THE BROOKINGS INSTITUTION

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WHAT WE KNOW ABOUT THE EFFECTS OF PRE-K IN 6 CONSENSUS STATEMENTS

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Welcome:

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Overview of Report - Puzzling It Out: The Current State of Scientific Knowledge on Pre-Kindergarten Effects: A Consensus Statement:

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Professor of Psychology
Georgetown University

Panel 1:

Moderator:

RON HASKINS,
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Panelists:

GREG DUNCAN
Distinguished Professor, School of Education
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MARK LIPSEY
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Overview of Volume - Issues in Pre-Kindergarten Programs and Policy:

KENNETH A. DODGE
William McDougall Professor of Public Policy Studies
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Panel 2:

Moderator:

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P R O C E E D I N G S

DR. HASKINS: Welcome to Brookings. My name is Ron Haskins. I co-direct the center here called the Center on Children and Families along with Richard Reeves. I want to give a special welcome to the co leaders of this project, Deborah Phillips, who we'll hear from in just a moment, Mark Lipsey who we'll hear from in two moments and Ken Dodge of Duke. Ken will head the second panel and you'll hear from him in a few minutes. I also want to acknowledge the support received from Heising-Simons, from the Dave and Lucille Packard Foundation and from SAS.

Today, we're release two reports. One is called a consensus statement on scaled up state and local and pre-K programs. That's the skinny one, hard copies are available in the back. And the second report is a more elaborate report that Ken assumed leadership of which deals with a number of issues associated with pre-K and pre early childhood programs in general such as curriculum, financing and so forth. We're going to have two panels, one from the first report. Everybody on the panel will focus on the first report. And then the second panel will focus on the second report and authors of the various chapters of that second report will be on the panel. I want to give special thanks also to Commissioner McQueen from Tennessee who has agreed to come and talk about the kind of things that we think our consensus statement supports and we'll hear a specific example of what one state is doing.

In the case of both panels, the audience will have a chance to ask questions and we encourage questions as opposed to comments so you'll get a chance to do that for both panels before we adjourn.

Deborah Phillips, of Georgetown. Deborah was more or less the leader of our group. We never actually took a vote and she will try to share the credit but actually Deborah held the whole thing together, so Deborah.

MS. PHILLIPS: I think that means I also take the blame, Ron.

DR. HASKINS: Oh yes, of course.

MS. PHILLIPS: Thanks to Dr. Haskins and Brookings for serving as the home for this consensus project and thanks to the Heising-Simons and Packard Foundations for supporting this work. An immense thanks to the full consensus team including Dr. Haskins, Dr. Duncan and Dr. Lipsey, Dr. Dodge, who are here today with me for undertaking the arduous work of forging consensus out of a complex evidence base in a high stakes context of intense public scrutiny. We came together on behalf

of this project with deep, longstanding, mutual respect and relationships and a shared commitment to the use of science for public purposes. But also, with different disciplinary lenses and different experiences with studying pre-K education that have produced different results. Therein, lies both the challenge of reaching consensus and the power of having done so.

Why is this statement important and timely. Legislatures know that one of the best ways to build a productive and prosperous society is start early in building children's foundation for learning, health and positive behavior. With 42 states and District of Columbia having now introduced and innovated with scaled up state and district funded pre-K programs, it is time to take stock of how well we are doing to optimize the contribution of pre-K education to these societal goals. The authors of this consensus statement are interdisciplinary social scientists who have engaged with local, state and federal policy makers and practitioners to conduct and translate research about pre-K programs. Together, we are striving to understand the role that pre-K can play in the larger educational enterprise that prepares our future workers, citizens and parents. And how to identify and replicate the most important features of successful pre-K programs in order to optimize this potential.

In partnership with Brookings and the sponsorship of the Heising-Simons Foundation and the David and Lucille Packard Foundation, we set out to address these pressing challenges so that legislatures and educators could reflect on progress to date. Identify good effectiveness factors that may distinguish programs that have produced larger more enduring impacts from those that have not and to take constructive action to better meet our country's goals for Pre-K education. It should come as no surprise that legislatures are eager to maximize learning and skills development. Credible voices from the business roundtable to the National Academy of Sciences are insistent that we will need more people with deeper and more diverse skills as well as the ability to work in teams if we're to meet the challenges of the future.

In response, educators have focused on started learning earlier, recognizing that early learning builds the foundation upon which all skills development is built. Other countries agree. Most of our allies and competitors have strong early education policies and programs. Scientists agree. If we want a deeper bench, we need to start earlier.

An overarching message of our statement based in the developmental and learning

sciences, is that pre-K is not an end in and of itself. Pre-K does not happen in a vacuum. A child's learning over the course of the pre-K years builds on past development and sets the stage for future learning which is then effected by children's experiences in Kindergarten and beyond. Learning is continuous and cumulative. Effective pre-K education depends on attending what happens before pre-K, what happens during pre-K and what happens after pre-K as children enter elementary school. Just as we do not ask what second grade accomplishes in isolation, what happened from first grade and what happens in third grade and fourth grade or hold this single year accountable for middle school achievement test scores, high school graduation rates and adult earnings. It is time to reexamine how we consider or situation the pre-K year. The pressing and most useful question today is, how can we ensure that we have an effective pre-K through elementary system. Addressing this question is the shared public purpose toward which this consensus statement is directed.

We titled our statement, puzzling it out, because identifying the conditions that best promote children's early learning has many pieces. If you look at one piece at a time, one program, one outcome, even one year in a child's life, you run the risk of missing the bigger picture. In order to place our current evidence about Pre-K and context, we considered the characteristics of the children walking through the Pre-K door, what happens inside Pre-K classrooms and what happens next in the elementary grades. So, our report is really about how learning gets charged up and recharged sequentially and cumulatively. Starting with what young children bring into their Pre-K classrooms, then how Pre-K can provide a strong initial charge or boost in early learning, followed by how subsequent educational environments can sustain, deepen and add or recharge the initial base of skills and knowledge that Pre-K has provided.

The answer to this question relies substantially on what we know about how young children learn. Developmental science tells us that a key ingredient in effective learning environments is the instructional, social and emotional serve and return interactions that occurred daily between teachers and children as well as among classmates. The odds for better outcomes are improved when these back and forth interactions are consistent, responsive and stimulating. This brain building interplay motivates and deepens learning, enables children to organize and focus their attention and other capacities needed to learn and promotes peer cooperation and support. What then enables these kinds of interactions. Dr.

Duncan will be addressing this question in depth but to forecast briefly, we offer some good bet targets for next stage efforts to further strengthen the nation's existing Pre-K programs. Focused on ensuring that Pre-K teachers are well prepared and supported through professional development and coaching to implement curricula that are proven to foster and deepen critical skills and concepts and secondly, to provide well organized, positive classroom environments in which active engaged learning can occur.

So, I want to turn to key finding from the third item in our consensus statement as it provides a platform for all the other I and my colleagues will enumerate. "Convincing evidence shows that children attending a diverse array of state and school district Pre-K programs are readier for school at the end of their Pre-K year then children who do not attend Pre-K. Improvements in academic areas such as literacy and numerousy are most common. The smaller number of studies of socemotional and self-regulatory development, generally show more modest improvements in those areas." In short, most evaluation studies show that Pre-K works. Moreover, many Pre-K programs are delivering greater improvements in learning at the end of the Pre-K year for children growing up under conditions of economic disadvantage and disability and for duel language learners.

In some, Pre-K is delivering on its promise to charge up learning to prepare children for Kindergarten. This is a considerable victory in which legislators and educators should take great pride. But our work is far from done. Not all Pre-K programs are equally effective and there are many reasons to believe that Pre-K can do more to power up early learning. Scientists, policy makers and educators alike are motivated to ensure that all young children have access to Pre-K settings that genuinely broaden and deepen their learning. This means supporting their ability to talk about math concepts like cardinality and measurement and to problem solve, not just to count. Helping them acquire a rich vocabulary and the ability to tell an organized story, not just teaching them to recite the alphabet. And building their capacities to work collaboratively, not just to take turns. All young children also deserve access to Pre-K settings that will foster capacities to pay attention and remember and follow directions and to develop a strong motivation to learn and positive views of themselves as learners.

Even with an initial strong charge, however, learning can stagnate if children's deepening knowledge and skills are not recharged when they enter elementary school. Sustaining Pre-K impacts requires that we pay far more attention to what happens once children arrive at the Kindergarten door.

This is the newest frontier of Pre-K research. Dr. Duncan is among the scientists working at this frontier and he will share with us, his efforts to identify how children's experiences in Kindergarten can support and amplify the initial charge or boost that children receive from Pre-K. I repeat, learning like physical growth is cumulative and continuous and requires ongoing nurturing. There's no point at which learning proceeds on automatic pilot. This is why we explicitly direct attention to the elementary grades in this Pre-K consensus statement and conclude that "children's early learning trajectories depend on the quality of their learning experiences, not only before and during their Pre-K year but also following the Pre-K year. Classroom experiences early and elementary school can serve as charging stations for sustaining and amplifying Pre-K learning games. One good bet for powering up later learning is elementary classrooms that provide individualization and differentiation in instructional content and strategies". This statement draws attention to the challenge of keeping every child moving forward on his or her learning trajectory as she enters formal schooling. This is the fundamental task of every elementary teacher. It entails understanding each child's starting place where he or she needs to go next and how to get her there. And how best to scaffold this forward movement for each child in a classroom.

If a child has learned to count to five and discuss more and less in Pre-K, she's ready to count to ten and to learn cardinality and then to begin to problem solve and talk about her answers. If she's not helped to get from five to ten in Kindergarten, perhaps because her classmates are still learning to count to five, she will be put in what is effectively a learning dead zone and this child and cumulatively the nation's investment in Pre-K will risk being squandered. Enabling all children to move forward from initial different repertoires of skill, knowledge and behavior is extremely challenging. Early education is rocket science.

This challenge is made all the more urgent by current policy discussions of Pre-K education. In addition to school readiness, our society harbors the hope that Pre-K will deliver long lasting effects. Here, the current state of evidence leaves us with less to report. And we conclude, "convincing evidence on the longer term impacts of scaled up Pre-K programs on academic progress and academic outcomes is sparse, precluding broad conclusions. The evidence that does exist, often shows that Pre-K induced improvements in learning are detectable during elementary school but studies also reveal null or negative impacts for some programs." The jury is still out. Why might this be so, my

colleagues will offer their observations about this pressing and important question. In the consensus statement, we ponder how much we can draw on lessons from the existing research base on an earlier generation of programs to guide the development of today's Pre-K programs.

As you'll hear from Dr. Chaudry, there is no monolific model Pre-K program. As was the case with the more focused, small scale model demonstration programs of the past. Instead, there are different Pre-K delivery settings in different states with widely varying program features, teacher requirements and performance standards, target child populations and funding levels, all of which need to be taken into account. And they have been studied with different designs and measures. The children not in Pre-K are less likely to be home with a parent and more likely to be in some other early education program than in the past. Which means that the bar that Pre-K must exceed in order to be judged effective, has been rising over time. It is exceedingly difficult to pull out one piece of this complex puzzle and say, ah ha, that explains the mixed evidence on long terms impacts. And to return to the overarching message of our statement, children enter Pre-K with divergent prior early care in education and home experience and they move from Pre-K into a vast range of elementary schools across the nation. If we ignore this variability in what happens before, during and after the Pre-K year, we run the risk of missing information that can help us understand how best to design and reengineer Pre-K in specific locals to get the best result.

Importantly, contradictory findings, puzzle pieces that don't fit, are precisely what propels science forward. We can draw some conclusions with confidence, we can offer good bets for next stage Pre-K innovation. The jury is still out with regard to sustained impacts over time. But we can agree on what we need to know and how best to generate knowledge that will deliver useful answers.

This brings me to our final consensus point which calls for ongoing innovation and evaluation to ensure continued improvement in creating and sustaining children's learning gains through research, practice, partnerships. We are very fortunate to have Dr. Lipsey from Vanderbilt University and Commissioner McQueen here today to discuss their very important partnership in Tennessee.

In closing, no one thinks we have yet devised the most effective possible Pre-K program or system. We close our report with the following statement. "We have a national platform on which to build next stage, increasingly effective and longer lasting Pre-K programs. The hard work of refining and

improving these programs so that they can fully support the intellectual and social skills the nation will need in the future has just begun. Nonetheless, the scientific rationale, the uniformly positive evidence of impact on Kindergarten readiness and the nascent body of ongoing inquiry about long term impacts, lead us to conclude that continued implementation of scaled up Pre-K programs is in order as long as the implementation is accompanied by rigorous evaluation of impact." Thank you very much.

DR. HASKINS: Okay Deborah, thank you very much for that great statement. One thing that's not going to come through and I doubt that any of the panelists will discuss either on the first panel and probably not the second panel and Ken is the only one that was a member of this consensus group. Is how interesting, fascinating it was to be part of this group. People have different views but all of the discussions were respectful. There were a ton of emails between meetings and it really worked very well. I don't know how the rest of you felt but I had some questions at the beginning about whether we would be able to pull this off, especially on the long term consequences. It was really almost magical. It was a very, very constructive. We had two long meetings, lasted a day a piece and as I said, tons of emails. So, I just wanted to be sure that comes across about how constructive it was to get a group of social scientists together who have definite views and not only compatible with each other and yet they could reach consensus. And, of course, we were in Washington and this city specializes in consensus and agreement so, naturally it would happen.

So, now we have a panel to follow up on the report. Deborah has already given us good hints about what they're going to say. First, we'll start with Greg Duncan from the University of California, Irvine. He's going to talk about curriculum and other parts of the Kindergarten year. And then Mark Lipsey from Vanderbilt, who by the way, was a great methodological contributor to our report. He kept us honest about what the results really were. He will soon be publishing an extensive analysis of all the studies involved. The studies are listed in the appendix of our reports for anyone who wants to read all of those studies and Mark will soon give you a commentary on each one of the studies and publish that at a future date. And then we're very fortunate, as I said before, to have Candice McQueen here who is the Commissioner of Education for Tennessee and has graciously agreed to come tell us what they're doing with the Tennessee results and the results of the other Pre-K literature. And, of course, Deborah is here. The other three will make brief opening statements and then we'll have some question and answer and

then we'll open it up to the audience. So, Greg.

DR. DUNCAN: Thanks Ron. So, in my five minutes, I want to elaborate on both what happens during Pre-K as well as what happens after Pre-K, part of what Deborah talked about. During Pre-K, there are really three policy levers that are available to us. We can fund more or fewer Pre-K slots. We can try to regulate classroom quality and we can prescribe curriculum for Pre-K classrooms. So, let's take those in order.

Funding more or fewer slots, I think it's clear from Deborah's talk that Pre-K seems to work. It works especially well for kids from disadvantaged households and dual language learners. But most of the kids coming through Pre-K end up the Pre-K year much closer to school readiness then when they began. And that's an important accomplishment. There's a lot of variation from one Pre-K program to another but on average it seems to work pretty well, especially for those groups. So, the question of more or fewer slots being funded, seems to be tilting toward, it makes sense to fund more rather the fewer Pre-K slots.

Regulating classroom quality is more of a disappointing area. If only it were the case that sticker a teacher with a BA in early child development or master's degree in early child development or saying there can be no more than X students per teacher in a Pre-K classroom, would guarantee that there would be a lot of learning taking place in the classroom. If only that were the case but the evidence is not very consistent at all about that. So, the kind of obvious, easy things that we can regulate don't seem to matter that much for the amount of learning that takes place during the Pre-K year.

We can prescribe curricula and here's another very promising potential area. Curricula set the learning goals and the structure that takes place in the classroom and the kind of day to day learning experiences to cultivate kid's skills. In the curriculum world, there's a divide between whole child, so-called constructivist curricula where kids are encouraged to engage in the materials that are set around the room and teachers help support the learning versus more of a focus on academic skills. I think everyone should realize that learning at age 4 is very play based, that's how 4 year olds learn. It's not kids sitting in their chairs and doing worksheets. And the curriculum developers by in large, know that. And even when they try to promote math and literacy skills, they do it in a very active play based kind of way.

The evidence on the so-called whole child constructive curricula are not very encouraging. It's very hard to pull off. Teachers have to understand when a child is engaging in learning and support that in the appropriate way and do that in an individual way across the kids in the classroom. By in large, the evaluations show that when you try to set up that kind of curriculum you don't have more gains in terms of what kids learn across the Pre-K year then you do when the teachers are just developing their own curriculum.

On the other hand, the focused numeracy and literacy curricula often supplementing what's there, 15 minutes, 20 minutes a day in this kind of play based organized way, are much more successful. So, to the extent that we should be prescribing curricula, it should certainly be evidenced based and the evidence now seems to indicate that among the curricula that are available, these kinds of academically focused curricula are more important and more successful. And, of course, once a curriculum is selected we need to devote quite a bit of resources to providing professional development for teachers and proving coaching for teachers during the year. The really successful programs certainly do that.

What about beyond Pre-K. Huge potential benefit and huge potential problem. Potential benefit is Pre-K is sending a lot of kids into Kindergarten with much better literacy and numeracy skills then they had in the absence of Pre-K. On the other hand, think about a Kindergarten teacher. She or he may be getting four or five kids having come through Pre-K mixed in with other kids in the classroom who haven't had the advantage of Pre-K. So, it's very hard when you certainly have a priority for promoting the basic skills of all the kids but at the same time, making sure the kids who come in with the basic skills are going to be supported in a way that builds on those basic skills. Unless you can do that, if you focus all your attention on the basic skill kid needs, you're going to end up with much more similarity between the kids who had Pre-K and not at the end of Kindergarten then if you could support the kids who have higher levels of skills coming in.

So, we really need to think about ways of having Kindergarten and first grade classrooms that support the kind of gains that recharge the charge that Pre-K provides. I'm going to very interested in hearing from Commissioner McQueen about what Tennessee is doing on that. Co-locating Pre-K with elementary school classrooms, aligning curricula, having cross grade teaching where a second grade

teacher will spend a year in Pre-K and vice versa. Those all need consideration as ways of integrating Pre-K into elementary school. Thank you.

DR. HASKINS: Thank you, Greg. Mark.

MR. LIPSEY: Thank you, Ron. In addition to being part of the consensus group, I'm the co-director with my colleague Dale Ferrin at Vanderbilt of the Tennessee Pre-K study. The Tennessee study is particularly relevant in this context for a number of reasons. First, findings were hugely controversial, got an incredible and astonishing amount of media attention and much of that attention was the typical journalistic approach playing one study off another, one researcher off against another. And Deborah and I particularly and others in the field didn't think that was a good representation of the body of evidence and that was much of the stimulus for putting together this consensus group and to try and give a better picture of the total body of evidence.

Why was the Tennessee project so controversial. Well, it had two problematic characteristics in this regard. First, it continues to be the most methodologically rigorous study of scaled up state Pre-K program that has been done to date. It's a random assignment study with nearly 3000 children so, it's a very much an apples to apples kind of comparison with regard to the outcomes which is difficult to achieve and some problems. But nonetheless, we were able to pretty much pull it off in Tennessee.

Secondly, and most importantly, the findings challenge the conventional narrative about Pre-K. On the one hand, the effects as Greg commented, the effects at the end of the Pre-K year were quite positive and comparable to those found in other programs including some of the programs that are recognized as being very high quality. Had we stopped there, I think we would have been Pre-K heroes. We continued, however, to follow those children up and discovered by starting end of Kindergarten, certainly by end of first, second and third grade, there was a convergence between the academic outcomes and social, emotional outcomes for children who had attended Pre-K and those who hadn't. By third grade, there was actually a slight reversal in some areas particularly math skills such that the children who had been in Pre-K were doing slightly worse than the children who had not been in Pre-K. This was not what we were supposed to find and is troubling in many regards, one of those puzzle pieces that Deborah referred to that we need to sort out. And Greg eluded to some of the reasons why that might happen is Pre-K children who come in with some basic skills may encounter redundancy that doesn't

engage them in the later grades if those curricula don't pick up on those early skills.

The other important thing I think about the Tennessee study is that it was developed as a partnership with the state Department of Education's early learning unit from the very beginning at the point that the initial proposal was written for the Department of Education. So, it has been very much a collaborative project and continues the study continues. We're following those children into middle school and the partnership with the Tennessee state Department of Education continues. And as Deborah pointed out, the last point of our consensus summary had to do with the need for continuing partnerships with practitioners and policy makers at the state level in order to innovate and evaluate and find out more about how we can make Pre-K live up to its promise. So, I'm particularly pleased in that regard that the Tennessee Commissioner of Education, Candice McQueen, is with us to give her take on where Tennessee is going and how this partnership is working.

MS. MCQUEEN: Well, good morning. It's a great opportunity to be here to talk a bit about our context and what we learned from research and then as policy makers, how we actually responded to that. I was new to this role about two and a half years ago and I entered when the infamous Pre-K study from Vanderbilt was coming out about the same time. An interesting contextual point, I started the Commissioner role with a goal to visit 10,000 teachers. And in about 15 months, I had been in the classrooms of 10,000 teachers, interacting with them in focus groups and in particular, spending time in Pre-K and Kindergarten classrooms. And a takeaway that I have shared broadly across the state is that when I would walk into a Pre-K classroom and then the subsequent Kindergarten classrooms in the same building, I saw a lot of redundancy. I saw a letter of the week happening in Kindergarten exactly like down the hallway was happening in Pre-K. And I knew there were children in the Kindergarten class that had just been in these Pre-K classrooms some months before and they were experiencing redundancy. I think that's a great word to share what I saw even anecdotally on visits across the state.

So, how did we respond. Well, it was a moment that was very interesting because we had a study come out around the same time our legislative session started. And immediately we did have legislators that said why don’t we take all of the money that was in our voluntary Pre-K program and reallocate towards something else that we felt would have more of a research base behind it. And so, the first thing we had to do was to talk with Dr. Lipsey, talk with Dr. Ferrin and really get a sense of what do

we know. What did we learn and what can we continue to learn and what should we do to get better. And so, we interacted with our research partners in a way that created practical solutions. And so, our practical solutions really go along with the consensus study. What should happen before Pre-K, what should happen during Pre-K and what should happen after Pre-K. So, I'm going to organize around those three areas.

First, voluntary Pre-K in Tennessee is over a decade old. We have about 20 percent of kids eligible for Pre-K in our Pre-K programs. And in terms of funding, we would be low to mid-range in terms of states around how we fund our students. This is a non-competitive grant process meaning it was a formula based process for students to enter into Pre-K programs. And when we began to look at who was in Pre-K, we saw great variance across our districts. We did have students that were eligible based on the original intent of the voluntary Pre-K program. Our students who were most economically disadvantaged, the students who had language deficiencies. We had students that were certainly of that demographic but we also had students who were not. And there was not a process that we had in place that was more competitive in how we were actually granting funds to districts. So, we've started a competitive grant process starting this year. We've actually got our districts competing for those grant funds now. We are doing multiple things that have to be considered before you allow a student into Pre-K. One, are we serving the students who need it the most. And if you're not, why aren't you. Are there transportation issues that you haven't considered. We do not have a mandatory attendance policy in Pre-K. We do in Kindergarten through twelfth, so we began to look at what in the world are we doing on our Pre-K attendance. In fact, we did an attendance study a year ago and we found that guess where we had the most students absent. It was in Pre-K. We had Pre-K, Kindergarten and then another spike in eleventh grade. And so, our absenteeism issues were present also in Pre-K. So, we have all of our Pre-K applications with attention toward the students who need it the most, second transportation, third what is your attendance policy, we're creating one that is statewide as well. And really trying to think through which students will benefit most from the funds.

The second piece that needed some attention and certainly the study from Vanderbilt and others, really brought this to our attention. We did not have what we considered a robust curricula choices for our districts to actually match to our voluntary Pre-K standards that were being used. We had

standards, we had not done a lot as a state to actually train against those standards. Meaning, create professional development for our teachers. So, we do have now a program in place that's called our early learning model. We have been training all districts. We're at 99 percent of our districts have been trained in the early learning model which is attention to our standards, attention to the quality components related to curricula choices. And we are moving toward a streamlined version of curricula choices, meaning one to two that our districts will be able to choose from as they locally select which curriculum will match. At the same time, our legislature, in the midst of all of that, they did fund a Kindergarten entry inventory, something that we did not have a state. We had variance in terms of what our districts were using to even take a look at what do our students need when they actually enter in those first six to seven weeks of Pre-K and Kindergarten. And so, we are creating an entry inventory right now that allows us to better target our work upon entry.

Now, what happens after Pre-K. It may be the most interesting part of what we are doing next and what we already have in process. We are a state that does not full scale test our students until third grade. So, we do not have specific test results on all kids from Pre-K through second grade. So, we did two things this last year that have set us up for what we believe more ability to get a better picture of the effectiveness of our teachers at that lower grade range. We have something called a student growth portfolio measure. This had been already piloted in districts in both Kindergarten and first grade and we are creating a second grade portfolio model as well. We work directly with our districts to create an approach where teachers use the standards to select student work that best exemplifies the standards. We work with our partners at SAS to create growth measures and we then have an opportunity with interreliability built in for us to actually monitor the growth of those teachers through the portfolios that they submit yearly.

Last year in our general assembly, we did pass a bill with our partners or particularly our advocates in Pre-K, to actually create a growth model that would be appropriate for Pre-K and Kindergarten through this portfolio. And we are now requiring every district who receives voluntary Pre-K money, to actually have all of their Pre-K and Kindergarten teachers go through the portfolio model. This is providing additional professional development that is associated with that early learning model that I mentioned early and this will be implemented this year. So, all districts have now moved toward it and

when I say this year, this coming school year. So, all of our Pre-K and Kindergarten teachers in 97 percent of our districts will be going through a portfolio growth model that will allow us to actually look at effectiveness of our Pre-K and Kindergarten teachers.

Now, you may say, why does that matter. Well, as a state because we were starting our teacher evaluation around standardized test scores at third grade, we had some misbehavior by our own district superintendent comments. They would say, well since we're starting our value added measure, starting our work around teacher evaluation, starting how we look at districts at third grade, they made some poor decisions about who they were putting in their Kindergarten, first and second grade classrooms and Pre-K. We believe there were some staffing challenges with decisions that were made that were a disincentive from what we assumed would happen when you start putting in teacher evaluation across the third grade through twelfth grade years. So, we now have a different model at the Kindergarten through second grade years that will allow us to have a view of effectiveness and we're associating that with professional development and professional learning at the same time.

I would say in conclusion, what has to happen is a look across that Pre-K through third, fourth, fifth grade span. We are a proponent of the early learning and literacy foundations and that's a high priority for us as a state. Our data shows that we have to do better as a state in our early learning and literacy components. So, as we looked at literacy and some of our statewide work, I'll end with this. What we are seeing in literacy in particular, we have another group of folks that are looking at our math data is that we have too few of our students who are in Pre-K actually working on something called unconstrained literacy skills. Meaning those knowledge based competencies that students need particularly if they have language deficits. They're very focused on constrained skills. Those skills are like alphabet knowledge. Do they know the alphabet, do they know the sounds that go with the alphabet. Those are things that are ultimately concrete. Once you know it, you know it. You don't need to repeat it over and over and over again in Kindergarten and then do it again and again in first. You need to be focused more on those knowledge based competencies or those unconstrained competencies and we see a lack of that in some of our Pre-K and Kindergarten classrooms. So, our focus on our literacy work has been around the knowledge base around content that students need to really then begin to gain in those literacy skills. Thank you.

DR. HASKINS: Thank you very much. I had doubts when I first heard that we might be able to invite you and you might come, I thought wow that would be something if she actually comes because of all the controversy in the Tennessee study and so forth. It was an especially good presentation because it makes one of the main points that we tried to make in the report was after Pre-K counts for a lot you can't just end at the end of Pre-K.

So, I'd like to belabor the obvious to let me start with our group based on empirical studies that Mark lists carefully in the report and we'll tell you more about later. Concludes that evidence is convincing that kids are readier for school as a result of Pre-K. But that the sparse evidence on long term effects, precludes broad conclusions. So, these are the two most important conclusions of our report, at least in my opinion. So, I want to ask the panel including Deborah. Do you want to say anything to elaborate that or to make it clearer to the audience what its importance is.

MS. PHILLIPS: I'll say something. I actually think it is that kind of gap, if you will, that is going to propel both science and practice forward. It motivates us and clearly in Tennessee, you have a brilliant and very inspiring example of what can happen when people move into that gap in knowledge in the context of a research practice partnership, mutual trust. Nobody feels like they have the answer set. They're exploring different practices, they're studying those different practices working hand in glove. And that is exactly what is going to do two things. One is to strengthen those initial impacts because we can't just declare victory and go home even with regard to the Kindergarten impacts of Pre-K. Not all Pre-K programs are effective. Not all Pre-K programs are really giving children that rich foundation around conceptual knowledge and those unconstrained skills that they are totally ready to learn and want to learn and enjoy learning.

But then at the same time, looking ahead and paying very careful focused attention to what is happening to all children really, as they move into that stream of ongoing educational experiences. So, I want to thank you for being here and I want to thank the full team in Tennessee really for the remarkable work that they're doing. It is a high wire act. Work in this area is high risk and high stakes. We're dealing with little kids, we're presenting them with their first opportunities to experience school and those initial impressions they form. Not only what they learn but those initial impressions they form of themselves as learners, is a huge task and is such an important platform for everything else that follows. So, I think we

have a very constructive example of exactly what we want to happen in between the short term and long term outcomes if you will.

DR. HASKINS: Anybody else want to add anything? Yeah, go ahead Greg.

DR. DUNCAN: Well, let me give a more methodological take. It's much easier to assess impacts at the end of Pre-K then assess longer term impacts of Pre-K. For the end of the Pre-K year impacts you can do random assignment as Tennessee has done. You can also take advantage of the fact that a lot of states have birthday cutoffs. If they have to be beyond a certain birthday threshold in order to get in, you compare the kids who are just over that threshold compared to the kids who are just short of it. That only works for determining impacts at the end of Pre-K. You can't continue on and look at longer term impacts using birthday cutoffs. So, you have to resort to either random assignment which is obviously the gold standard or a more dubious kind of matching where you take kids who say in third grade had been in Pre-K and kids who hadn't been and then lined them up on whether they were eligible for lunch and demographics. And because of selection factors into Pre-K, that's more dubious and that's I think why and there were so few random assignment studies, I think that's why we were much more cautious in reaching any definitive conclusions about what impacts were after the Pre-K year relative to during the Pre-K year.

DR. HASKINS: So, our conclusion is not that they're aren't long term impacts, it's that the evidence is not very good and it's all over the place. Some studies show there are impacts and others don't so we didn't want to issue some grand statement that there are long term impacts. So, I didn't know you were going to say this but it was very interesting in your presentation that you commented about the reaction of the policy makers in Tennessee. Ken Dodge just told me about policy makers North Carolina, in both states they thought about using the money for something else. I expect that this is going to be a general interpretation of our results. So, we need to tell policy makers why they should continue funding Pre-K. What's the answer.

MS. MCQUEEN: Well, I'll say when I was in individual legislator's offices talking about this we have at least two and I know you would know who at least one of them may be, that's very knowledgeable of the literature base of the research in Pre-K, very knowledgeable. Knows all of the studies and he would be the first to walk through, well this is what we know and this is what we don't. So,

I'm always very impressed when I walk into his office because of his knowledge base. So, we have to be equally as impressive in what we're doing to respond and that's critical. If you have a research study that is sharing a very particular set of issues with you and some conclusions that were made and we had multiple conversations well past the research study being put forth. If you know there are things that you should be doing, your research is pointing out that there are some challenges. Now, we don't necessarily know what they are but we know that there are some challenges and you don't do anything. Well then your legislatures are going to continue to say well you need to get rid of the funding.

And so, we were very concrete of this is what we know we can do. This are quality issues that we know do exist, that we can do and here is our plan over the next three years and we want you to give us time to actually look at these issues that we have, create some continued research around those some continued ways to know whether we're being effective or not and give us that time because we don't exactly know. There's a lot of moving parts here. This is what we do know, this is what we don't this is what we know we can do and be very clear on that and do that over and over again with everyone who needs that information. Ultimately, you will have folks that will come beside you and say let's see if we can have a continuous improvement moment and then we're going to look in three years and see if there's something else we need to do or four years or five years.

MR. LIPSEY: Let me just add that I think there's another dimension of the kind of partnerships we see and need to have here. The research team on the Tennessee project went out of its way from the very beginning to brief not only the Commissioner and the Department of Education folks about our findings but to have meetings with the governor, the governor's staff and the legislatures. And as we got to the controversial point with the long term outcomes, for example, we had the opportunity to sit down for a couple of hours with chairs of the relevant legislative committees and some of the critics and skeptics about Pre-K in a room with no reporters, no microphones and no recordings and walk through step by step what we had found what we had thought the implications were so that those key legislatures had sufficient background at least to think about the policy implications when they got into the political context. What influence that had I don't quite know but I was pleased to see how constructive the legislative response was to our study which as you certainly know there was a constituency that would have been happy to zero Pre-K funding out on the spot had there not been a counter veiling argument.

Not giving up that extensive platform before we fully explored its potential for improving the outcomes for the young children in Tennessee.

DR. HASKINS: That tendency exists in every state and will not go away so beware. Deborah.

MS. PHILLIPS: I just want to add a couple of points to these good points that have been made to your important question. The first one is we know that they achievement gap open up even before the age of three. So, we don't have the luxury of waiting. The second point is there's exciting new science on the neuroscience, the early brain development of children who've grown up under conditions of adversity, in language deprived environments with lots of instability and by the age of three, their brains look quite different than the brains of children who have grown up in more supportive environments.

Finally, and I think Mark can probably attest to this, if you talk to people who work in juvenile justice they are some of our strongest supporters of early education programs. We know and they well know that if you get children off to a promising pathway rather than a worrisome pathway in life, you're going to spend less on juvenile justice interventions. Now, of course, as we've been saying all along, that doesn't say you only spend money on Pre-K and we're all saying you also have to spend money on elementary education and improve that next stage in going forward in order to reap those benefits and support those gains.

DR. HASKINS: Greg said a few minutes ago that it's easier to show results at the end of Pre-K then in the long term. Another thing that's easier to do is show results in one or two projects as opposed to 100 or 150. So, scaling up is really, I think that is the biggest challenge we now face in evidence based policy. How to scale things up and maintain the magnitude of these impacts. In fact, both Jim Mansey and John Baramous estimated based on the literature about 80 to 90 percent of programs that are scaled up to multiple sites fail. So, this is not unexpected. So, the question is what are we going to do about it and to address that in our report, we talked about effectiveness factors especially three, curriculum, coaching and orderly but active classrooms. So, now I want to ask the panel, do you agree with those three, do you think those are right? What is the way that we can make sure that we can maintain these long impacts when most places find that they fail.

DR. DUNCAN: I revert back to a case study that Dick Murnane and I included in our

book, Restoring Opportunity. I'm not here to give plugs for a book but restoringopportunity.com has a -- you can get the book but you don't have to get the book. The website has a six minute video of what Boston Pre-K looks like. Boston Pre-K is one of these -- Pre-K programs have been scaled up the entire Boston public school system. Impressive short term gains, the jury is still out on long term gains. But the formula that was developed is a very, Jason Sachs is the name of the early education director who pulled together an evidence based math curriculum called building, evidence based literacy curriculum called Owl. Combined it with a behavior curriculum and prescribed activities, almost on a day to day basis, it was very prescriptive. Very play based and teachers were given a lot of professional development but there was a coaching system that was set up. You can see the coaches at work in this video.

So, it was a matter of not just coming up with the right curriculum but it was a matter of ensuring that it was implemented to a high level of fidelity, to a high level of quality. We had occasion, we observed a particular classroom in November of one year. We went back to do the filming for the video on almost exactly a year after and the teacher was reading the same book. The Little Red Hand Makes Pizza and there was the same set of activities. So, it was a very prescriptive kind of thing but the kids were having a lot of fun. The prescribed curriculum enabled kids to be learning in a sequential kind of way which is very hard to pull off in a Pre-K classroom.

DR. HASKINS: Does anyone want to add to that?

MS. MCQUEEN: I would add, we have an initiative in Tennessee called Read to be Ready that we started a little over a year ago and it's that Pre-K through three span around literacy. And it is a combination of specific text sets that would follow along with knowledge building in both science, social studies, math and reading across that Pre-K through third spectrum as well as coaching that's associated with that. We have 200 coaches across the state that started a year ago and we're doing assessment of that work around instructional practices particularly interactive read alouds and how we work with small group reading along that spectrum. So, we are continuing to do research on that in year one. It just really got kicked off in August and so, we're looking forward to sharing over the next three years the process that we go through and hopefully the changes that occur over that time period.

MS. PHILLIPS: We use the words good bet, not guaranteed when we talk about the effectiveness factors in our report. It is based on our reading and our colleagues reading of the existing

knowledge base on what works to enable children to learn and develop effectively during their early childhood years. There are plenty of other effectiveness factors that have been proposed but again, we wanted to point in some directions where states and school districts could begin their work.

The only other one, this is Deborah speaking, that I just want to put out there has to do with the early childhood workforce itself. And the salaries in that field and are we recruiting talent, are we retaining talent in that field because that's the basic raw material, if you will, that we are training and coaching to implement these evidence based curricula and if we don't have talented individuals doing that work as I said in my comments. It is rocket science paying attention to all these differentiated levels and experiences of what children bring into their classroom. If we don't support that workforce and reward that workforce and they turn over, then all of our investments in professional development will be lost and you have to start all over again.

DR. HASKINS: Okay questions from the audience and I want to urge you to make it questions. Someone will come and hand you a microphone. Tell us your name, stand up so people can hear you. Talk into the microphone, tell us your name and ask a brief question. Let's start right here in front.

MS. WORTH: I'm Mitzy Worth, I'm with the Naval Post-Graduate School. You might wonder why I'm here. My mother was a child psychologist starting in 1931. I think the role of the instructor, the teacher, the coach whatever you want to call that person is absolutely crucial. In San Francisco, I happened to hear a briefing before the city council and four people got up before my daughter was talking about food, each one said we have to pay our preschool teachers more. San Francisco's the most expensive city in the country and they only pay $32,000 so they keep losing them. My question for you is, how do we tell this story to the public, to our lawmakers and so they understand, I would argue, those years are much more important than graduate school.

DR. HASKINS: Panel.

MS. MCQUEEN: Well, I would jump in and say we've certainly been telling that story really for the past several years on how important that early childhood, early foundations, early years are and we've made some progress. We've had $100 million invested in teachers' salaries this past year that adds to an investment. Last year we're now at about $430 million over the past three years being

invested in teachers' salaries in Tennessee. Now, we've been behind, we're catching up. Our governor has said we're going to be the fastest improving state in teacher's salary and that's across the board, Pre-K up through twelfth grade. We're trying to make that investment to say it matters, that teachers are attracted to this profession and that they stay in it.

MS. PHILLIPS: Can I just add three quick things. I totally agree with you. I think this issue is now at real time public awareness, I think it has moved dramatically. There is a new National Academy of Sciences panel looking at these issues of compensation. There's a bipartisan group of former members of Congress looking at this issue and a lot of school districts are beginning to tackle the issue of compensation matching qualifications basically.

Finally, you mentioned the Naval Institute. The military has one of the best childcare programs in this country. I tell my students in my classes if you want good childcare, join the military or move to Sweden. But they do precisely the things we are recommending. They have strong professional development, strong curricula and they have matched wages to qualifications.

DR. HASKINS: The gentleman behind her please.

MR. SANCHEZ: Claudia Sanchez, NPR. The skeptics are not going to go away. I'm curious about this question of fade out. Is it fair to say that it's either due to a mediocre or bad Pre-K program or the fact that most elementary schools fail to build on whatever boost kids are getting. We heard about redundancy. Are these two systems simply not working well with each other and what do you do about it.

DR. HASKINS: Greg, I'm going to ask you to go first because you've written about this widely and then I hope Commissioner McQueen will make a comment as well.

DR. DUNCAN: Well to have fade out, you need impacts in the first place and that's not Pre-K's problem because there do seem to be impacts in the first place. In my mind, the best bet is thinking about ways of individualizing instruction in the early grade classrooms. I think some teachers are pros at this and they're able to just naturally attend to the needs of kids with low skills and higher skills. I don't think all teachers are highly skilled in doing that. I think it's really key because kids are coming into Kindergarten, some with higher levels of skills than others so, you really need to attend to that. So, it's not inevitable. There are some computer based approaches to try to assess early grade learning, math

and literacy, identify which kids are having which kinds of problems and then direct certain kinds of instruction to those kids. So, I think that's a promising approach. But in my mind, the holy grail is improving the quality of the day to day learning experiences for the kids in the classrooms and that's true for Pre-K and that's true for Kindergarten, first grade and second grade classrooms. The more quality post Pre-K for the early grade classrooms is all about individualizing instruction so, you target the right kind of input depending on the kid's level.

DR. HASKINS: Commissioner McQueen.

MS. MCQUEEN: I would respond, I do believe that the alignment across Pre-K all the way up through third, fourth grade is critically important and we have not necessarily seen the construct of a discipline being fully aligned and then associated with professional development. So, for instance, what you do in Pre-K and then what you do in Kindergarten should build on each other and where are we spending our focus around that individualized approach with each child along that construct. You might have a scope and sequence for a textbook but are you truly using that textbook across the entire spectrum of Pre-K through third, probably not. We're not doing that across our districts in our state. So, how can we talk about what should you know in math, what should you know in literacy along that construct and make sure the professional development is associated with that alignment and that your curriculum choices which is why I'm so glad it was in this report are aligned to that as well. And that as a state, we can help narrow those choices around the best evidence that we have to match what we need in math and literacy.

Back to my point, literacy is a construct that has to be built in a variety of ways and we are poorly underperforming with having our teachers with the knowledge base on how do you do that. They're doing what they know which is kill and drill in foundational skills for two and three years and they're not building actually what kids need to have the knowledge base to perform when they have higher level reading skills and science and social studies.

DR. HASKINS: Okay, two more questions. The gentleman standing up and one other.

QUESTIONER: This is a Tennessee related question. Are there examples of school districts that have implemented Pre-K and do a really good job themselves of evaluating what is going on and learning from their experience? Is that something that competitive grants would support at a local

capacity.

MS. CHALK: Rosemary Chalk, I'm a consultant on child well-being. This is a question, I think, for Mark which is I'm curious about the choice of the word, sparse in looking at the consensus statement around the long term impacts. Convincing evidence is sparse because the conclusion that you draw seems to be that the evidence is contradictory from the existing studies. I just wonder if you could reveal a little bit more around the discussion on the choice of that word.

MS. MCQUEEN: No, we probably don't have great examples there but we're starting on that pathway with some -- we have six districts actually that are part of a large scale Pre-K program right now that was funded through a race at the top. Dollars that are continuing on and so we will have some additional through our preschool development grant funds to do more work in that area.

MR. LIPSEY: Let me say for the first question too, another component of our study has a probability sample of classrooms in Tennessee where we're looking at classroom level outcomes. One of the things we're finding which I think is not at all atypical for other states if you look at this is huge variability. Some classrooms where the outcomes are much stronger than others and one of the puzzle pieces here, I think, for Pre-K is to figure out what's going on in those higher performing classrooms is accounting for those outcomes and I don't think we know that yet.

With regard to the sparse research it's important to make some distinctions here. There are various categories of research on long term effects of Pre-K and we have to differentiate programs. We have focused on scaled up state and district funded program. Of course, publically funded programs also include Head Start and interestingly there's only one randomized study of Head Start programs and it shows a quick fade out of effects of those programs as well. And those differentiate from studies of small local programs and these legacy programs like Ada Vaseary preschool that are done in different circumstances. More extensive and more intensive and give us proof of concept but not necessarily something we apply to current research.

Within the domain of state and Pre-K studies, if you use some standard methodological conventions for what's a credible result, they're only about 13 studies of state and district programs and they their conclusions vary all over the place, from negative effects, no effects and positive effects. So, it is very difficult to make sense of the great variety of programs, the different methodologies and the

different outcomes and draw really any kind of generalizable conclusion and that's where we are now and we need to know more.

DR. HASKINS: So, please join me in thanking the panel. We are now going to perform the miraculous task of four PhD's leaving the podium and four coming up in 30 seconds.

MR. DODGE: Good morning. We are gonna jump right in to keep you moving along. I'm Ken Dodge. I want to thank Ron Haskins for his leadership in putting on this event, and Brookings for hosting it.

My involvement began a year ago when I was perplexed about the seemingly discrepant findings on pre-kindergarten. There are published reports of positive sustained impact in North Carolina and Oklahoma, other places, but only short term impact in Tennessee and WY. Susan Gaits and I decided that we wanted to sort out these findings, bring together the experts on all sides of the issue.

So the first thing we did was to approach three esteemed colleagues, Rob Haskins, Deborah Phillips, and Mark Lipsey. Low and behold, within 24 hours we find out that they were interested in doing the very same enterprise. So we decided to collaborate on a two-part venture. The first part is the consensus statement that you've heard about already.

As we made our way through that many of us concluded that, perhaps, all of the findings are true, and what we need to puzzle out or understand is what is it about the contexts or the programs that lead to different impacts over the short term, as well as over the long term? One difference may be the evaluation that's going on.

So in Tennessee it was a randomized, control trial in which children were randomly assigned to receive a year of pre-kindergarten or not. Children at the end of that year, those who had received the pre-kindergarten program were faring better. And then those groups of children were placed together in kindergarten classrooms, first grade, second grade classrooms, and the differences between those pre-kindergarten children and the control children came together. Maybe it's fade out, maybe it's catch up. The differences differed.

In North Carolina, the evaluation was a different one. Here, there were, as states are want to do, somewhat random differences in the amount of funding given across years and across

counties. There are 100 counties in North Carolina. So the evaluation was to compare the highly funded counties to the poorly funded counties within years and across years. And those districts that were highly funded had positive impacts that have been sustained over time. Helen Ladd will talk a little bit about those as well.

Now, another difference across these programs, what we've been talking about already. That there may be differences in the characteristics or quality of the kindergarten program itself. There may be differences in the kinds of children who enter the pre-kindergarten, and there may be differences in what happens the pre-kindergarten in the characteristics of the elementary schools, as we've talked about, the alignment.

So the second part of the report that we're turned to now, is devoted to understanding these contingencies. Instead of working to achieve consensus on every one of the contingencies we commissioned individual scholars to address topics on these chapters. Each chapter was discussed, written, submitted to a larger group for scrutiny, written again, revised, reviewed by colleagues, revised and reviewed again.

We have several members here to give their perspectives on the part of the report, the chapters that they have written. As well as we're very fortunate to have a national expert in early child development in pre-kindergarten, who is not a part of this process at all, to provide an independent perspective.

So first, before I introduce folks I want to highlight a few of the chapters that are not represented here today. One, we did hear a little bit about, from Greg Duncan earlier, and that is on contingence is whether children might benefit more from one kind of curriculum than another kind of curriculum. So I point you toward that chapter in the report. Greg highlighted a little bit. I want to go in just slightly more detail.

Jade Jenkins and Greg Duncan, both from University of California Irvine reviewed the many studies of curricula. And as Greg noted, they found, first of all, that 41 percent of programs use what is called a whole child curriculum. That is a child-centered strategy to encourage children to learn through coordinated activities. Montessori is one example. There are many others. But to implement this strategy -- curriculum effectively teachers need to be well-trained, and that's not always the case in

scaled up programs.

They found that 25 percent of programs use skill-based curricula, whether it's specific math skills, literacy skills, or even social/emotional skills are taught through age appropriate structured exercised. Building blocks is an example of a math curriculum being used in Boston. Paths is an example of a social/emotional curriculum being used in many classrooms.

And, finally, they found 34 percent of programs are either using no curriculum or a very locally developed, not evaluated curriculum. Jakens and Duncan found that skills-based math curricula are, quote, "quite successful at boosting math achievement relative to either a whole child or locally developed curriculum. Literacy curricula are modestly successful at boosting literacy achievement relative to the same alternatives," unquote.

Also, quote, "curricula and teacher training modules directed at improving children's social/emotional skills and self-regulation have demonstrated success when compared with usual classroom practice," unquote. So their general conclusion is that the curriculum makes a huge difference and programs should not be left to -- in an ad-hoc way implement whatever that they want to it at any point in time.

Another chapter was authored by Dale Farran of Vanderbilt University. When she examined other kinds of structural and process characteristics of what goes on during the pre-kindergarten classroom year she found several processes that quote, "appear to be important," unquote. Mainly focusing on what it is that the teacher is doing, not the teacher's credentials or education level, necessarily, but rather what it is that teachers are doing in their classroom.

Specifically she found important positive results from quote, "The teachers' language complexity, level of instruction, ability to engage children's attention, and use of more affirmation and warmth and less disapproval," unquote.

Another chapter was authored by the economist Lynn Karoly from RAND. She examined the costs and benefits of scaled up pre-kindergarten programs. You might be familiar with findings heralded by Jim Heckman and a number of others heralding the huge benefit cost ratios that accrue from some early childhood programs. But what about when a program is scaled up and implemented state-wide?

So Lynn Karoly investigated the benefit cost in this case. She found, first, that in order to ensure high quality the cost can be as much as elementary schooling. That is, she found $8,628 on average per child, per year for a scaled up pre-kindergarten program with as high as $12,400 in Boston and even $15,350 per child in New Jersey.

Lynn reach these three conclusions. First, the estimates of returns for scaled up programs are in the range of 2:1 -- are likely to be in the range of 2:1 to 4:1. These estimates are not as high as the estimates for the Perry Program and Abecedarian and others, but they're very high nonetheless.

Number two, the economic returns are likely to be higher for more expensive programs and better quality programs, even if they are more expensive. So that even with the greater expense the financial return is likely to be even better. And number three, the economic returns are likely to be higher for economically disadvantaged children. However, the total benefits to society can be larger for universal programs compared with programs targeted at only low income children.

All right. Another chapter authored by Steve Barnett examines the issues in scaling up and maintaining high fidelity and quality to the original model as programs get scaled up and rolled out state-wide. Steve points out challenges, particularly, for example, in teacher turn over and management which is common. Perhaps because of the low income, because of the kind of context in which they work.

Also, most programs he found are -- when they get scaled up the per child level of funding goes down in an effort to try -- perhaps a well-intentioned effort to reach more children, but the quality and the funding level per child goes down. He cites positive examples, though, of scaling up in New Jersey and North Carolina.

Ron Haskins has written a chapter about the challenges in financing early childhood programs. He concludes that if the aim were to provide a universal pre-kindergarten program in this country, a voluntary one, where not all children would choose to participate, even with modest quality the annual additional cost could be $8.78 billion per year. Ron is realistic and sanguine about whether our society will actually fund pre-k fully. Although, he holds promise for some states to provide significant increases.

At this point I'd like to add my personal reflection about the context of $9 billion per year. Compare that amount to what we outlay to benefit my generation in terms of social security. If my generation were to defer receiving social security for just two or three years all of early childhood programs could be fully funded.

Now, my generation's not going to willingly give up those dollars if they think those dollars are just going to go to the general budget. However, if I could be guaranteed that my savings would be directed to early childhood programs of high quality in my community I, and I think many members of my generation, my age cohort, would gladly work for a few extra years. So please put it into that context.

All right. Now, we have several authors of chapters here today who will now provide their perspectives on key issues. I'll introduce the entire team first and then we'll go one-by-one just to expedite the transition. First will be Ajay Chaudry who's formerly deputy assistant secretary for human services policy at the United States Department of Health and Human Services, and now a scholar at New York University.

Craig Ramey is professor and distinguished research scholar at Virginia Polytechnic Institute and University and one of the architects behind the Abecedarian program. Helen Sunny Ladd is the Susan B. King professor of public policy at the Sanford School of Public Policy and the Center for Child Family Policy at Duke University.

There are several other members of the task force and the team who are in the audience that I'd like to point out, including John Pruitt who is the executive director of the Office of Early Learning at the North Carolina Department of Public Instruction and the architect of North Carolina's, originally More at 4 now NC Pre-K Program. Edward Fisk, Ted Fisk, formerly education editor of the New York Times, frequent author of reports on education. Sharon Landesman Ramey is here of Virginia Tech University, also part of the Abecedarian program.

The entire team is listed in the report. And then, finally, we're going to be delighted and grateful to have Professor Brenda Jones-Harden reflect on the report. She is not part of the task force, but is a nationally renowned scholar of early child development in pre-kindergarten, and she's professor in the College of Education at the University of Maryland.

So at this point I'm gonna turn it over to Ajay Chaudry.

MR. CHAUDRY: Thanks, Ken, for both inviting me to participate in today's panel and asking me to participate in the development of this volume, and pulling it all together in a very, very short time. It's very impressive. And thanks to Brookings and Ron Haskins for hosting this event.

I think it's good to have these two panels and synthesis efforts together. In part because moving from the first discussion about how we sort of parse out how we develop a shared sense of what has been, to this point, a very -- I would say a very significant amount of evaluation research. But on what has occurred and what are some very dissimilar contexts looking at dissimilar program design and services, employing different research methods.

And, in part, in my few minutes I'm going to offer some description of what exists, to put some of this into context, and discuss the nature of the variations that occur in policies across existing programs, and that pose challenges for states and localities as they look to build on public preschool education in the future.

So in summary I'll say quickly that the number and characteristics of children participating in public pre-k various greatly across the states, as do the types of programs, services, and policy choices for nearly every key element of program design that you can imagine. And this makes both -- this is something that both policymakers, like the commissioner and researchers, like the others on the panel, really need to take into account in thinking about the next steps forward, to really understand what exists about what we've heard.

So, one, how does public pre-education services vary? So states and localities have been building and implementing programs over the course of the last 25 years. That's sort of the age of public pre-kindergarten. They differ tremendously across many great dimensions. Who the kids they serve are, what ages they serve, what hours they provide, who teaches, what the content of the time in the classroom is spent on.

Even what is called pre-kindergarten varies. In some places it is a specific, largely separate, and stand-alone program of services run by a government agency, and then linked somehow to the K to 12 education system. I think that's what most of us hold in our mind when we've having these conversations and thinking about it. But in many others, probably in more others, it is primarily just, in many states, it's just a funding stream that is often combined with other early care and education funding

streams to support service provision.

And, really, there's a hodgepodge across that continuum. You know, you can have programs that are truly integrated with the K to 12 system of which there are a few. There are some that are trying to go there and get closer to that all the time, and then there are others where, you know, preschool is just money that goes into school districts to begin to provide services or to mix with other money to provide services.

Also, you have to understand pre-kindergarten services have been developed and exist in the context of a broader landscape of center-based preschool education. And I'm just talking now for children ages three to four across the U.S. And there's actually just a minority subset of those. So there's 130 -- in our chapter in the report we say there's -- from the National Study of Relacore and Education there's 130,000 centers across the country are providers of school-based -- I shouldn't say centers, providers, so they could have multiple centers in the country. Of which 36,000 or less than 30 percent receive any pre-kindergarten funding.

And most states and localities have been adding pre-kindergarten services over the last 25 years. They've been building on top of similar center-based preschool services. Including a large share who've been attending private center-based preschool programs that have existed longer. Headstart, the federal program, and subsidized center-based childcare provided with federal and state funding.

These existed prior to the development of public pre-kindergarten services, and the emergence of public pre-k has altered and made an already complex and fragmented landscape more so, especially when it comes to issues of governance and policy. So what does this landscape look like?

Well, actually, currently or in recent years about 4.5 to 5 million of 8 million three and four year olds are in some sort of public center-based preschool. And that number has actually not changed very much in the last ten years. We've been in that range for ten years. And actually, more -- even though there's much more attention being paid right now -- put on public pre-k education and preschool right now. Most of the dynamic growth and the shifts in the distribution of who provides preschool occurred in the 40 years before that, so between 1965 and 2005.

And in the book I talk about how this happened in basically two major -- there were two

major growth periods and dynamic change periods. One from 1965 to about 1990 there was a huge expansion in private preschool education. We went from about 10 percent of kids of three and four year olds in public preschool to 40 percent of kids in that very short period of time.

But almost all of that growth was in private preschool, and by 1990, so a whole generation earlier almost -- the majority of three years olds, as well as four year olds in families in the top quintile of the income distribution, as well as of a majority of children whose mothers were working and college educated have been attending preschool for one to two generations already. And we had very stark disparities between that group or the top third of the income distribution and everyone else.

The second big dynamic growth period was the expansion of public pre-kindergarten, most of which occurred in the 90s. You know, from about 1992 to about 2005 there's a big expansion in public pre-kindergarten. Also starting about 1992 there was also large annual increases in both the Headstart program and the Childcare Subsidy program in the late 90s as well. So that period then you see a large increase.

There's a chart in the report on Page 6 that shows you the difference in the sort of expansions of public and private preschool. And then with the onset of the Great Recession and tightness in state budgets there's been very modest changes over the course of the last ten years.

Then with the emergence of public pre-k one of the things that has shifted in the landscape is the differentiation of services for three year olds and four year olds. So, again, in public pre-kindergarten, it's cited in the report, most of the design has been for quote, "a pre-k year," which is an interesting expression used in the first panel. Pre-kindergarten services shifted to designing one year programs while the majority of other services to kids are generally seen as sort of two year sequences.

Not that they're developed well as two year sequences, but -- so, for example, in pre-k there's six times as many four year olds across the country being served as three year olds. But if you look at private, and there's a chart in the chapter as well on Page 7 of the report that shows when you look at private preschool education, when you look at Headstart and once you look at childcare subsidies, and when you look at the usage among families in the top third of the income distribution they're almost a 1:1 ratio.

And, in fact, there are more two year olds in higher income families that are in center-

based education than there are three year olds. And the average child in the -- the module amount of services for a child in the upper end of the distribution is two or three years of private preschool education or private -- prior to kindergarten education than others. So we've seen sort of a pulling apart.

And, in one way, public preschool actually helped to narrow some of the gaps for low and middle income families in private preschool, but they're still sizable gaps. So half of all children with family incomes below $100,000 are in center-based -- of three and four year olds are in center-based preschool in 2015. And three quarters of those rely on public preschool. Three quarters of all children in -- who make over $100,000 are in public preschool and three quarters of them are in private preschool. So they're attending very different preschool programs.

And so when we talked about the variation in, you know, what occurs when kids arrive in the kindergarten classroom, and this also corresponds to a period where the school readiness gap at five is also explained. It's widening tremendously in the period between, sort of, 1975 and 2000 when this gap in prior experiences before kindergarten is widening.

I'm going to sort of skip over to sort of my last set of remarks which is around the policy and governance challenges. So in addition to these issues around program design around the choice of what age to serve, around whether and how to design the program so it might reduce disparities in access there's a whole host of other policy questions on which there's a lot of variation and a lot of choices to be made.

There's issue around service settings. So, again, we have in mind something that looks like it's a play-based resemblance of kindergarten in a school building. Well, that's not really what exists in most places. There's the issue of mixed auspice which can be a positive thing. But pre-k can occur in school settings, community settings, nonprofit settings, for profit settings, within government agencies, and the chapter we talk about -- discuss some of the variation there.

Program hours. Most preschool is part day for one year, three hours compared to, you know, multiple years of full day that higher income children receive. But I will say that Georgia and Oklahoma and the District of Columbia offer six hours or more among the places the provide universal or near universal services. And actually the only place that provides universal services to both three and four year olds for a full day is the District of Columbia.

Finally, curriculum is an area where this huge variation, and Greg and his co-author do a great chapter on that and that's been discussed. My last comment will be around -- my last two comments will be around the workforce which I do want to say there's a tremendous amount of variation, a lot of work to be done about how we look at what are the qualifications that are expected in preschool educations. With that work also, looking at what the compensation is that goes with that. Because you can have high qualifications, but you don't get the highest quality people with those qualifications if you don't have income levels that can draw them in or retain them or retain the highest quality ones.

And then also, what type of training and professional development are provided to increase quality levels. Because even if you don't have high quality levels for beginning teachers there's ways that we've seen in some research studies that you can increase it.

And then finally around governance. There is no common governance structure. How much is determined set at the state level and how much is determined in local school districts in public pre-kindergarten varies a lot. You know, state budget appropriations, legislatures, and administrators have a lot of levers that they can push around the amount of funding. How to prioritize who gets served. But a lot of this sort of nitty gritty about hiring practices and other things occur at the school district level.

In many places, pre-k has been advanced by local school districts and not by the states. I'm including some of the broader expansions like the Boston public school expansion we just heard. And then there's a huge amount of fragmentation relative to the other services in this domain. So public pre-k tries to coordinate with Headstart and that happens a little bit in some places, in some places it happens a lot more, D.C. being one of them, again, on that issue.

But, again, pre-k is a component of a larger service system of which there is no major coordinating government structure. With that I'll pass it along.

MR. DODGE: Thank you. Craig?

MR. RAMSEY: Thanks, Ken. I am very thankful and excited to be here today to be part of this effort. I'm thankful because I think that the consensus statement is strong, broad, and well-defended, and will be easily understood by people of goodwill.

I'm excited for a number of reasons. The most important of which is that I believe that when the history of the kind of endeavors we're here to talk about is written 25 years or so from now this

particular meeting and the efforts that led up to it will be regarded as an absolutely turning point in the conversation in ways that I hope to elaborate on very briefly.

I also want to thank Ron Haskins and the Brookings Institution for having this discussion here in Washington D.C. because I believe that this is where the discussion should start, and it will go into every state and every county in every state as the word goes out.

Why do I think this is so important? I hear a deep and resonant consensus that we need to move to a full lifespan perspective if we are to understand how the various systematic interventions that we make in life to improve outcomes, be they educational, health, or in social services is really misguided if we take a two short window span. I thought that Deborah was absolutely articulate beyond words to say that we're talking about very complex forces that build over time that come together to set the stage for the challenges that each and every human being on earth faces at the next stage.

We do differ in the rate at which we get there and we differ in where our apogee is at the top. I believe that this set of discussions will put to bed the issue of critical periods. Thinking that if we just do something right at one point we will have a guarantee of outcomes far into the future. What I believe it challenges us to do, and it challenges us to move beyond evaluation and into in-depth research is that we must understand the particular behaviors and mechanisms that bring about change so that we can then, with confidence, induct new teachers, help parents understand, help the children themselves grow and learn in ways that we can assess and measure along the way, and take corrective actions whenever that is necessary. And because it's a very complex system, corrective actions are going to be need very frequently.

I come out of an aerospace family and we know very well that if you don't make decisions second by second, it's really much shorter than second by second, things can go awry and go awry in disastrous ways. We are talking about the most complex thing that's ever been studies. How to regulate the course of human development to produce a larger quantity of competent, caring individuals who will carry on a participatory democracy and a competitive economy.

I believe we are up to the challenge. I believe that we have the theoretical models. I believe we have the analytical capability. I believe we have the resources to carry this out, and I believe we have a 50 year history on which we can build to recognize that the questions now have changed. We

are into a fundamentally new era and the question of whether we can have an effect or not is no longer the question.

We must engage in more comparative and deep understanding of what is actually being changed and how it sets the stage for what children encounter next. So I believe, in conclusion, that we can go forward with confidence knowing that curiosity works in our favor. We do have questions that have not been adequately addressed, but that the challenges that go with doing nothing suggest, to me, that the stakes are actually beyond what any of us have so far calculated. I think the next stage in our inquiry is going to be uplifting and very exciting. Thank you.

MS. LADD: I'm delighted to be here. I, like Ken, am from North Carolina and have had the opportunity to work with Ken, a psychologist, and Clara Muschkin, a sociologist, on evaluating the North Carolina More 4 program. It's now called the North Carolina Pre-k program for which we found quite large effects all the way through elementary school. So we've looked at outcomes in third through fifth grade.

But that's not what I want to talk about today. I want to put my policy analysis hat on to force us to go beyond just the question of whether there are positive effects of these programs, which the consensus report concludes there are, to ask questions of the type are they good investments, and how should we redesign those investments to make those the best.

So I want to talk just very briefly about three of the chapters. One is the one Ken already referred to, the captain by Lynn Karoly on benefit cost analysis, a chapter by me on subgroup effects, and a third chapter by William Gormely on whether programs are better investments if they're targeted preschool or universal preschool.

So just very briefly, picking up on Ken's comments on Lynn Karoly's paper. I think it's important to ask the question, are investments in early childhood or preschool programs good investments? And as Ken mentioned Lynn's very careful study and thoughtful study using the term of social benefit cost analysis concludes based on the studies that have been done, and there aren't as many of those as we'd like because these programs have effects over time. She concludes that investments in preschool programs would generate greater benefits than costs. And as Ken said, in the range of $2 to $4 a benefit for each dollar of cost.

Now, a couple of key notes about that. These benefits that she's talking about are benefits that accrue to lots of different groups of people: to the participants, to tax payers in the form of, perhaps, reduced cost for special education. Ultimately, as better prepared students are in the labor market, eventually in the form of tax savings. But also to society in general in the form of lower crime costs. All of those go into a benefit cost analysis.

I emphasize that because this is a challenge to policymakers. The benefits do not all accrue at the local level or at the state level or to the groups making decisions about the investment. The other aspect of the benefit cost analysis is its emphasis on the fact that these benefits accrue over time, and sometimes we have to make estimates, and she spends a lot of time talking about how we make those estimates and projections.

There's uncertainty about this, but in any case, what we're talking about here is investments that will lead to benefits over a long period of time. And that makes it harder to sell them, but we need to sell them as investments, not as programs that will generate immediate benefits.

So one of the questions that comes up throughout is if we're going to make these investments we know their costly. Should they be targeted at the most disadvantaged students or should they be universal? I don't have a lot of time. From a cost perspective, you might think well, they should be targeted, and if you compare that with one of the consensus findings that says the most clear effects are for disadvantaged students you might think, well, maybe these programs should be targeted.

But a key point that is emphasized throughout and in Lynn's paper on the benefit cost analysis is the programs have to be high quality. So then the question is if we go ahead and invest in the universal pre-k program there may well be reasons that this would lead to the higher quality programs that are absolutely essential for everyone, including the disadvantaged students. We may be able to deal with the workforce pay issue. We may be able to attract better teachers into these programs. So there's a trade-off here that we're not going to resolve today, but is worth a lot of discussion.

If we want quality programs we may want to invest in universal programs and justify those on the fact that there are benefits not just to disadvantaged kids, and the evidence shows, but to all children. So let me stop there.

MS. JONES-HARDEN: Good morning, everybody. Thanks, Ken, for inviting me, and

thanks for this great panel. This was great reading over the last couple of weeks and I will use this in my classes with my students in early childhood.

So my brief comments are going to be based on a couple of my recent experiences. One, conducting with my colleague, Elisa Kline, the evaluation of Maryland's pre-k program. So we're not going to be on your bibliography in a couple years, so I'm glad to say that. But also, a couple of evaluations I'm involved in in D.C., as well as my role as a faculty member in the early childhood education program at the University of Maryland.

So I'm going to make a couple comments that build on some others and some chapters in the book, and a couple of comments that just come from own read. First of all, one of the absent pieces in this work, I think, writ large, not just this text is what are the parent contributions to the uptake of pre-k? And this is something that I live with daily in my work.

The text, I think, really did a good job of trying to help us think about what those early home experiences might be prior to the pre-k year. But one of the things that I'm really interested in and in holding out my tin cup to lots of foundations to try and do some home visits on our pre-k evaluations so we can talk about simultaneous home experiences. Like, for example, whether the parents are even getting the kids up to take them out there, but also whether they're stressors in the home.

I think, Sunny, in your chapter you even talked about in a few evaluations they've started to look at the mental health needs of parents. So those kinds of things I think are critical to look at.

The other thing for me, again, in living with this currently is what child factors really are being considered in the delivery of pre-k. I'm very moved by some of the differential susceptibility kinds of issues that have been raised, and how we can think about whether teachers are even connecting what they're giving to children based on children's factors. And I'll talk a little bit about how we're addressing that a little bit in our teacher preparation program.

I also was very appreciative of the black box issue, but I think there's some other black box issues that we need to address, and we're trying very hard in our study, particularly in Baltimore, to see if we can do it. It's not just what of the curriculum, but how the curriculum is being implemented. Baltimore City, for example, many of you who live in this area might know have the same curriculum across the city, but let me tell you, having been in these classrooms I do not see the same thing. Like

Greg talked about he saw the same thing from year to year. I don't see the same thing from day to day. But that's, you know, something that I think we're trying to look at in as many ways as we can.

Another thing that's come up for us a lot is the concentration of risk in classrooms. We have found some very good high-quality teachers with very high-quality curricula. When they get into classrooms where, for example, I just visited a classroom last week where there about seven little boys who probably need to be in a therapeutic nursey. That curriculum is not being delivered at all, I can tell you. So one of the things that we're really interested in looking at is this issue of what teachers have to contend with in terms of risk factors into their classroom.

The other point I want to raise is -- and we have not been successful in looking at this in our particular pre-k evaluation. We're looking at executive function. Executive functioning, which you all know is a big deal now, but social emotional outcomes we really haven't done, I think, as good a job as we should.

Certainly, in our evaluation, and I'm thinking about even the studies way back with the childcare study where we, you know, learned about behavior problems, but also the recent work of Walter Gilliam where he's talked about the high expulsion rate in preschools and what he's learned about teacher mental health and things like implicit bias among teachers. I think our research would really benefit from looking more carefully at mental health of teachers and how that relates to a kid's social emotional outcomes.

Then I want to just make a couple of points about, you know, Ken asked me to think a little bit about whether I thought pre-k could reduce the achievement gap. I won't touch that with a 10 foot pole, but what I will say is that I think something Deborah said was so important. That we need to really think about how the achievement gap really can be seen as early as the toddler years, and so we have to think very carefully about using those years well and providing high-quality infant/toddler programs.

The other thing that I think is important. I really liked in the book this charging station metaphor that people talk about, and I'll channel Deborah's and my graduate school mentor, Ed Zigler, who always talked to us about how you can't expect a preschool program to be an inoculation against poverty. It's just ridiculous to think about it in that way. Particularly because we know not only is poverty a long term thing, but it's such a complex phenomenon that has so many different things.

So I want to say one word about our program, and this relates to Greg's point about individualization. A couple years ago we made the decision to close our early childhood education, just suspend it completely and have an early childhood education, early childhood special education program. Partly because of this individualization issue. We felt that we were producing students who could do really well, and they were preschool to third grade trained. So they could go into Montgomery County, for example, and there's some schools in Montgomery County where our graduates are 50 percent of the teacher workforce. So we know that they've gotten three years of pre-k and k and one to three, so they could do pre-k to three.

But we were finding that their individualization skills really lacked. So now we have a totally integrated early childhood education, early childhood special education program where they are learning how to individualize in the way a special educator would. So I'll stop there.

MR. DODGE: We're going to move to a panel discussion and then leave plenty of time for questions and answers from the entire audience. At this point I want to recognize, I believe another member of the taskforce is here, Lynn Karoly. I'd like to recognize her and her contributions to the taskforce as well.

I want to move to the panel for discussion by opening things with a question. The policy question about whether pre-kindergarten will function best and have greatest impact if they are administered universally to the entire population of children in a community or targeted towards a specific subgroup such as children from economically disadvantaged backgrounds.

I have to point out that 200 years ago when we contemplated beginning public schooling in the United States which was going to lead the world. This was a primary question about whether public schools should be universally administered or targeted toward low income children. There were critics who were saying that it should not be universal because those upper-middle class children are going to get their private tutors anyway and tax dollars shouldn't go to them, but should be administered and directed toward immigrant children who were in particular need of learning how to become citizens of this democracy.

Of course, universality won out and here we are today. So my question for all of you, I want to start with Sunny Ladd, is what are your perspectives on that question? Particularly with regard to

the potential for children interacting and influencing each other?

MS. LADD: Thanks. Happy to comment on this. The North Carolina program, the More 4 program, now Pre-k, is a targeted program. But the neat thing about that program is that it sets high standards for size of classroom and what was going on with the standards for the teachers. And each place that offered the -- or the entities or providers that offered it could open up to non-funded pre-k students.

So what that meant is there were spillovers from the funding that went for the disadvantaged students to the other children because of these high quality standards. The other type of spillover that happened was alluded to earlier, as Greg was talking about the importance of elementary education, even if you have a targeted program if fewer kids are entering kindergarten with no background in schooling the challenges for teachers are hard, so there's spillovers there.

So even with a targeted program there can be positive spillovers to others, and that may be a justification for the targeted program. But I think we need to come back to the more basic question, what are we trying to do? We're long past that early period when we thought K through 12 education was just for disadvantaged. Would we ask the question today should grade two education just be public -- K-2 education be just for disadvantaged kids or for everyone?

MR. DODGE: Ajay?

MR. CHAUDRY: So I agree with everything Sunny just said. Before the meeting, Deborah had indicated, you know, repetition is good, so I want to highlight a couple things that Sunny said with, you know, some of the information in our chapter here. Is that, first of all, the problem with access to preschool education is one that extends across most of the distribution by family income.

So when I said that half of all kids below $100,000 -- families with income below $100,000 don't attend that doesn't vary that much across that distribution. So, you know, we show in a chart that actually families that are near poor attend preschool less than families that are poor, and families that are moderate income, so with incomes between 200 and 400 percent of the population. I mean, 400 percent of the poverty level are between $50,000 and $100,000 only attend preschool four percentage points more than the poor.

And then it jumps by, like 30 percentage points at the next sort of income level. So this

goes to the point of what we're -- and the other thing to say is, as I've said, there's been two generations -- across two generations higher income families have been sending their kids to preschool. Their test scores at kindergarten entry have gone really high. That is the primary source of the increase in the achievement gap is that better off kids are doing so much better.

Whether that's attributable to preschool, I don't have the answer to that, but it corresponds to the timing of when preschool expansion occurred. And there's other research to show that children from higher income families are less likely to then go to K to 12 schools that mixes very much over this period by family income. So the rest of the kids are all in situations, whereas you say, their teachers are having their Herculean task. That they're taking care of the most disadvantaged and the moderately advantaged and trying to teach and differentiate within that level.

So, I mean, I think that really -- there's a tipping point at which something is shown to benefit all children. That all children need it, and that you need to have a common starting point for education. That's what got the U.S. to be the first in the world to get to both elementary education and secondary education of any place in the world. But not having done that means we're last in the world now among all developed nations in getting to the point where we start universal education at any point earlier than five across the board.

MR. DODGE: So my next question will be for Craig Ramey. And I want to point out that the other issue that was debated when public schooling was initial contemplated was the age at which it should begin, and the best developmental science 200 years ago suggested that children didn't learn anything before they were 7 years of age, didn't make a difference. Seven is the age of reason when children could begin to reason. That was the best developmental science, and hence, public schooling began at age 8 or maybe age 7.

The developmental science today is quite different, and certainly shows the importance of early learning, brain development, and neural development, and development across the lifespan. So my question for Craig Ramey is this, that we've talked about and heard a lot about that a major contingency of whether the pre-k year has an effect that lasts is what happens before the pre-k year, and then what happens into elementary school after the pre-k year. And you talked about it in your remarks, but could you get concrete with some ways in which alignment could occur or is important and needs to occur?

MR. RAMEY: Happy to. We know from multiple studies that by the time really disadvantaged kids at 18 months of age we can detect measureable problems in their development: linguistically, cognitively. We're not talking mainly about motor development, but about the ability to think and talk about experiences.

If we acknowledge that our science has been moving us into deeper understanding, we're not talking about doing any kind of backtracking on what we have done historically. We're talking about taking advantage of an evolution in a knowledge base just as we do take advantage of that in any other complex industry: automobiles, jet engines, whatever.

So no defensiveness needed from the early childhood community about saying, you know, gee, that three month period that was originally planned for Headstart probably in retrospect wasn't exactly what we should have done. But thoughtful people, at the time, thought that was a reasonable thing to do. So if we are going to engage in prevention, by which I mean supporting the adequate development of individuals to a level that's somewhere near where they can perform then waiting until age four or three means that we are engaged in a catch up proposition.

That is not the case for children who come from very advantaged families. And so we need to understand that we have people that have different needs that are detectable very early. That those needs can be met in a variety of ways: at home, in childcare centers, in daycare programs. If, and only if, I submit, we manage to infuse those situations where children spend time with the developmental experiences that undergird normal, healthy development.

And so I would say in conclusion that in order to bring a scientific perspective to this, which I believe is necessary, both a scientific and a developmental perspective. Both of which are historically new for this area. That we have to be very careful how we write the right-hand side of the equation. Meaning, the outcomes that we are interested in.

If we write them too narrowly, if it's all about just getting kids ready for kindergarten or just getting their literacy skills tuned up -- oh, and by the way, we just discovered we should probably add some math as well. Oh, and then we probably should be doing some thinking about their social skills and how they -- well, yes, it is big. It's complex, and the debate should be on what those outcomes on the right-hand side of the equation can be. And then we can do the engineering to look at the relative

contribution at different points in development to things we're now debating that in 50 years will seem like red herrings dragged across the stage to distract us from the main point.

This country cannot afford to have a substantial portion of its population unable to participate educationally, economically, or civilly or we will pay a price.

MR. DODGE: Brenda?

MS. JONES-HARDEN: Yeah, if I could just add to that. I've been involved recently in a couple of evaluations of zero to five programs. And I would argue, I know this about pre-k, but that's the way to go. In fact, Ken just did a public policy presentation at SRCD about the importance of zero to five.

But just quickly, in terms of our evaluations, we found that if kids had two or more years of early childhood care and education their outcomes at age five were better, so that's the number one thing. But the second thing was we, and this is a project that we're still involved in. You all might know that Headstart just had these five pilot programs to look at zero to five programming rather than just zero to three and three to five. So they had us pay very close attention to things like transitions from the early Headstart to the Headstart program.

And one of the things that came out of that was a zero to five early learning framework that allowed us to sort of map on language and literacy from zero to five. And even math concepts and science concepts, if you can imagine, in the infant/toddler years. So I think this is a way to think about this that moves us away from thinking, again, that this one year inoculation is going to make a difference.

MR. DODGE: Thank you. We'll go to Ajay and then we're going to open things up.

MR. CHAUDRY: Great. So, and I'm going to echo some of these things and provide a little bit more context. So the achievement gap or the learning gap at age five has grown tremendously. It's now 1.2 standard deviations which, for those of you who don't think in terms of standard deviations, which I think 99.6 percent of the population doesn't. We have some of the people who do in the room, so it's very big. It's huge. It's the size of the learning gap across the entire K to 12 years.

So meaning that most of the gap that you see across the years is present at kindergarten entry. It's the equivalent of about a year of learning for a young child or the equivalent of about 90 points on an SAT test on the math and verbal sections. If those are markers that you can see better. Well, at age 24 months half of that gap is also already seen. So a half of standard deviation gap or six months of

differential in the learning between the top and the bottom.

The other thing, going back to the universal question is, the way the gap has been spreading is not so much from the top -- it has been spreading from the top to the bottom, but that's because it's spreading between the top and the middle as well. So the gap between the top and the middle is now equivalent of about 0.6 standard deviations or you can do the math on the other side, six months of learning and so forth.

And that same level then is -- you know, one thing Heckman does -- expression that I really like of his is skills beget skills. If you don't have that learning then you don't -- you build on it, and one standard deviation at age 15 starts to correspond to two or three years of learning differential that you have at that point.

And then the other point, I'm sort of thinking about birth to five. I will make a quick plug that my colleagues and I have recently published a book called Cradle to Kindergarten and in the book we have a chapter on universal preschool, but it's one of four chapters on how we should rethink services for the most disadvantaged and make them earlier. Again, that you wouldn't do three months at age four to address it, and sort of what Headstart should look like in the future, and how we should think about other supports in the birth to three years.

And in the book we address, you know, the many sort of policy issues and we take a take on all of them. What's the evidence of why would we do universal versus targeted? I mean, I will say that we do call for a major platform that would cost $70 billion a year, $33 billion a year of which would be preschool education. But to put that into context, we spend $620 a year or 4 percent of the United States gross domestic product on K to 12 education.

If we were just to spend that. Say, well, anything that we as a people spend on kids when they turn six why are we not spending that when they're three? That would be double as how much we're asking to invest. That would be $140 billion. So we're basically saying spend half as much as you spend on the seven year old year on the three year old year and you can do a full plan to meet the needs that is part universal, part targeted based on what's needed.

MR. DODGE: All right. Let's go to questions from the audience. Here in the white jacket. Yes?

QUESTIONER: Hi. My name is Contessa Bourbon from the New York Times and London Times. I'd like to ask the panelists what is your view on states funding the universal or targeted pre-k education? Should they increase taxes as it's being debated in New Mexico where there will be beverage tax to fund its pre-k education? And do you think the federal government should increase funding for pre-k education universally or targeted way?

MR. DODGE: Sunny?

MS. LADD: It is costly. I think the states should be funding pre-k universally. Now, a few states, and West Virginia's the prime example, couldn't do it immediately so they started out with a targeted notion, but had a planned move to full funding within a few years, and I think that may make sense for some states so they don't do it all at once.

In terms of the federal role, don't forget that education, K through 12 education, is mainly a responsibility of the states. Constitutionally it's a responsibility of the states, but the federal government does have a role, an equal protection role. So my own since is the states should be doing this, and then the fed should come in with financial support, as they already do through Title I for K through 12, but substantial financial support for disadvantaged children in the early years and special ed.

MR. DODGE: Craig then Ajay. Then we'll go to another question.

MR. RAMEY: I've been working for the past ten years in Louisiana to help them develop them state-wide pre-k program. And one of the things that has been done there I think may have some implications for other places. Children who came from a certain cut point below which it was free for them to go to a four year old program. Above that it was open and people were invited, but there was a sliding scale.

So how you finance it, and there's some discussion of that in this report, is, I think, going to require a lot of creativity. Can the feds and should the feds put more money in it? I'd be very surprised if the answer in this room was no. It's really about the rationale that undergirds that request that has to be clearly articulated, I think.

Then I think we should be open to a variety of funding mechanisms. But as Ajay has point out, you don't have to sell this to upper middle class parents. Over three quarters of them are already doing it. Why are they doing it? Well, two reasons. One, their lifestyle requires that their children

typically have some place to be while both parents or working or if it's a single parent is working while one person is working.

And the other is they are the biggest consumers of the developmental literature and have come to believe that what happens early is important. And having lived in Washington D.C. for ten years that if you were to offer at only $18,000 a year a high quality program you would have to, you know, be very careful how you stepping into public because you'd be overrun. Because in this town ten years ago people were spending well over $20,000 for pre-k programs. So --

MR. DODGE: Quickly, Ajay, and then I want to make sure we get to more questions.

MR. CHAUDRY: So I think there's a reason that we have the pre-k that we have that's going to make this challenging. So as it's come up, we only serve four year olds in many places. And in many cases the amount of expenditure per child is a third of what is spent when parents buy it themselves. Right?

And that's in part because states are fiscally constrained and they have to take an incremental approach which is why we get to these issues. But the interesting thing to note is there's a strong democratic will for this, as we've seen from recent referendums. So from places as diverse as San Antonio, Cincinnati, Denver, Seattle, Philadelphia, every place where it's been put on the ballot people have voted for specific tax increases to do this.

And tax increase referendums don't usually pass. If anything, tax limitation referendums do. So this is the one issue on which there hasn't been a tax referendum on this issue in which the populous has not voted to provide some incremental expansion in preschool for --

MR. DODGE: Here we go.

MR. CHAUDRY: -- so.

QUESTIONER: Thank you very much. In terms of -- June O'Connell, tax payer. In terms of universal education -- I pay a lot of property taxes for a school system that is economically segregated and it's across the river. So my question to you all in terms of the prospect of going universal is in the suburban, urban context school districts are by zip code, and they economically segregate the rich and the poor, so you'd be giving the affluent free pre-child education, but with the same economic instability that you have in, say, parts of Baltimore.

On the other hand, in rural areas school districts are contracting because they're losing people. So you might need a bigger and bigger zone to give preschool in the middle of rural Wisconsin or rural Virginia. So my question is in the universal conversation how do you look to avoiding sort of the sins of the past?

MR. DODGE: A quick answer. Professor Ladd?

MS. LADD: I do not have an answer, but I want to emphasize a point that many of the speakers have made this morning. There is no single right answer for all parts of the country, and different states are going to have to deal with this differently, and local governments are going to have to work with their state. Both groups are going to have to work with researchers to come up with strategies that meet a multiple of different goals.

MS. JONES-HARDEN: Actually, when you raised the point about universal targeted that was the first thing that came to my mind. We have de facto segregation, certainly in the areas that I work, and even though D.C. has school choice and there are lots of parents who are going all over the place what I'm seeing is the most disadvantaged children are stuck in certain areas and that's where they go to school for K to 12.

So in terms of the post/pre-k factors they are experiencing the most horrendous schools. But also, I would argue that their pre-k experience is tough. They don't get to experience the middle class kids that sort of support the kind of thing that we're talking about in terms of universal and the lack of stigma.

So what our approach has been, because we only train teachers, for example, who are going into the kinds of programs that I evaluate is we teach them how to work with a particular set of children. We have behavior management classes. We have everything under the sun. We make them go on community walks. We make them learn Spanish. I mean, as many things as we can to sort of help them understand that they have to deliver pre-k in a particular kind of environment. And I just feel like that's a reality that we should take on.

MR. DODGE: We are out of time, so let me turn it back over to Ron Haskins.

MR. HASKINS: So that I can say good-bye, thank you so much for coming, and join me in thanking our various presenters.

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