Chapter One — The Facts Are Painfully Clear And The Opportunities And Dangers Are Obvious

The functional reality for our early brain exercise impact is painfully clear. The best predictor for which children from all groups will end up in prison by age 18 is the number of words in each child's vocabulary at kindergarten.

Very young children with vocabularies that only contain hundreds of words are far more likely to go to jail than the children who enter kindergarten with thousands of words in their vocabularies. The learning process for each and every child starts at birth — and even the first year of life is a critically important year for each child.

New research shows us that we can see differences in the learning levels of children as early as 18 months — with some children already months behind other children at that age.[3]

We can predict with a very high level of accuracy by age three which children are going to be unable to read — and we know that the children who are reading impaired by the third grade are 40 percent more likely to get pregnant in their teen years, 60 percent more likely to drop out of school, and more than 70 percent more likely to end up in jail.[7]

That is not an insignificant or small-scale problem.

We know that we have more people in jail than any country in the world — two or three times more prisoners per capita than any western country — and we know that more than 60 percent of our prisoners either read poorly or can't read at all.[8,9,10]

We also know that 85 percent of the school age children who are currently in our juvenile justice system either read poorly or can't read at all.[11] Most of the children in the juvenile justice system today are labeled functionally illiterate by the people who study their literacy levels.

Children who have trouble reading are far more likely to have significant problems with other key areas of their lives. The correlation is obviously not 100 percent, but the data clearly tells us that the children who do not learn to read are far more likely to drop out of school, far more likely to be in trouble with the law, and far more likely to end up in jail.

We also know from relatively new and extremely important biological science that the basic ability levels that are needed to support reading in children happen in the first three years of life. Brain development starts at birth.[1]

We now know that brain exercise for infants and babies in those first years of life gives us stronger brains. Children whose brains are functionally exercised by direct interactions with adults in the first three years of life end up with brains that are better able to learn when each child reaches school.

That difference in learning readiness happens for children because those first three years are the major and most important years for physical brain growth and for brain structure development for each child.

Year one is extremely important. Measurements show us that children who do not get their brains exercised in the first year of life tend to fall behind other children in important ways by the time they are only 18 months old.[3]

Our brain biology is built on having the first three years of life — for every child — be the years when neuron connectivity levels in the brain are established that last a lifetime. If we exercise baby brains, then the neuron connectivity levels in the exercised brains are high. If we don't exercise brains at that point, a natural pruning process happens and we end up with fewer connections in the unexercised brains.

That exercising, building, and structuring process starts in each brain even before birth. Key parts of that process are most intense in our first three years of life. The impact of the brain structuring process begins immediately.

Good research now shows us that even the first weeks of life are relevant, and the first three months of life actually can be very important for the emotional structuring of each brain.

Studies have shown us that the children who are responded to most effectively in the first three months can have higher levels of emotional stability that can sometimes help those children for their entire lives.

Children who feel a sense of security, safety, and direct parental responsiveness in those very first weeks and months can end up with positive emotional grounding levels for their thought processes that can create affirming underpinnings for the child's emotional well being that can last for years.

The appendix to this book has an addendum that contains a description of the opportunities and the risks that exist in those first three months for each child.

The first three months are not as important, however, as the first three years. Every month is important during that three-year time frame for each

child. Those first three years are, in their entirety, extremely important years for the biological brain growth processes for all children. Brains who are exercised in those initial three years of life tend to be both bigger and stronger brains.

We need everyone who is concerned about the future of children in this country to clearly recognize and understand the fact that the first three years for each child offer the biological opportunities to significantly support and build the strength of each brain.

Education Does Not Start At Kindergarten

People used to believe that education for each child starts at kindergarten. Those people were wrong. The brain of each child begins a frantic growth and education process as soon as each child is born.

Literally millions and millions of neuron connections are constantly being activated in the brains of 1, 2, and 3-year-old babies and infants, and those connections are activated for each child based on the direct and individual learning experiences that happen for each baby and for each child in those few and critical key years.[2]

Unfortunately, we don't have a shared awareness and a shared understanding as a country about either those processes or those time

frames. We currently have some very inconsistent behaviors as a nation relative to the experiences of children in that time of opportunity.

We are not currently giving the same level of brain exercise and the same levels of brain growth interactions to all of our children. We actually have significant differences today in the experiences of individual children in our country.

Individual children from various groups in various settings across our society are functionally experiencing very different support levels and very different brain exercise levels in those first years.

We do not have a uniform approach that extends across all families, all groups, all settings, and all children relative to the brain exercises and the learning experiences that exist for each of the very young children in our country today.

Some parents and some families are giving their children extensive and consistent brain-building interactions and high levels of direct and individual support in those first key years today.

That is a very good thing for those children. Those children who do have extensive interactions with adults in those first key years tend to be doing very well on reading skills, on the various standardized tests that

children take in grade school and high school, and even on the tests they take as entrance tests for college admissions.

The children who are receiving extensive and consistent brain connectivity exercise levels in those first years of life tend to find learning to be an easier process, and those children are doing consistently and sometimes remarkably well on all of the learning level measurements and tests that we use to track performance and ability for our children.

Unfortunately, that high level of learning activity, and those consistent levels of brain exercise experience are not true for all children in our country in those first key years of life for each child. Significant numbers of our children do not get that daily brain exercise, and too many of our children do not have the daily interactions with adults that build stronger brains.

Far too many of the children who have low and much less consistent levels of early brain exercise in those key years today end up with both lower test scores, and a functional inability to read in those early school years when reading is so important to every child as an anchor for their overall learning processes, and their life long academic opportunities.[12,13]

Far Too Many Children Are Not Getting Early Brain Exercise

The children who have low levels of adult one-to-one interactions of the kinds that exercise brains in those early months and years find themselves very quickly at a disadvantage.[2] It does not take a long time to see the differences between children who have different levels of immediate interaction that builds brains.

Those babies with those low levels of interactions are actually often at an almost immediate disadvantage, and many are literally falling significantly behind by 18 months. That difference between children in experience and learning ability is not a long-term societal problem that plays itself out over decades. Those differences in the initial month and year interactions that happen with children creates a very real problem that has immediate consequences in the first years of life for far too many children.

The infants with low levels in the first 18 months of the kinds of basic adult interactions that build their brain capacity tend to have fallen measurably behind other children by 18 months, and they tend to fall even farther behind by the time they get to kindergarten.

Children who fall far behind by kindergarten generally never catch up relative to those basic learning capabilities. Catching up to at least some degree is not impossible, but the reality is that children with very small vocabularies at age three tend not to be learning ready at age six. The

children who fall the most behind at that point tend to never catch up with the children who know many more words at age three and four, and who are learning ready when they get to kindergarten.

That is not a good future for those children. We cannot give up on those children, and we clearly need to help the children who have fallen behind in every way we can. We also very clearly need to do the right things in those first months and first years for all children, so that fewer children fall behind and fewer children face those challenges.

We all need to understand as parents and as families and we all need to understand as a community and as a society exactly what we functionally need to do in the first year, the second year, and the third year for each child to keep children in every group and every setting from falling behind.

The task is doable. The goal of helping children from all groups not fall behind can be achieved. That aspiration to help all children and to close the learning gaps we see today is far from hopeless because we now know how to keep those learning gaps from happening.

We did not understand either that process or those gaps for many years. The new science of brain development teaches us now why those

problems exist, and it also teaches us what we need to do to keep them from happening in the future.

The new science of raising our children tells us how to help each of our children. We now know that we can help all children if we take advantage of the science we now understand about the development of children's brains, and if we apply that science to every child.

Keeping children from falling behind, actually, is not complex or difficult. The tools that build brains in babies and infants are basic and they are easy to understand and use.

We now know that baby brains grow stronger when adults talk, read, sing, play and interact directly with each baby. We now know that those basic and seemingly simple interactions between adults and children actually have huge power to strengthen brains.

Those very basic brain-strengthening tools that can close those learning gaps that create problems in so many settings today can be used for children across all groups and all settings. We can talk, read, play and sing in any setting.

The child raising tools that can achieve those gap-closing and brain strengthening goals are relatively simple and they are possible to do almost

anywhere. There are no mysteries about what those tools are or about how those processes work.

We now know exactly what kinds of interactions work effectively to exercise baby brains, and we know how to do those specific and explicit interactions for every child. We now know how to support those interactions with children that build strong brains in ways that can be used in almost all settings.[14,15]

Talk, Read, Play, Sing, And Interact To Build Brains

That knowledge is not rocket science, but it can help create rocket scientists. The tools that work to exercise the brains of babies, infants and children are literally to talk, read, play and sing in safe and caring ways to each child. Children's brains are strengthened and billions of neuron connections happen when adults talk, play, read and sing to their children.

That set of activities seems very simple, but those simple interactions can have profound and direct biology based impact on each child. The basic and key tools that work to exercise baby brains work in every setting and they can help children in all groups and settings do well in creating powerful and useful neuron connections in their brains.

One-to-one interactions for each child with a caring adult that involves and includes those basic functions can accomplish brain growth outcomes that can make lives significantly better for each child.

Talk, read, sing, and play can be done almost anywhere. The consequences for each child — both positive and negative — of having or not having those direct interactions with each child last for the entire lifetime of each child. Children who have caring and trusted adults interacting regularly with them, and using those approaches can benefit hugely from those interactions.

The brain exercise process that adds value for each child is almost too basic to believe as a tool with the power it has for each child. Those tools and that impact are independent of economic status, race, ethnicity or culture. It is basic and pure biological science that applies to every child.

Talking to the child, reading to the child, and direct individual interactions with the child from caring adults in those key months and years all serve to exercise each baby brain.

Each and all of those interactions between an adult and a child work to create and solidify extremely important and highly useful basic neuron connections in each child's brain. We need all mothers, fathers, families, and

all communities to understand the value and the impact of those basic behaviors so we can build strong neuron connectivity in every brain.

Too Many Children Have No One Interacting With Them

Too many babies today are not getting the stimulation needed to strengthen their brains in those key periods of time.

Too many babies and too many infants have no one talking to them, no one interacting with them, and no one reading to them in ways that exercise their brains in those first years of life when basic and universal brain biology creates benefits at the highest levels from those interactions. Too many children in our country today have low levels of the kinds of adult interactions with them that serve to stimulate and reinforce the neuron connections that make each child's brain strong.

The children who do not have those direct and personal interactions in those first years tend to have very small vocabularies when they get to kindergarten, and they tend to have major problems learning to read.

The interactions with each child that make children "reading ready" and "learning ready" before they get to school do not need to be complex, but they do need to be consistent and they do need to involve direct interactions with each child.

This is a very personal and very individual process. It happens one at a time in the brain of each child. It is a direct, individual, and personal process that happens in those key months and years for each and every child.

Today, some children in our country are getting those levels of direct and individual brain building interactions at a high level. Some children are getting moderate but still very useful levels of positive sets of interactions.

And some children are getting very low levels of those brain-strengthening interactions in those key time frames.

We know from multiple studies that babies in a number of families actually do receive direct and positive interactions from one or more adults today, and the results are that those babies who have high levels of interactions benefit directly from those interactions.

Too many other babies have very low levels of needed interactions in those key months and years, and those children with low levels of interactions tend to fall fairly quickly behind the children who do get that support.[16,17]

Not Sharing That Information With Parents Is A Massive Public Health Failure

We should not blame the parents for those differences in interaction levels. Parents all want their children to do well. But we have not supported that desire by all parents to help their children do well with the actual knowledge base about brain exercise and about neuron connectivity levels that parents need to help their children do well.

We have actually done a terrible job as a country and as a society of sharing that science and teaching those opportunities to all parents.

The vast majority of parents in this country have not been taught that those opportunities exist or that those tools can help their children.

We have not taught that information to all parents in part because too many people in key roles in this country do not know that information. Some of the very best science about brain development is relatively new. Some of the most useful information about those issues and processes hasn't been shared widely with people outside of the research community.

Many educators who really need that information to close the learning gaps in their schools don't understand those lifetime learning processes at this point in time. Even many doctors are unaware of those new learnings about brain development.

We actually have too many relevant caregivers for children who don't know the newest research about brain development time frames or who do not understand how those brain strengthening processes work for the children they care for as patients.

The learning process for our relevant caregivers on those issues has gotten better in the immediate past, as the researchers in multiple settings have been increasingly sharing their learnings with the caregiver teams, and as the American Academy of Pediatrics has begun to make early learning a priority, but much of that sharing of knowledge on these issues, even with caregivers, is very recent.

So blaming parents for not knowing that information and for not acting accordingly would be very unfair. We clearly have not done a good job at any level in sharing that information with parents because too many of the people who should be sharing that information with parents don't know that information themselves.

Even though that is true, that does not excuse our failure as a society to make use of that information and to share it effectively with all relevant parties. It is very much true that the lack of information sharing with our parents, families, and communities about those issues and those

opportunities for their children represents a very real and significant failure at a major public health level for the country.

We need to remedy that deficiency and we need to do it quickly because not sharing that needed information with parents is a very clear public health failure that has consequences for far too many children that are significant. Those consequences will continue to damage us as a country at multiple levels for a very long time because too many children will not get the support they need as long as ignorance on those issues exists.

We Are At Risk Of Becoming Bi-Polar On Connectivity Levels

We are in danger of becoming a bipolar country on the basic issue of brain functioning. Learning gaps exist and they are widening in too many settings. Attempts to close those gaps have been painfully unsuccessful. That failure is creating intergroup anger in many settings and is not giving the children on the low end of the learning gap the support they need to do well in life.

Both the long-term and short-term consequences of our growing bi-polarity as a country in learning ability and capability can be and will be dysfunctional and damaging to us all at multiple levels.

The children who are blessed today with having a deluge of direct support for their brain connectivity and their brain strengthening functions from the people in their lives in their first years of life are clearly benefiting in significant ways from that support.

The children who are not blessed with sufficient support for their brain connectivity functions in those first years of life, however, tend to be suffering from that interaction deficit. Those children who do not have those sets of interactions at sufficient levels in those first years tend to be situationally handicapped, and those children can be functionally disadvantaged for their entire lives from that lack of interactions and support in that key time frame.[18,19]

The Biology Is The Same For All Races And Ethnicities

Those are not racial issues. Those are not ethnic issues. They are not economic issues. They are clearly and purely biological and physiological process and timing issues. They are highly functional, physically developmental, directly biological timing and directly biological process issues that happen at an individual level for each child.

The differences that exist in those connectivity levels in the brains of children after the age of four, and the learning gaps that result when the

children are in school are not based on racial or ethnic groups of any kind. Those gaps that we see today result from the early brain connectivity stimulation that happened for each child from each group in those settings.

The basic physical biology realities and processes, and the basic functional brain development time frames are the same for all children from all groups — and the differences that seem to exist between groups today actually relate directly back to the differences in those interaction levels for each child.

We need to understand that basic biology and we need to understand those universal brain strengthening time frames in order to understand why we have significant learning differences in groups of children from age four on through school and through life.

All children from all groups grow and reinforce their basic brain connections in that same exact first three years of life time frame. The learning gaps that appear after that point are based on the way those specific processes affected each child in those specific time frames.

All children from all groups who have their brains exercised in those first key years build stronger brains. The children who do not get that

exercise in those years do not have the growth in neuron connectivity that is created by that exercise.[18,19,20]

All Groups Of People Have High Performers Whose Brains Get That Early Exercise

All groups of people clearly have people today whose brains — very obviously — got that needed exercise at a personal level when that exercise process was most valuable and most deeply needed for them as a child.

Every group of people has many high performing and highly intelligent people today. Every group of people has high achievers, and every group has highly talented learners and doers. That is true because there are people from every group who got the support they needed in those key years.

There are clearly people in every group who had people interacting with them, talking to them, and responding in very direct, supportive and personal ways to them in those key months and years.

And every group of people also has people with lower skill levels — people who face major life challenges and difficulties at multiple levels of functionality — who did not get that same level of brain exercise, and who did not have those same sets of interactions in those key years.

The causality linking difference between the high performers and the people from all groups who face challenges, is the early brain exercise and the early brain connection support levels that happened in those first key years for each child — not the ethnicity or the race of the child.

All children from all groups, who do not get that direct brain growth exercise in those first key years, have a negative and unfortunate biological consequence in their brains of not getting the exercise.

The biology is universal. Those children who have lower brain exercise levels in those first key years end up with fewer neuron connections in their brains. Those brains with lower levels of exercise in those first years have fewer neuron connections, and people with that low level of early support tend to face significant lifelong challenges as a functional result of that biological reality.

It is important for everyone to understand that brain-strengthening processes and issues for each child are biological and universal — not racial, ethnic or cultural. Children from all groups make great brain connections with the right support, and children from all groups do equally poorly with inadequate support.

To close the learning gaps and prevent them from happening, we need everyone to understand that the differences we see in school related abilities and in reading readiness levels in children are based on each child's personal and individual interactions with the adults in their lives in their very first months and years of life — not on each child's ethnicity, culture, or race.[21,22]

We Need To Eliminate And Prevent The Learning Gaps That Exist Today

We do clearly have measurable and deplorable learning gaps today for too many groups of children in our schools in this country where there are performance differences for children that create learning problems in our schools. The learning gaps for various children are real and they are significant in some settings.

Those learning gaps that exist in our schools today can appear to have racial underpinnings. That appearance is wrong. The issues that create the learning gaps we see in our schools today are not functionally caused by either race or ethnicity.

Those early learning issues in those settings do tend to have patterns that create confusing, misleading and erroneous links to race and ethnicity.

Some degree of racial underpinnings do appear to be there for the children on either side of the learning gaps we see in so many cities and school systems today. That apparent linkage seems to exist because there actually are some clear economic differences between groups in this country. The facts about the economic disparity levels between groups are clear and they have been longstanding. Those differences in economic status do tend to functionally influence some levels of behavior.

There are some economic status-related differences for groups in this country that do very clearly tend to influence different activity patterns and different child raising approaches — and child raising practices — in families. For functional and economic resource related reasons that do link to basic income levels, there are some differences in those levels of interactions with children that do appear to people who do not understand the actual processes involved to have some level of linkages to race and to ethnicity.[18]

People from all races and ethnic groups can and do perform at the highest levels on every test — but we currently see average performance levels for groups of people that vary significantly between some of the groups that are most relevant to us today.

We clearly see some patterns of economic variation in our country that show that Hispanic, African American, and Native American populations have both lower average income levels as groups of people, and we know from years of data that most of our minority populations have higher levels of unemployment than White Americans.

Those overall differences in the overall average group economic patterns are clear and those differences between group averages in several learning performance areas are undisputed.[9,16,22]

What we need people from all groups to know and understand is that the differences between the groups are patterns — and those patterns are not absolute determinants for any given person. The actual results for each child are based on the early childhood brain exercise experiences of each child, and they are not created by those other factors. That is proven by the fact that there clearly are already many exceptions to those patterns.

There are, in fact, millions of people in this country from all groups today who are exceptions to those overarching economic patterns in very positive ways.

Individual people from all groups have done well economically. Some of our wealthiest and most successful Americans come from our minority populations.

But the overall patterns that show lower income levels by group and that show higher unemployment levels by group are undisputed. The consequences of those economic situations for the groups of people who are disadvantaged can be problematic and painful to the people who are directly disadvantaged in each of those areas.

Families With More Money Tend To Focus More On Children

What primarily links those economic patterns and those economic challenges by group to the neuron connectivity issues for individual children, and to the learning readiness issues by group for our very small children is this basic and obvious logistical reality — mothers, fathers, and families who have more money tend to be able to spend more time and focus more attention and resources on their very young children.[16,17,22,23]

We know from several studies that groups of people who have more money, generally tend to spend more time and focus more attention on their very young children — and those sets of children benefit from that attention for all of the biological reasons, brain development reasons, and brain

exercise reasons that are explained in some depth a number of times in this book.[24]

Those sets of children who get more attention in those years have higher average reading scores than groups of people whose children, on average, have fewer books read to them or have fewer hours of direct attention and direct interaction time with adults.

Those differences are real and significant.

Parents and families who have more money tend to be able to have many more children's books in their homes. Those families with more resources also tend to use basic day care settings where the children receive one-on-one attention of various kinds from day care caretakers for at least part of each day — including having the caregivers in the settings that are used by higher income people have books in their settings and day care staff who read regularly to their children.

By contrast, the lowest income mothers and families tend to have more challenging and crowded living settings, and low-income families tend to have less well-staffed, less well equipped, or even non-existent day care arrangements.

Many of the low-income mothers have multiple jobs and many low-income parents also have highly problematic and challenging transportation issues getting to and from their places of employment.

It can be extremely difficult for a low-income mother with two or more part-time jobs to find the time and the energy — either at the end or at the beginning of the day — to create the kind of interactions with her child in those first years of life that are needed to create and reinforce connected neurons for her child.

When the mother has low resources and when the mother of a child has a problematic, difficult, and challenging transportation reality — and when the mother is focused primarily and basically on having enough money to buy basic food to meet the direct, basic, and clearly immediate daily nutritional needs of her child — then it can be extremely difficult for that mother — or father — to spend time in those first key years with each child — helping with the neuron connectivity needs of each child in those crucial areas of interaction, activity, and brain exercise levels where the neuron connections are strengthened for each child.

We Have Done A Stunningly Poor Job Of Teaching The Science Of Early Neuron Connectivity To All Parents And Families

The whole process of getting the right support for our youngest children in all homes is exacerbated for millions of children and their parents, by the fact that we truly have done an extremely, stunningly, and dysfunctionally poor job as a society in teaching new mothers and new fathers about the biological issues and the functional realities of neuron connectivity that exist for each child.

Parents who don't know that information can't make fully informed decisions about their own parenting approaches, and tend not to ask their day care settings or their friends and families to be a resource for their children in those useful ways.

Having large numbers of parents who do not know the basic biological realities for brain building in the first years of life clearly does represent a massive public health communications failure for us as a country.

Far too many parents in this country today do not know that they can strengthen their child's brain and those parents are then, of course, less likely to do specific things in intentional ways that strengthen brains.

Many Parents Believe Brain Strength Is Permanently Set At Birth

Most parents currently believe that the brain strength of their child is permanently set for each child at birth. Far too many people believe today that the brain strength and the brain capabilities of their child are fixed and cannot be changed once the child has been born.

That inability for anyone to improve brain strength in a child is clearly not true for all of the reasons that are described at length in this book, but that sense that brain strength for each child is set at birth, and then fixed for life does tend to be a very widely held belief on that particular issue.

Because that is the common belief for many people, far too many of the parents who believe that to be true do not do a number of the specific things that actually can and do help their child build a stronger brain in those key years.

Far too many people do not understand the opportunity to improve brain strength that exists for their child, and far too many people do not

understand the basic tools and activities that are available to do that work for their child.

Almost all people understand now that doing physical exercise creates physical strength — but almost no one now knows that exercising the brains of children in those key growth years actually creates and enhances brain strength for those children.

Parents Want Their Children To Do Well

Experiments and observations have both shown that when parents learn that science, parenting approaches and parenting behaviors tend to change in ways that benefit the children. The First Five Commission for Children and Families has seen positive responses, even from basic advertising campaigns, that simply raised those issues.

All parents love their children and all parents want their children to do well. When parents learn about both brain development opportunities and literacy, that knowledge, all by itself, can and does often create new behaviors and different, more focused child interaction approaches for the parents who understand those issues.

The biological and functional reality is that children from all races and from all ethnic groups do well when their brain exercise needs are met. The

public health policy reality we face is that we have done a very poor job of explaining that biological reality to parents from all groups in this country.

We need to do significantly better on that very basic public health accountability so that all parents in all settings can become part of the process that improves brain strength for their own children.

We Are All In Someone's Debt

If you are reading this book, we can say with some comfort and reasonable certainty that someone helped you directly in those key areas of your own life in those key first months and years after you were born.

People from all races and ethnic groups who are doing well in their careers and who are doing well in their life paths today can all look back at the fact that someone in our lives obviously met those direct interaction needs for each of us when we were in those first key years of our lives, and when we each needed those neurons in our own brains to be connected and to stay connected.

Those of us with those mental skills now would not be where we are today with those skills if those needs had not been met for each of us in those key years of our lives by one or more adults in our lives.

Those of us who have had success today — and that actually does include anyone who has the reading skill level necessary to read this book — should each express gratitude, if we still can, to the parents, the family members, family friends, neighbors, and to the childcare givers and the various baby sitters who met those needs for each of us in those key times when our own neurons were connecting, and when our own brains were in their biologically optimal times of growth.

If we had not each had that stimulation from someone at that time, we each would not be who we are today. I know, with gratitude, that if I had somehow personally been totally isolated from contact and isolated from those needed interactions, and if I had personally not been read to almost obsessively and talked to constantly and at length by my own parents and by my maternal grandmother, that it is entirely true and certain that I would be a very different person now with a very different set of skills and very different abilities today.

I am not a self-made man. The people who gave me that gift of those direct and caring interactions in those first key years of my life gave me the basic tools that I work with today.

We Should Each Pay Our Debt Personally To The Next Generation

I had to go through my own time of learning after that time. That is true for each and all of us. Learning is a continuing lifetime process. We should never stop learning, and our ability to learn extends across our entire lives.

Any wisdom or knowledge that I have acquired over the years of my life came from all of my various times, situations, experiences and processes of both teaching and learning — but the basic brain infrastructure that I have used to learn in all of those settings for all of those years to do that learning was a gift to me from those people who helped me directly in those very first years of my life.

We who succeed today in many parts of our life owe our success to someone who helped us in those years.

We each owe a debt. We each need to pay that debt forward to the next generation. We all owe it to the babies of today to make sure now that each child today gets the support levels that each child needs to develop at the level that is right for each child, and at the kinds of support levels that gave each of us the start that we each received in our own lives.

We each need to pay the direct and very real debt of our own development by helping others develop in the same ways.

Each Child We Save Is A Child We Save

Each child we save is a child we save. Each child we save by providing direct support to the child in those key years is a gift to society.

Each child we save is also a huge and direct gift to the child. We should give those gifts. We need each child to get the right level of support to enable each child to achieve real success and to have both a sense of personal security and a sense of personal inclusion that lasts for life.

We need to do this work one child at a time because our brains develop one at a time. We can't put chlorine or smart pills in the water to help people in groups become better thinkers. Each child goes through those years of development. Each child needs our help in those key years.

We need to figure out how to help each child — and we also need to figure out how to provide that help in ways that can help many children benefit from those levels of support during those key years for each child.

We all need to recognize that reality. Those first key years are extremely important years for each child. If we want our country to be strong going far forward into our future years as a nation, we need to deal

with that opportunity in ways that make a real difference for the children who most need our support today.

We now need to collectively recognize the opportunity that is created by the fact that an extremely important time when we can functionally make real changes in the individual life trajectory for each and every child is in those immediate, high potential first three years for each and every child.

We also all need to recognize the functional reality that after those key years, the neuron connectivity process in each of us slows significantly. During those first three years, we can use, link, protect, and enhance tens of millions — even billions — of neuron connections relatively easily.

After that high opportunity neuron connectivity time, we can improve our functioning, and we can and do hugely improve our knowledge, our wisdom, and our full sets of talents, abilities and skills — but it is much harder after those key years to improve our basic brain capacity.

Toxic Stress Also Has Biological And Time-Related Links For Each Child

There is another extremely important reason why we collectively need to focus direct and focused attention on those initial years for each child.

The other hugely important biological factor that we need to understand relative to those first years of life for each child relates to the issue of toxic stress for children. Toxic stress damages baby and young child brains. Toxic stress damages children in important ways.[25]

Important new research shows that when children feel isolated and when very small children feel either threatened or unprotected, then there is a measurable buildup of damaging neurochemicals in each child's brain that can result in what the medical scientists and physicians call "toxic stress syndrome" for children.[26]

Children who suffer from toxic stress syndrome are significantly more likely to drop out of school, and those children who have toxic stress are more likely to have violence issues in school. There are some indicators that the toxic stress children may mature sexually at an earlier age — and girls with toxic stress syndrome are more likely to become pregnant at an earlier age.

A Caring Adult Can "Buffer" Against Toxic Stress

Extremely important and extremely useful research also shows us that toxic stress and the level of those toxic and damaging neurochemicals in children's brains can be "buffered" and significantly reduced in most

children by as little as half an hour each day of direct and personal interaction with a loving and caring adult.[26,27]

Children need a caring and trusted adult in their lives. Each child has that need. Children need to feel secure and loved. Toxic stress chemicals literally build up in each child's brain in those first key years when that specific need is not met.

Those chemicals actually physically damage the brain. They change structure and functioning.

We now know how to prevent that damage. Researchers have done very powerful and important research on those issues. Those very damaging chemicals do not build up in the brain of a child if there is a caring and trusted adult who is consistently in each child's life.

It takes a relatively small amount of time with a caring and trusted adult each day to significantly neutralize those toxic stress chemicals in a child. The final chapter of this book points to some key research on that topic. Thirty minutes with a caring adult each day can have a major impact on defusing toxic stress chemicals for most children.

Studies have shown that a half-hour a day of direct support with a caring adult generally seems to create what the researches call a “buffer” for each child.

The solution for toxic stress development of having a half-hour of quiet adult interaction each day with each child is possible and doable for children in almost all situations. But most parents today don’t even know that the toxic stress syndrome problem or risk exists, and almost no parents know now that something basic can and should be done to prevent and buffer toxic stress for their child.

Mothers who don’t know today from other feedback and from other issues and teaching processes how important they each personally are to their children, should all know what a major impact each mother can make for her child by spending focused, loving, and caring time with her child in ways that actually create the needed buffer against those toxic stress neurochemicals for her child.

That information needs to be part of our improved public health awareness agenda. We need to do a much better job as a society teaching parents and the families of very young children about both neuron connectivity and brain strengthening issues and opportunities and about toxic stress prevention and toxic stress risk levels and potential danger.

We have not done a very good job of teaching that science and those issues to parents of young children, and significant numbers of children have been damaged and sometimes underdeveloped in important ways because those issues were not understood and not addressed.

Parents Appreciate Learning About Those Issues

The First 5 Commission For Children and Families for the State of California conducted a set of focus groups a year ago with new mothers and new fathers from settings across California. The author of this book chairs that commission.

The people who ran the groups could not find any parents at that point in time who knew explicitly about either the neuron connectivity opportunity for their children, or about the related support issues for those first years of life.

When the parents in those focus groups were told about the opportunity that actually exists to strengthen their children's brains, the results and the reactions from the parents were overwhelmingly positive. Parents were both eager and happy to learn about those opportunities.

Some of the parents — particularly in the father's focus groups — began talking about the competitive opportunity that might exist to make their children smarter than the children around them.

We know from several settings that when parents do learn about those issues, then parenting styles and parenting approaches do change for many parents. Knowledge about those issues has great power to inspire new ways of thinking about caring for children.

We clearly need to share the information about those issues and those opportunities with more parents. All parents love their children. All parents want their children to do well. The dreams of the parents that were expressed in those focus groups about their children's futures had an extremely consistent pattern of each parent wanting each child to succeed.

Too Many Parents Do Not Understand The Opportunities

Even though an extremely high percentage of parents and families across the country — from all economic and social groups — do not know about those particular sets of opportunities to strengthen their children's neuron connections and have no idea that the ability to increase their own child's brain capacity even exists, a number of families are providing high levels of support for their children in those time frames.

Some parents are doing many things right relative to developing their child's brain. Many parents today are clearly focusing extensive time and effort on their very young children. That behavior is creating benefit for those children.

We know that there are both cultural patterns and parental behavior patterns in some settings that have created extensive interaction opportunities and direct interaction experiences today for many children.

Some children now have families who focus extensive and very direct attention on the children. Some families have a rich supply of children's books in their homes and many families make reading time a key part of each child's day.

Those children who get that level of support are doing well in their school readiness.

Those homes tend not to know the most recent science on those issues, but they do tend to have a shared belief that their children's lives will be better with those levels of support. Those homes can still benefit from understanding the science and from reading the material in this book, because the interaction decisions with each child can be enhanced and improved when each parent has that additional level of guidance.

In a number of other homes, reading happens today with some regularity and significant levels of interactions with the children are a daily occurrence, but they are not happening at the same high levels as the highest interaction settings.

The children in those homes benefit from the current levels of interactions, and those children will benefit even more when the information in this book about the value of brain exercises is known and understood. Getting the public health communications agenda right will have a major positive impact on those families.

At the other end of that interaction continuum from the highest contact levels, some other children are not being read to at all. Those homes give us our highest opportunity levels.

In one survey of low-income families, more than 60 percent of the homes did not have one single children's book. The amount of reading time for children in those households was very low because the basic resource needed to read didn't exist in those homes.

Another important survey showed that higher income homes averaged more than a dozen books per child. That same survey encountered hundreds of lower income homes without a single children's book.[12]

As a result of those very different pathways for early childhood support, the gap in the reading readiness levels between some groups of children is wide and growing. The patterns are clear in both directions.[22,28]

More Than Half Of Low-income Homes Did Not Have A Single Children's Book

One important study showed that working and higher income mothers tended to read to their children, on average, more than 1,000 hours per child in the pre-kindergarten years.[13] That same study showed that the lower income mothers in the population that was studied only read, on average, to their children in those same pre-kindergarten years less than 30 hours per child.[28]

Those are averages. The lower-income mothers in that particular study were Medicaid eligible mothers. We know from basic research that there is a wide range of reading practices today for Medicaid mothers.

There are a number of Medicaid mothers who do read extensively, regularly, and well to their children. A major percentage of the Medicaid mothers who were studied, however, did not read to their children at all.

So those basic differences in the average numbers of hours read to children between those sets of people with different income levels are significant. Opportunities in biological brain connectivity levels and brain growth levels are clearly being lost for the children who are not having significant verbal interactions with adults, and who are not being read to by adults in those first key years.

We need all families and all communities to clearly understand this set of issues and their consequences. We also need to figure out various ways of having reading done for more children so that more children can achieve their potential, and not face the lifetime challenges that come from not being able to read.

We need books in all homes with children — and we need at least some people in all homes using those books with each child. We need all children who enter school to be ready to read when it is time for each child to actually read.

The vast majorities of people in our prisons today read poorly or don't read at all. Those prisoners were clearly not reading ready when the time to learn to read happened in their lives.

For the more than 60 percent of the people who are locked up in our prisons who either read poorly or who don't read at all, we need to recognize the fact that their personal path to prison too often leads directly back to being children who knew only hundreds of words at age three, and who knew only a few thousand words when they entered kindergarten.

The people who are in jail today do not tend to be the children who knew multiple thousands of words at that important point in their lives. They tend to be people who knew very few words and who subsequently did not learn to read and who were unable to do well in their schools. The percentages of high school drop outs from all groups who end up being imprisoned is a disproportionately high number, as this book describes in chapter seven.

A Majority Of Births Are Now In Low-income Families

That fact and those linkages are clear cause and good reason for us all to do the kinds of interventions we need to do now to change that sad and damaging path to the future for many more of our children.

We particularly need to do successful interactions for the children in the low-income homes where our research tells us the family tends to significantly lower amounts of time now talking to the children and even less time reading to the children.

Those prisoners who are in our jails today and who can't read now grew up in a time when less than 30 percent of our children were born to the low-income mothers who averaged significantly fewer reading hours for their children.

That percentage is changing significantly. The number of children who are born to low-income mothers in this country is actually increasing.

This year — across the entire country — for the first time ever, we will now have a majority — 51 percent of our total births — born to our Medicaid mothers.

By legal definition, the Medicaid mothers who made up more than half of the births in this country last year are low-income mothers.

The significance of those birth patterns creates a set of realities that we need to understand and respond to as communities and as a nation.

Knowledge Is Power And Knowledge Is Opportunity

The fact that most births in this country now are from our low-income mothers creates a huge opportunity for us to do a high value and high impact set of needed interventions.

That is a major reason why that public health agenda on this issue is so important. We need to start by having all parents — from all income levels and from all ethnic and racial groups — clearly understand the science, the reality, the functionality, the process, and the brain strengthening opportunity that exists for helping each child relative to those key issues in those key years.

Knowledge is power. We need all low-income mothers and all low-income fathers and their families to have that knowledge. We also need the relevant support groups for all families to understand the high value of exercising their children's brains in order to enhance and strengthen each child's neuron connections in those first key years of life.

We need everyone from all income levels to have that specific knowledge so that someone in each child's life can figure out ways to help each child.

All parents love their children. All parents want their children to do well. We need every parent to understand this science so that every parent

can make informed decisions about the support that happens in those key months and years for their child.

It is functionally, ethically, and morally wrong for the people in leadership positions who now know and understand that science of brain strengthening for our very young children not to clearly inform each and every parent at every income level that those opportunities to help their child exist.

Talk/Read/Sing And Interact Directly With Each Child

We can succeed in doing this work if we make it a collective priority to do this work. We need to make strengthening brains a clear and well-supported public health priority — and we need all groups, and the leaders of all groups, to collectively commit to achieving that public health goal of strengthening neuron connectivity levels for each child born in America.

This effort can succeed because the interventions that work for each child to exercise each child's brain are actually pretty basic. Those are not impossible tasks to do.

We now know from all of the wonderful new research exactly what each child needs. We also now know how to meet those needs.

Interactions with an adult are vital. We now understand that all children need direct interactions with adults to build strong brains. Interactions are the key to brain development and interactions are actually possible to do.

One-to-one interactions with caring adults for each child anchor the basic functions that are needed for each child to build a strong brain.

One-to-one interactions between a child and an adult are the tools that make the brain development and the brain exercise process work. The tools that work involve the interactions described above. We need to talk, read, sing and play directly with each child.

Talking directly and often to the baby and infant has huge value and benefits for each child's brain. Talking, reading, singing, and directly interacting in various ways with each child is the key to success in exercising and building each child's brain.

We can succeed in this process because it doesn't take special equipment or a special setting to build the most important neuron connections for each child. It takes an adult who is spending time with each child and who is talking, reading, and interacting in very direct and caring ways with each child.

Every parent can fill that role. Parents are perfectly placed for most children to be their key interacting adult. Each parent can do that job and each parent can do it well.

Mothers tend to be the key support and first teacher for each child and that approach of having mothers in that role has great value at multiple levels. We need to support mothers in those roles and activities.

Fathers can also provide key levels of support and can do and create the full set of interaction levels with each child. Fathers can do that job just like mothers, to be the brain building and emotional support resources for each child.

Fathers and mothers can both do the extremely important work of being key supports for their child.

Other people in each family can fill that role as well. Families have always played a major role in raising children and we need to continue that approach today. We need families to be part of the team for each child whenever possible, and we need each family to understand and support the processes that strengthen the brains of the children they care for.

We need communities to understand and support those processes as well. It can be very useful and effective to have both a family and a village raise each child.

Read/talk/sing ought to be embedded in the overall parenting culture of America, and that approach should be embedded in the culture and belief system of each family and each community as well.

Families can be a key and high leverage resource that can help transform the life of each child. Families often have their basic family cultures and their shared family belief systems. Families who understand this science can choose to have family cultures, family behaviors, and family expectations that give each family successful children.

Those basic and very intentional interactions that provide value and benefit to each child should be understood and supported by all of the people relevant to each child.

All Languages Work To Exercise The Baby Brain

It doesn't make any difference what language is used with each child. Every language works to meet that neuron development need. The skill set and the mental exercise needed by each baby can be built with any language.

The interactions with a loving adult that create emotional security for a child can also, obviously, be done in any language.

There is some good evidence that using multiple languages extensively with each child in those early years creates even stronger brains and much better language skills for the child later in life.

In some settings, the researchers have noted that dual language families chose intentionally only to speak to the children in one of the languages. That is very well intentioned as a behavior, but that decision to use only one language is sometimes not the best approach for the child. Talking only in one language is sometimes not the best approach for the child because all children in those key months and years benefit hugely from having many words directed at them, and the children will hear more words if both languages are used.

It doesn't make any difference in achieving the benefit of hearing language by a child what language is spoken. Large numbers of words spoken in any language directly to the child in focused ways create value for the child.

If some bilingual mothers currently speak fewer total words to their children because only one language is being used, then the most beneficial

levels of brain exercise too often do not happen for that child. Fewer words are heard, and hearing fewer words is not the best process for a child.

But if bilingual mothers speak extensively to their children in both languages, then extensive speaking to the child in multiple languages can strengthen that child's brain, and the child can end up with higher skill levels in both languages.

It is an error to think that we need to use English as the only spoken language with each child. All languages build brains. Children in those key years benefit from having many words spoken to them regardless of the language.

We Need A Public Health Campaign To Teach That Science To Everyone

We clearly do need a well-supported public health communications campaign to get the most important levels of information about early childhood brain development out to all parents and to all families. We need "surround sound" on those key concepts and issues.

We need community groups, religious groups, and social groups to teach that science to all new parents. We need news media who understands those issues and who both explains them clearly, and writes important

stories about the programs and tools that work to help children do well in those areas.

At one very basic level, we need all parents and all groups to know that children who can read are much less likely to drop out of school.

The functional consequence of helping each child build neuron connections in those years to the point where the children who are helped do not drop out of school is a huge and direct gift to each child. It is hard to find a more valuable gift for a parent or family to give a child.

A Million Dollar Gift To Each Child

The difference in average life income for the people who graduate from high school or college, and the average life income for the people who drop out of school and who work for the minimum wage or who are unemployed, is more than $1 million per child.

That means that parents and families who read, talk, and sing to their children in those first key years are giving their children the gift of $1 million in real money when their children do not drop out of school.

That also means that as we go forward as a country to compete with the rest of the world and as we help each child achieve those basic learning

capabilities, we will have a stronger work force — with more people holding down jobs and more people paying taxes.

We will also have many fewer people who are locked up in prison, who are causing us to spend billions of tax dollars on their prison expenses, and who are largely destined for a renewed life of crime when they are released from prison.

We can change lives. We can save lives one at a time by creating the support each child needs to succeed at the time that support is needed by each child.

Economists from highly credible settings who have studied those issues show a positive return on investment that has almost no equal in any of the uses of our money as a country.[21,28,29,30]

Economists who look at the return on investment that we receive as a society by spending money to help young children build neuron connectivity strength in those key years ranges from a return of $6 to $9 for every dollar spent on the children. Those issues are discussed later in this book.

Nobel Prize winning Economist James Heckman has written with particular clarity and eloquence on those issues.

The sheer economic value of helping all children to be able to learn to read by helping with the brain development of each child in those three key years is massive.

Now that we understand this set of issues and now that we clearly see this opportunity for both children and our society, we owe it to us all — and we owe it directly to every child — to get this work done for each child and to get it done right. We have an ethical obligation on behalf of every child to help every child, and we have a societal obligation to give ourselves a better collective future by helping every child.

Neuron Connections Are The Key

We need to begin by understanding the biology. And we need to understand the relevant time frames for that biology.

This set of problems isn't about ethnicity or culture or race. It is about getting neurons to connect with one another in each child, and it is about the need and the opportunity to strengthen the connections that exist in each child's brain.[31]

Neuron connections are the key. Those first three key years of life are the years when those neuron connections happen, and those are the key years

when those critically important connections are reinforced in the most effective way for each child.

Let's help every child strengthen those connections.

Three key years.

Let's not let them go to waste for any child.

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