you're doing at the word level? You know? I'll show you some stuff about

vocabulary in a minute. But this is critical. We have to ask in the Pilot schools what the core program is and how does it influence the development of a lot of those box -- the boxes skills that I showed. Let's say you're working hard and using an Orton-Gillingham approach. Orton-Gillingham does not focus on vocabulary as much as it does on word-level reading skills. But if you have a kid who's coming into you that's reading -- or, excuse me, has a vocabulary at the 10th percentile, O-G really kicks up the decoding abilities, the word recognition abilities. Then what?

So we've heard what -- you know, the only think I want to mention, Tim mentioned yesterday that dyslexia is on a dimension or a continuum. The best way to think about it is it's obesity or hypertension. It's not measles or mumps, you know? It's how severe or not severe you are.

So the poorest readers we know can't deal with these single words. They're weak in phonemic awareness and phonic skills and cannot read fluently because their sight vocabulary is obviously restricted. We all know that; that's what O-G is going after. Or other alphabetic approaches. Many kids from low-income homes have weak vocabularies because of limited language environments. Or they have not been able to read widely at home and in school. Right? Many of our kids have not practiced comprehension strategies because of limited reading experience and because they struggle with words. So if you're putting all your eggs in the decoding side of things, all of the effort is going there, you haven't saved any space to really work with what you know. And, you know, then as Diane pointed out, most kids give up.

So when we look at these different kinds of things that your Pilot is focusing on, one of the reasons you're focusing on interventions that are direct and very explicit and very systematic and go after word structure and so forth is that the most common and misunderstood form of dyslexia is word-level reading difficulties. Okay? These are the kids that struggle when they're trying to read words, but if I pull the book away from them and read them the story that they're supposedly supposed to read, they can talk to me all day long about main idea, about prediction, and so forth and so on. That's the unexpected nature of dyslexia. That here's a kid who's dyslexic, who comes to the reading task with a lot of background knowledge, a lot of vocabulary. Can't even get the print off the page, but if you read to them, they are pretty darn good. Now that's one subset of the kids we're talking about.

So, again, I'm just emphasizing and giving some justification for why the Pilots are going after phonemic awareness and decoding and phonic skills and so forth. Because most dyslexics show those kinds of difficulties. But it would be great -- this doesn't sound right -- if all of the Pilots were dealing with children with dyslexia. But they're not. The Pilot schools are dealing with struggling readers. Some of whom are dyslexic, some of whom can't read for a wide variety of other reasons, much of that related to low income.

So you have this in your handouts, these are the kinds of things that you've heard both Diane and Tim talk about yesterday, and I won't belabor it. Just means if you can't master the word-level skills, you're not going to get to fluency. Which means you can't understand, nobody's going to read to you all the time, you're going to lose interest in reading, and so forth and so on.

Now here's the crux of what I think is going to impact these Pilot studies in some ways. The majority of struggling readers, not dyslexics, the majority of struggling readers come to us with insufficient prerequisite language abilities. If you look at, let's say, high oral language. This is E.D. Hirsch, a Don Hirsch study a way back. And let's say we pick up diminutions or difficulties in oral language at age six.

When they get to about 12 or 13, their reading capability is 5.2 years below. Knowing that reading ability is assessed by comprehension as much as anything. Does this make sense to you? So, you know, this is where we're getting to that 4th grade slump where the kids are looking very strong on either state measures, K-3, or on individual testing or on benchmarks. They come in and they take language-based reading measures, like the NAEP or your state exams, your proficiency exams, and they don't get to where we want them to go. I'm belaboring this, but for a purpose. When I say oral language skills, the primary mover here is vocabulary.

Now let me put some concrete to it. Those of you in the Pilot schools will be having a range of kids, and some of those kids on average will learn one to two words per day. In fact, they have to learn 800 words per year or about two per day to be able to comprehend. From the 3rd grade onward we're looking at kids needing to learn 2,000 to 3,000 new words. That's about six to eight per day. Now if you look at me and go, "That's ridiculous," it is the case. We studied so many kids over years and years, the same kids, we can actually see that they're picking up language in a much more robust rate than we ever thought. And most typically developing kids have to encounter a word about 12 times before it really sits in. So, you know, if you're looking at this, it kind of gives you an idea of the task in front of us, vis-à-vis vocabulary.

Now let's take it this way. If we look at direct instruction in vocabulary. Let's say we have a student at the 50th percentile in the ability to comprehend the subject matter taught in school. This is comprehension. With no direct vocabulary instructions, scores in the 50th percentile remain. Let's say the same student, after specific content area terms have been taught -- vocabulary terms in a specific way -- that raises his or her comprehension ability to the 83rd percentile. It makes common sense. Most kids with word-level disorders have comprehension problems. There is a subset of kids with intact word recognition that don't understand very well. But those really aren't the kids we're talking about. This is something to keep in mind. In order to comprehend what you read, a kid needs to be able to read accurately about 95% of the words in the material that they're reading. Moreover, to comprehend, the student must know the meanings of 90 to 90% of the words. And the other 10% they can infer from context. Something to keep in mind.

Now, you know, we've kind of -- I used to, you know, in my earlier career at the NIH, people would unload. And, you know, they would call me the ... what was it? The "Lying King." L-Y-I-N-G. You know? That I was Phonics-mathen or some crap. If you go back and look at all the congressional testimony I did starting in 1997, I constantly said that reading is a complex process with several distinct, to some degree, but non-negotiable skills that must be integrated together. It is a complex process, as those four blocks said. But people like simple answers. They want, you know, to go after a problem, sometimes rightfully so, by saying, "Teach this, then this will happen." Teach this, then this will happen. You know? It doesn't. It just doesn't. It doesn't generalize when we just work on word-level skills. It doesn't -- it may even get to fluency. And we got bumps in fluency. Great. But what happens when you have a fluent reader read something and they go, "I don't know what I just read." And you say -- Karen would say to me, "Well, what --?" You know? "How's his vocabulary?" And I'd say, "Well, he doesn't know most of -- he doesn't know 90% of the words." What the heck do you expect? Phonics -- phonemic awareness, phonics, fluency are absolutely essential, non-negotiable in learning how to read. They in no way are sufficient.

You know, I'm not sure if you look at this slide how we've mapped out our instructional tactics and integration with core programs to get after these kinds of points. Whether our kids are seeing a variety of text even in kindergarten.

So this just talks to you a little bit about vocabulary and comprehension.

So what do we know about interventions? You know? In general? Systematic. Notice integrated is really blown up there. And explicit instruction. What do I mean by "integrated?" Let's say we're working with kids from low-income environments or dyslexic youngsters, and their vocabulary is limited either because the home environment didn't support a lot of language use or because they haven't been able to read a lot. They're very bright, but they still don't get it. They have to pick up all of this vocabulary per day, per year. So when you're teaching phonemic awareness skills, even if you're using O-G and you're teaching a /'k/ sound, what's wrong with saying, "What other words start with /'k/?" "What do they mean?" "Use that word in a sentence." That's what I mean by integration. At all times weaving around the instructional target, a higher-level language concept. And that's the only way we'll ever be able to close this vocabulary gap. It's not by having a class in vocabulary each day. It's going to be constant direct use of vocabulary development instruction across every classroom, across classroom settings, intervention settings, and so forth. Can it be done? Absolutely. You know, I'm sitting up here saying this is what we need to consider, and it could sound overwhelming. But if you talk to Margie Gillis and look at their programs in Connecticut, it can be done.

Intensity. What I mean by intensity is basically what you see in these three-tier programs where an initial tier is to have the youngster in the classroom setting with some specialized help for a certain amount of time per day. We don't get very far with that. We move up to more intensive environments. And intensity typically refers to time and expertise.

And there's got to be a lot of practice opportunities for the kids to apply the skills across a wide range of settings.

And again, we've got to help kids build new information on old information. I can't stress how important that is. And I can't stress how important it is for us in this room to think back about how we learn best. How we learn. We learn by building knowledge on knowledge, don't we? I mean, I don't know about any of you guys, but I was in Algebra 1, I was lost. Well, one reason was I didn't study the vocabulary so I didn't have -- I was always getting lost in this property or that property, and so forth. But my teacher, as well-intentioned as he was, was not very clear. He didn't give me clear examples and build knowledge on other knowledge. And I was lost. And we don't want to see that in reading.

So 88% of kids reading poorly at the end of 1st grade will read poorly at the end of the 4th grade. This is, again, rationale for why you're doing what you're doing. Unless reading instruction, and it's effective, is provided, students read poorly at the end of the 4th grade will have difficulties through the rest of their lives. And we know that if we prevent reading failure, quality of life issues increase dramatically.

What we can do? Well, we know the risk characteristics are -- sorry -- are present in kindergarten and grade 1. We know that we get some bump from letter-sound knowledge, phonological awareness, or language development in terms of looking early on at those skills that are instrumental and later reading and use them to predict. And, you know, clearly we want to assess all of our kids because we don't know who's going to be what. Now when we're talking about assessment, it's important that the

assessment information you're getting when you're doing both testing and progress monitoring is the most essential thing -- a most essential tool at your side. If in fact you are -- are we out of time? Shit. Sorry. We have a few minutes? Okay. If in fact you -- oh, I lost it. Okay. Let's ... You can see this.

Again, Diane pointed out all the life issues in terms of lousy reading and what it predicts in terms of poverty, crime, and so forth. Teen pregnancy, unemployment.

All right. So, bottom line, success in early reading may be schooling's most important goal. Because reading failure is prohibitively expensive in both society and to the individual.

You've been schooled on response to instruction, I'm sure? Is that correct? I won't belabor it.

Okay. So here's where you guys are. You're taking the science, which has shown that reading requires a constellation of skills that are complex in their own right that must be learned and integrated together. And those include such things as phonologic and phonemic awareness. The ability to then use that skill to tear apart words. Then the ability to learn and do that rapidly so that one can get through text in a way so you're unglued from the print. And as you're unglued from the print and you're reading like a lot of us do without even thinking about the print, we relate what we know or what we read to what we know. And sometimes even I -- not even I, but I ask all the time when I'm reading, "Have I been in this place before? What have I learned from this?" You know? "What's going to happen next?" Those are all what we call comprehension strategies that we have to teach directly to some kids.

Implementation. That's where some of you are starting; where some of you are. Now I can talk all day long about this. Clearly your leaders in the Pilot Program know all about this. But non-negotiables and implementing these Pilot Programs is that you have implementation expertise. Implementation is a [INAUDIBLE]. It requires people that know what they're doing. We have to have teachers that know how to teach reading. We have to have building-level leadership that's very, very robust. Because new programs require a great deal of discipline. Meaning you've got to keep moving. A great deal of savvy about individuals and how they may feel burdened or overburdened or not paid attention to.

Professional development has to be ongoing. You can't be like me coming in here quacking away for a couple -- for an hour and a half and everybody goes, "Oh, okay. I'll go take that." Everything I'm saying today has to be -- just like the kids have to be -- taught, applied, and so forth.

Here are the barriers that you're going to see bank up against you that we need to be looking out for. We don't have a common language. That not only means that we can't solve problems, but it means some people hadn't bought in. A common language is a sociological concept as well, which means that people are on the same page.

We have an effective, instructional leadership. Everybody knows what effective and ineffective looks like. We may be taking on too many grade levels in schools in the first year without figuring out where the bumps are and how we fix those. We may be beginning the implementation plan without a comprehensive plan. And we fail to remember that the implementation of the project is a systemic change.

Now, in talking with all your leaders in the Pilot Program, they know this backwards and forwards. Sometimes the reality politically gets in the way. Everything I learned in all my years in Washington does have a political component to it. I didn't know that as a scientist. I thought if we knew something, then

we could talk to legislators or the president or somebody and they would say, "Okay, let's do it." It doesn't happen that way.

By the way, just kind of a -- you know, when I went to work for the president -- they called me from NIH, I had to do that -- you know, I thought that was a big deal. I thought I was a big deal. So on 9/11, Mrs. Bush, the First Lady and I, were in one of these black Suburbans and we were going to Capitol Hill to testify about a lot of this stuff. And in the Suburban, it comes across. Secret Service guy says, "We've got to get you to -- back to the White House. They have a bunker there for ..." you know. And I said, "Damn. I'm going to -- they're going to protect me. I'm going to get to go to this bunker too." Well, they left me off at Union Station. You know? Humility is a wonderful thing to develop. That was ... you know. I'm expendable big time.

These are some of the other things that we have to pay attention to. There's a balance with all of these. You know, the main -- people always used to ask -- the president used to ask me -- he was a big phonics guy. He'd say, "Reid, why don't we just teach these kids all these phonics things?" And I'd say, "Well, it's not that simple because ..." You know, it's just like anything else, that's only a piece of the puzzle and so forth. And he'd say, "Well, if we taught them phonics, can't you get a program that does that and then everybody uses the same program?" I don't know if my Texas accent is very good here. And I said, "Well, no. Not really. Because not all kids will respond equally well to the same kind of program." But sometimes we get that in our head that there is a magic bullet. Well there is no magic bullet. Any program that is worth its salt already is developed to know that a lot of kids may not respond to its parameters. So that's where you're teacher expertise has to come in. So in a program, if it's O-G or whatever it is, is not providing or netting the results in these different component reading skills, then it's going to be important to bolster or add things to that program. To bring vocabulary instruction in. To adjust the instruction. And your data will tell you that.

So you've heard a lot about this. This was -- this stuff was with me throughout my career. This actually - - you see most done at the University of Houston with Jack Fletcher and Andy Papanicolaou. We worked together for many years.

This was -- actually, Tim, yesterday, attributed this to Ken Pugh, which Ken is a wonderful man, but it was actually Paul Seamos that put out this diagram first. Anyway, you learned yesterday that there are several systems in brain that do certain things and then integrate those things up here in front. You know? You can see that -- I mean, the good news is for both readers who come to us with -- from low-income backgrounds -- and dyslexic kids who have a high degree of vocabulary and aren't so clobbered in general knowledge, both types of readers respond pretty well.

So if you just look over on the -- you know, you're looking at the first one. The before and after. If you look over in the left hemisphere, you see that we're getting data showing inefficient processing. In the left hemisphere just go directly down. You can see after intervention. Interestingly you can look all the way over to the left and you're looking at right hemisphere, which seems to be trying to compensate in some ways. I'm speaking metaphorically. But that activity seems to diminish.

So the only reason I'm showing these slides -- you've been inundated with them -- is that, you know, you guys are brain scientists. I mean, if you teach well enough, the kids learn to read and it does change the brain. And I think that's, you know, that's been replicated so many times.

I will say just for cautionary sake, that you see the splotches on the pictures of the brain. You see the colors. Number one, if I take out from one of those color kind of pools, a piece of tissue that is, like, the tip on your ballpoint pen. Teeny. That's going to have about 100 million neurons in it. Okay? So this is showing you generalities. Not only that, is what we're seeing in cortex is a function of what the circuitry is doing. I'm not going to be technical here. You know? In my last job we were working a lot on different circuits that provide energy -- information if you will -- to different cortices. To different areas of the cortex. Circuits from basic dopamine and norepinephrine circuits to so forth and so on. Everything's at the level of the circuit. It's not at the level here. So always look at these with very good eyes. Yes, they are showing us general trends. But the discoveries are going to come at the molecular level. And, you know, just to keep us all, kind of, same with this kind of stuff.

Success is not measured by what you accomplish, but by the opposition you have encountered. And the courage with which you have maintained the struggle against overwhelming odds. Thank you very much.