

II. Early Childhood Development and Learning: Ten Key Lessons

Across the nation, nearly 4 million babies are born each year. Each enters the world with immense promise. Each arrives with billions of brain cells just waiting to have their power unlocked. Many of these cells have already begun to link up to one another, but a newborn's brain has yet to form the roughly 100 trillion connections that make up an adult's complex neural networks. For these connections to form and proliferate, cells need a crucial ingredient: experience in the world. From the very first days of life, brain cells connect at an astonishing pace. Young brains forge more than enough connections in the first 3 years of life; as children move toward adulthood, these connections are pruned and fine-tuned. This is good news for humans. It means that our newborns' capacities—their unique ways of thinking, knowing, and acting—develop in the world, under the sway of the adults who love them and nurture them.

The impact of early experience on early brain development is powerful and specific, and may last a lifetime. This is a major finding of recent brain research, and it represents a sharp departure from centuries-old ideas about how children develop and grow. Its implications can be summarized in 10 key lessons that emerged from the conference.

1. New Brain Research Underscores the Importance of Education and the Power of Effort

Only in recent decades have scientists fully appreciated the significance of early experience. For most of our history, it was assumed that newborns' brains were largely pre-programmed, and that development consisted in the gradual unfolding of innate abilities and tendencies. Today we base educational policy on the oft-repeated premise that virtually every child can learn to high standards. This hardly sounds like a revolutionary stance, but in the history of education, it is a novel and bold concept. For generations, it was widely believed that based on inborn traits, some children could be expected to become able learners and productive workers, while others were destined to dimmer futures. Experience and education were considered helpful, but could hardly be expected to overcome nature's preset limits. Americans continue to hold onto this conviction.

New scientific evidence turns this assumption on its head. Heredity

certainly plays a role, and geneticists are learning more each day about how genes affect development. But as each child grows and matures, early experience exerts a powerful force, sculpting the genetic "clay."

Today, most experts agree that early development is a complex dance between nature and nurture. Some researchers are producing new evidence that in the early years, nurture leads that dance; one recent study suggests that in infancy and childhood, the impact of experience on cognitive ability is significantly more powerful than the influence of heredity. 1. The relative importance of experience appears to decrease as individuals move through the life cycle. This finding is sure to be debated in coming years; but whatever the ultimate conclusion, scientists now underscore the importance of early experience, the power of effort, and the hope of education.

2. Early Experience Affects How Brains Are "Wired"

It is natural to think of babies as ourselves in miniature—adults on a smaller scale. But the more we discover about young brains, the clearer it becomes that young children differ from adults in important ways. They have unique ways of developing, learning, and responding to the world around them. By taking these differences into account, parents and professionals can do a better job of meeting young children's needs.

At birth, children's brains are in a surprisingly unfinished state. Newborns have all of the genetic coding required to guide their brain development. What's more, they have nearly all of the billions of brain cells, or neurons, they will need for a lifetime of thinking, communicating, and learning. But these neurons are not yet linked up into the networks needed for complex functioning. It is like having billions of telephones installed around the nation, but not yet completely connected to each other.

Phoning Home

You might think of a brain cell as something like a telephone—although unlike a phone, it communicates with other brain cells by a combination of chemical and electrical signaling.

Now, like a phone, each brain cell connects with other brain cells—anywhere from 1 to 10 thousand of them. So when you make a connection, 1 phone may ring, or 10 thousand may ring. In all, the brain has to create a network of more than a hundred trillion connections;

what's more, the hook-ups have to be very precise so that when you phone home, you reach your house and not a wrong number.

This is a daunting task considering that at the outset, nothing is connected to anything else in the brain. It takes a two-step process.

First, you need trunk lines—the gross wiring. You have to string telephone wires from one city to another, so when you place a call from Kansas City to Washington, DC, you don't reach San Diego. In terms of brain development, this means that the neural connections from the eye have to grow to the visual part of the brain. Connections from the ear have to grow to the auditory part of the brain. And so on.

But the problem of wiring isn't over. Once the trunk lines are in place, you still have to make sure that your call goes to the right address in Washington, DC, so when your grandmother calls you up in Washington, DC, your phone rings and not the phone at the White House.

This is not a trivial problem. Let's take the connections from the eye to the brain. There are about a million connections from each eye, and there are about 2 million possible destinations that each one of these connections could reach. And yet fewer than 100 connections are selected from this vast number of addresses—and that's just the visual system.

So what is the solution? One possibility is that the brain could be wired like a computer. You could build the machine, program all of the connections, push a button, and pray that the right phone rings in the right city. In other words, the brain could rely on genetic coding for the entire process. But imagine how much coding it would take to program trillions of connections.

Nature's solution is much more adaptive and economical. In the process of development, the gross wiring is pre-programmed primarily by means of genetic coding. And then midway through the process, before all the wiring is complete, it's as if a switch is flipped and the newly functioning brain takes over the wiring process.

In this way, wiring the brain is a two-phase process. In the first phase, an infant's brain sends signals in the right general direction. It reaches the right city; but when it tries to phone home, there is ringing all over town.

But then, in the second phase, the brain takes over. It places trillions of phone calls, using them to correct initial errors in address selection. In a sense, the brain is running test patterns to figure out

which are the most efficient connections. The wrong numbers are eliminated, and the right ones are reinforced and proliferate like mad.

So the baby's brain is not just a miniature version of an adult brain. It is a dynamic evolving structure that uses experience to form efficient neural networks.

Adapted from the presentation of Dr. Carla Schatz

The extreme immaturity of the newborn's brain is uniquely human. We tend to take it for granted, but not every species gives birth to such undeveloped infants. At birth, the human brain is only a quarter of its adult weight; the newborn brains of other primates are already 40 or 50 percent of their adult weight. The young of other species are rarely as helpless as newborn humans, and don't take as long to move toward independence.

This may sound worrisome, but in fact, our initial immaturity gives humans a powerful evolutionary edge. Monkeys, mice, and minnows are limited in the kinds of settings in which they can survive. Humans have found ways to adapt to almost any habitat on earth. Why? In large part, because so much of our brain development takes place in the world—in contact with our environment. That crucial fact means that experience plays a far greater role in the wiring of our brains. Our developing nervous systems can be significantly altered and fine-tuned by experience. This makes humans uniquely flexible and adaptable. It also allows us to have far greater individuality than other species.²

Different people's brains—even those of identical twins—will be wired differently based on their responses to different activities and stimuli.

3. The Young Brain is a Work in Progress

A young child's brain is a work in progress, and scientists are now able to watch it unfold. Thanks to new, computer-based imaging technologies, such as ultrasound, MRI, and PET scans, they can now see the brain's structures in greater detail than ever before. They can get a glimpse of how the brain responds to different experiences and how it uses energy. They can see how the brain looks and functions at different stages of development, including in the months before birth.

Crucial steps in brain development take place early in pregnancy, before many women know that they are expecting. Within weeks of conception,

cells that are destined to become neurons have to find their way to the correct position in the part of the brain most responsible for reasoning and learning. For brain development to proceed normally, each cell has to make its journey at the right time, in the right order. Nature has powerful mechanisms to guide the process, including genetic coding, and expectant parents can rest assured that in the vast majority of cases, development proceeds just as it should. But even in the womb, the brain is vulnerable to environmental influences. When pregnant women have inadequate nourishment, when they smoke, drink, or take drugs, or are exposed to toxic substances, their babies' brain development may be jeopardized. Research also suggests that when women suffer abuse, extreme stress, or severe depression, their babies may be affected.

Newborns have more awareness of the world than most of us realize. On the first day of life, a newborn can look at his surroundings, study objects, and gaze in the eyes of his mother or father. Infants as young as 2 days of age will sometimes suck at the mere sight of a breast or bottle, suggesting that learning takes place from a child's earliest hours of life.³ But the process of getting to know the world is just beginning. At birth, a newborn cannot yet make sense of the flood of sensation and information that comes his way.

As new experiences arrive, young children's brains respond by forming and reinforcing trillions of connections, or synapses, among neurons. In the time that it takes for mom to nurse the baby or for grandpa to read *Goodnight Moon*, thousands of new synapses are produced. At the same time, thousands of existing synapses are used or "fired" and, in the process, reinforced.

Connections form so quickly that by the time children are three, their brains have twice as many synapses as they will need as adults. These trillions of synapses are competing for space in a brain that is still far from its adult size. According to *Rethinking the Brain*, a report by the Families and Work, by the age of three a young child's brain is apt to be more than twice as active as that of her pediatrician.⁴ Children are biologically primed for learning, and the first 3 years are particularly crucial.

If children have more synapses than they will have as adults, what happens to the trillions of excess connections? The answer is they are shed as children grow. Scientists report that throughout the development process, the brain is producing new synapses, strengthening existing ones, and getting rid of synapses that aren't used often enough. Before the age of 3, synapse production is by far the dominant process; from 3 to 10, the processes are relatively balanced, so the number of synapses

stays about the same. But as children near adolescence, the balance shifts, and the shedding of excess neurons moves into high gear.

Brains downsize for the same reasons so many other "organizations" do: with streamlined networks, they can function more efficiently. But how does the brain "decide" which connections to shed and which to keep? Here again, early experience plays a decisive role. Each time synapses fire, beginning with the early months and years of life, they get sturdier and more resilient. Those that are used often enough tend to survive; those that are not used often enough are history. In this way, a child's experiences in the first years of life affect her brain's permanent circuitry.

4. Every Child is Unique

Because experience in the world so powerfully affects early development, no two brains grow and mature in the same way. Children are individuals right from the start, even if they are raised in the same culture, locality, or even household. Even the brains of identical twins develop differently, based on their early surroundings and interactions with the adults who care for them.

As anyone who has ever raised a child can attest, no parent can completely plan or predict how a son or daughter will grow and develop. The settings and experiences that parents provide are crucial, but many other factors are also at work, and parents cannot regulate (or take responsibility for) every aspect of their children's development. Newborns arrive with different temperaments, strengths, and needs. Many children are born with abilities or disabilities that present them and their families with special challenges. Some boys and girls encounter difficulty despite their families' love and commitment; others show remarkable resilience, growing into hearty children and able learners despite circumstances that overwhelm other young people. While the researchers attending the White House Conference were eager to explain the importance of early experience, none would argue for replacing the notion of genetic "programming" with experiential "programming." The new brain research answers many questions about how children grow and develop, but it does not diminish the reality that every life is unique and complex.

5. Children Learn in the Context of Important Relationships

In the first years of life, parents have considerable (though not complete) control over the kinds of experiences their children are exposed to. But what kind of experiences do infants and toddlers need?

Researchers are finding that, more than anything else, young children need secure attachments to the adults who care for them.

Newborns discover very quickly that they are not alone. From birth, they are capable of observing and interacting with other people. Babies grasp that the world we've brought them into is a fascinating place. When they are awake and alert, they lose no time exploring their surroundings with all of their senses. But nothing is more interesting or important to them than their mothers and fathers. Very early in life, babies turn most eagerly toward the voices of the people they know best.

Children are dependent to a greater extent and for a longer stretch of time than the young of other species are. They are also trusting. They turn to parents and other caregivers for reassurance or help. They believe that these adults will nurture and protect them, unless repeated experience teaches them otherwise.

They know that interacting with parents and other important people—communicating, mimicking, playing, snuggling—is the best way to spend their most alert, wakeful hours. Babies respond to touch, sound, images, tastes, and smells. They are at ease when they receive warm, responsive care geared to their needs, moods, and temperament. When this kind of care comes consistently from the same adult or adults, young children form secure attachments. They sense that they are loved and protected even during quiet or sleepy times, and while at play by themselves.

When children form secure attachments, their development tends to flourish. Long-term studies show that children who have secure attachments early in life make better social adjustments as they grow up, and do better in school.⁵ But when care is inadequate, mechanical, or inconsistent, young children experience tension, and research shows that this stress affects their heart rate, brain waves, and their brains' biochemistry. A major finding of recent research is that chronic stress can have an adverse impact on the brain, and can result in developmental delays.⁶ This finding is borne out by studies of young children who are subjected to extreme social and emotional deprivation over extended periods.

Some parents are understandably unsettled by research showing that the way they relate to their young sons and daughters, and the experiences they provide or arrange, help to determine how their children's brains will be wired. They may wonder: Did I pay enough attention to Jake and Mary when they were babies? How many connections formed, or failed to form, during the 10 minutes Emily was left to cry so Robert's bee sting

could be tended to? What about all the times the neighbor lost his temper and shouted at Rebecca? Has musical potential been wiped from Melissa's brain because we never played Mozart or Bach?

But when you look at life from a baby's viewpoint, you realize that you don't have to be a perfect parent. What matters to young children is your ability to understand their needs and to read their signals most of the time; to respond with warmth and affection, to model the pleasures of conversation and turn-taking, to protect them from life's minor bumps and bruises as often as possible, and to shield them from neglect and abuse.

Social experience has a greater impact on brain development—including children's emerging intellectual capacities—than many scientists had realized. As obvious as this is to many mothers and fathers, a survey conducted by Zero to Three, released at the White House Conference, showed that fully a quarter of parents do not believe this. The research is clear, however. Children learn in the context of important relationships: interactions with parents, grandparents, brothers and sisters, and other family members.

Fathers have a critical role to play. Research showed that the attachment a child forms with his or her father is critical to that child's development. When fathers are active caregivers, their children tend to do better on cognitive tests and are less prone to violence. Of course, these results hinge on the quality of the relationship a father establishes with his young children, as well as the amount of time he devotes to caring for them.

Traditional roles are changing slowly in most families. Research in the early 1980s reported that fathers, on the average, spent less than half an hour per day directly interacting with their children. More recent studies are showing that many men have somewhat increased the time they spend interacting with their children and taking care of them.⁷ But many fathers say that they meet obstacles when they try to become more involved. Some say that they would spend more time with their sons and daughters if they met less resistance from the children's mothers, or if their employers adopted more family-friendly policies.

Mothers and fathers have a strong stake in the well being of the children they bring into the world, but biology is not the chief factor in good parenthood. We know that adoptive parents can have a large, sustained impact on children's development. So can foster parents and grandparents. So can childcare providers who are steady presence in children's lives. And so can family, friends and neighbors. Again, while

opportunities are especially strong in the early years, important relationships make a difference for children at any age.

6. Other Caregivers Can Meet Young Children's Needs—But Don't Take the Place of Mom or Dad

Research shows that children are capable of forming strong attachments to more than one adult, but not all attachments are equally strong or compelling. Babies tend to prefer their primary caregiver—usually mom. But they quickly learn that other people can meet their needs, and that different people—dad, Uncle Mike, grandma, or Ms. Cutler—have different ways of caring for them. In this way, they begin to get a sense of life's complexity and richness.

Childcare providers can be important people in young children's lives, but they do not take the place of parents. Recent studies show that high quality childcare does not disrupt young children's attachments to their parents—so long as parents spend enough time with their infants and toddlers to know them well, care for them confidently, and read their signals and cues.

Childcare and the Family

Just as research on the inner workings of the brain has ironically directed attention outward to the importance of the environment, research on childcare has affirmed the centrality and durability of the family in the development in young children.

Today, the vast majority of families are sharing the rearing of their children with childcare providers, starting in the very first few weeks of life. We know from the new national study of infant childcare funded by the National Institute of Child Health and Human Development that 80 percent of infants in the United States experience some regular nonmaternal childcare during the first 12 months of life. Most of these babies started childcare before their 4-month birthday; they are in care typically for close to 30 hours a week. We are talking about a very high "dosage" of early childcare for most U. S. babies.

The good news is that, according to research, young children—including babies—can thrive in childcare when it is of high enough quality. In fact, by placing your children in high quality childcare, you can actually supplement what you are giving them at home. That is why the importance of making high quality childcare affordable for more families

cannot be undervalued.

Moreover, placing a baby in childcare does not interfere with the development of the mother-infant attachment relationship or the father-infant attachment relationship. So long as parents spend enough time with their babies to become confident caregivers and understand their needs, their bonds with their children will be extremely resilient. No matter when families first start childcare, no matter how much childcare they use, the family remains by far the most powerful influence on their children's development.

The bad news is that most of the settings where American children receive out-of-home care fall short of any standard that could be considered optimal. "Barely adequate" has become the term of art to describe the typical childcare arrangement in this country. Virtually every study that has involved actually going inside childcare settings and observing what happens has found that about 15 to 20 percent—one out of every five or six programs—are in fact dismal and even dangerous. And those are the settings that will let us in to observe them! Infants seem to get the poorest quality of all. Of course, we also see fabulous childcare in all kinds of arrangements, whether it is from grandma or a teacher in a childcare setting.

Neuroscience tells us that these suboptimal childcare environments should affect early development. Childcare research confirms that they do. The quality of the childcare environment significantly affects virtually every aspect of development that we know how to measure, whether it is problem-solving skills or social interactions or attention span or verbal development.

The key to raising quality lies with the caregiver. Good care giving looks a lot like good mothering and good fathering. Children show significantly better cognitive and language skills, as well as social and emotional development, when they are cared for by adults who engage with them in frequent, affectionate, responsive interactions, who are attentive and know how to read a baby's signals and respond to the baby's temperament.

We know how to provide high-quality childcare. The unified efforts of the four branches of the military have proven this, as has Head Start. We need to improve adult-to-child ratios; expand training and create career ladders for caregivers; reduce staff turnover by improving pay and benefits; and strengthen parent involvement.

Adapted from the presentation by Dr. Deborah Phillips

In fact, childcare providers—with sufficient training and support—can enhance the development of the children in their care, supplementing the parents' input. Children benefit when parents and childcare providers work together, exchanging information, insights, and problem-solving strategies on a regular basis.

7. "Small Talk" Has Big Consequences

Many aspects of children's environments affect early brain development, from the sights to sounds to textures that surround them. But recently scientists have been homing in on linguistic experience as a key ingredient. More precisely, they are stressing the importance of "small talk"—the millions of ordinary greetings, exclamations, explanations, complaints, and utterances exchanged between adults and children in the course of the early years.

Over the last quarter century, scientists have learned a great deal about how children acquire language. Parents have long suspected that babies' babbling is basic training for speech, and that their gestures and cries eventually evolve into more sophisticated forms of communication. But new research shows that infants make more rapid progress in cracking the language code than we previously thought. From their early months, they pay close attention to the language they hear.

8 By the time they reach their first birthdays, they are well on their way to mapping the sound structure of language—or, in multilingual homes, to the language they hear most consistently.

Citizens of the World

Over the past 25 years, we've learned a tremendous amount about the child's acquisition of language. The new research shows that in the first year of life, infants are mapping the sound structure of language. In fact, by 6 months of age, they are well on their way to cracking the language code.

It takes both nature and nurture—or, to say it another way, both biology and culture—to bring this about. Newborns are very well prepared to acquire language. At birth, infants across the world can discriminate all of the sound contrasts that are used in any language of the world. I like to refer to them as citizens of the world. They don't know which

language they are going to have to acquire, so they are prepared for anything. This is quite a feat because the acoustic events they have to pay attention to are very, very minute.

Over time, infants have to change from citizens of the world to culture-bound language specialists. There is now evidence that by 12 months of age, they are well on their way to mapping the sound structure of their particular language. We know this because we have been doing studies in all over the world, observing babies as they listen to different languages.

In Stockholm and Seattle, for example, we observed that by 6 months of age, babies are already focusing on the particular language sounds that their language uses contrastively, rather than the sounds of all languages. We have just learned, from studies in Japan, that infants who at 6 months of age were able to hear the distinction between R and L no longer do so at 12 months. In other words, by the time they reach their first birthdays, babies have begun to ignore the variations that are not essential to their language and to pay attention only to that set of sounds that are critical for distinguishing words in their particular language.

What this research shows is that by 6 months of age, infants' perceptual systems have been altered simply by listening to us speak.

Now, 6 months are very little babies. They have yet to produce a single word; they have yet to understand a single word, and yet the lesson from the research is that they are listening to us speak and their brains are busy coding the

sound structure of the language they are going to have to master in order to be able to talk back. So the language we produce to infants is vital to them, and that puts a great deal of responsibility on us.

Adapted from the presentation by Dr. Patricia Kuhl

Adults have special ways of talking to children that help them analyze language. Intuitively, they speak more rhythmically, slowing down their speech, exaggerating phonetic shifts, and simplifying their vocabulary and grammar. Speakers of "parentese" often set their words to enticing melodies that act as acoustic hooks, pulling the baby's attention to them. This kind of talk lets babies know that they are being addressed; punctuated by pauses, it helps young children learn that relating to

others is about taking turns. Many kinds of early interactions—a game of peekaboo or mimicry of a baby's faces—can lay the groundwork for effective communication later in life.

But some parents do not realize the importance of talking to their children in the first year before their children are old enough to begin talking back. They may feel self-conscious when they talk to an infant who cannot respond; or they may have few positive models of conversation between parents and young children. In other cases, parents may be too tired or stressed to engage in lighthearted chitchat with their babies. It is easy to empathize with these mothers and fathers, but research suggests that their children may be missing out on important learning opportunities.

How can researchers gauge the impact of early interchanges? A common-sense approach is to observe numerous infants, record their interactions with their parents or caregivers, and then follow each child's progress over several years to see how he or she develops and fares in school. One recent study found that a child's earliest language experiences do indeed affect later achievement. For a period of 2 1/2 years, beginning with birth, the researchers spent an hour each month documenting every spoken word and every parent-child interaction in each of 42 homes. They found that the more parents talked to and interacted with their babies, the greater the children's chances for success when they reached elementary school. They concluded that both the number of words exchanged and the tone in which they were said made a difference. All of the children in the study learned to use language and construct complex sentences, but the children who were talked to at a younger age had a stronger grasp of the conceptual possibilities of language, and became better problem solvers.⁹

Linguistic experience constitutes an important part of the setting in which young children grow up, and can have a positive or negative effect on children's development. Very young children who may not make sense of words nevertheless respond to tone. Language that is soothing, novel, or buoyant can spark their curiosity and help them feel secure and engaged in family life. At the same time, cascades of negative comments or commands can certainly provoke stress, even when the words are not directed at the children, and even when infants or toddlers are too young to fathom their meaning.

Once parents know about this kind of research, most will want to make "small talk" with their infants more frequent, warm, and responsive, and they will want to be sure that childcare providers are talking with their babies as well. The prospect of keeping up a steady flow of

conversation may sound exhausting, but babies appear to benefit from exactly the kinds of commentary that run through parents' and caregivers' minds as they move through their day. In the study mentioned above, the patter that went on between the chatty parents and their infants was not about Buddhism or Beethoven—or, for that matter, brain science. You need not discuss complex ideas to help your infant learn. But a stream of statements like, "Your cereal is almost ready," or "Daddy is looking for his keys," appears to help babies become more conceptual thinkers later in life. Simple questions like, "How was your nap?" or "What did we do today?" can make a world of difference.

8. Children Need Many Kinds of Stimulation

Children need chances to stretch not only their linguistic and conceptual abilities, but also their powers of perception, social prowess, and aesthetic and moral capacities. And of course, all children need physical exercise. When children are severely deprived of experience in any of these areas, their development may be delayed. For example, babies and toddlers who spend most of their waking hours in their cribs develop more slowly than other young children do; some cannot sit up at 21 months, and most cannot walk by age 3.¹⁰ Children need opportunities for vigorous, safe physical activity. They need touch, sounds, and images. They need social and emotional contact. And they need thought-provoking activities. Most adults who care for children have some awareness of these needs. But despite parents' best intentions, many infants and toddlers do not get enough intellectual stimulation. This was a major finding of *Starting Points*, a Carnegie Corporation report on meeting the needs of young children that was cited at the White House Conference.¹¹ *Starting Points* reported that only half of infants and toddlers are routinely read to by their parents.

On the other hand, too much stimulation can be overwhelming. Young children have different temperaments and moods. They also have different daily cycles of wakefulness and sleepiness than adults. Their capacity to respond to different kinds and amounts of stimulation can fluctuate from hour to hour, or even from minute to minute. Aside from seeing to their children's basic health and safety, the most important thing parents can do is to learn to read their children's moods and preferences and, whenever possible, adjust activities, schedules, and even the way they touch and talk to their young children.

With practice, many mothers and fathers become quite adept at reading their children's cues and signals and anticipating their needs. But like so many aspects of parenting, this is easier said than done. Children can be volatile and unpredictable. From birth, children appear to

have different temperamental characteristics. Research suggests that most infants and toddlers have traits that make them "easy" children; but a significant number—about 10 percent—have difficult temperaments. They tend to be moody, express intense emotion, and resist efforts to comfort them or cheer them up.¹²

Furthermore, some children are born with, or develop, disabilities or illnesses that may impede their ability to form strong relationships and to respond to different kinds of stimulation—severe retardation, autism, or mental illness, for example. Others may have learning disabilities that do not fully respond to current treatment methods. Research points to new ways to help every child reach his or her full capacities. Working with professionals, parents can acquire the information and strategies they need to support their sons and daughters as they gain new skills and new confidence. New ways of approaching disabilities like mental retardation or autism are helping to improve conditions that were once considered untreatable. But some children will continue to have difficulties no matter how much love, care, attention, and stimulation their mothers and fathers provide.

9. Prevention is Crucial

The brain does not develop all at once. Different parts of this complicated organ mature at different times and at different rates.¹³ Although development continues throughout life, there are periods of great opportunity (and risk) when a particular part of the brain is the site of intensive wiring and is therefore especially flexible. These are known as critical periods.¹⁴

The classic example is vision. The visual part of the brain is wired early in life, but this doesn't happen automatically. The necessary connections do not form until the brain receives the specific stimulation it needs, in the form of visual experience. Timing is crucial. If the brain does not receive this stimulation on time—before the critical period for vision has passed—the required connections will never form and the part of the brain that controls vision will not fully develop.¹⁵ That is why time is of the essence when cataracts cloud or block a baby's vision. Surgery must be performed in a timely way, or the baby may lose her sight permanently. But if this baby's grandfather develops cataracts, the situation is very different. Because grandpa long ago received the visual stimulation his brain needed for normal development, cataract surgery can restore his sight even after a long delay.

The concept of "critical periods" helps to explain why the early years are so important, and why it can be hard for parents and teachers to compensate for experiences that were missed in the first years of life. During these years, responsive care and appropriate stimulation can produce the rapid intellectual, social, and emotional growth that does not usually come as easily to older children. In most cases, there is plenty of time for children to get the stimulation they need. Critical periods generally are not as narrow for cognitive and social growth as they are for vision. The window of opportunity for efficient language development, for example, can stretch for more than a decade.¹⁶

At the same time, the early years are also filled with risk. Untreated health problems, poor nutrition, exposure to tobacco, alcohol, drugs, or environmental toxins, and abuse and neglect are always risky, but may be especially perilous in the first years of life.¹⁷ Traumatic experiences and nonstop stress are also particularly harmful early in life; they affect production of a steroid hormone called cortisol that can have an adverse impact on brain development.¹⁸ Maternal depression is another factor that can affect early development. Many new mothers experience postpartum blues for a few weeks or months; this is normal and unlikely to have a lasting impact on her baby. But research shows that if a mother's depression persists, a young child's brain activity may be affected. The good news is that when the depression lifts or is treated, the child's development can usually get right back on track.¹⁹

The bottom line is that in the early years of life, prevention and early intervention are crucial. When health problems are addressed, when family stress is reduced, when mothers seek treatment for depression, young children tend to fare better. The earlier the intervention, the better. The more follow-up, the better. These are simple lessons. As they are applied more widely, results for young children are bound to improve.

10. The Cradle Will Rock

Unconditional love goes to the heart of what it means to be a parent. But love is not enough. From a child's viewpoint, good care is responsive care. It requires getting to know a particular child very well, and that is not simply a matter of instinct or affection; it usually takes time and practice and help from more experienced caregivers. Parents and caregivers don't always get it right the first time, or even the second, but if they are willing to follow the children and learn from their mistakes, they come to understand the needs and temperaments of their children.²⁰

Mistakes are inevitable. As the lullaby promises, the cradle will rock. A baby who is full will be coaxed to eat. A toddler will be tossed into the air by an enthusiastic dad when what he really needs is a cuddle and a nap. And parents will frequently realize, after the fact, that they could have found a better way to handle a problem. No parent gets it right every time. Even experts on child development sometimes make mistakes with their own children.

Of course, some mistakes cannot be tolerated. There is never an excuse for abuse or neglect, or for household dangers that imperil children's lives. But young children will inevitably miss a meal, scrape their knees, or overhear their parents argue. They can easily survive the ordinary ups and downs of daily life, as long as the care they receive day by day is usually warm, responsive, and consistent. In fact, these ups and downs are among the experiences that help their brains to mature. What's more, when children have a secure attachment to the adults who care for them, they are forgiving. When a parent disappoints them, they usually offer another chance.

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[Introduction]

[III. We Know What Works]

III. We Know What Works

Researchers and policymakers still have a great deal to learn about how children grow and learn, but we know enough now to begin to promote their healthy early development. Research and practice in many fields—including not only brain science but also medicine, psychology, education, cognitive science, and organizational development—have produced a vast body of knowledge, leading to better, more informed approaches to helping young children and their families. This knowledge rests on thousands of studies and evaluations of hundreds of programs—far too many to summarize in a single report. But we can distill from them fundamental lessons about effective strategies.

Preventive, Family-Oriented Health Care

We Americans take pride in having created a truly advanced society. In the realm of science and technology, we have few rivals. People from around the globe seek information and treatment from our health professionals. Given our resources and the value we place on life, liberty, and the pursuit of happiness, we should have a very low rate of infant mortality. And we do—but only in our more affluent communities. The infant mortality rate for African-American infants is 2.4 times higher than for white infants. When the nation is considered as a whole, we lag behind more than a dozen other countries in ensuring infant survival. About two-thirds of infant deaths occur in the first months of life, and are due mainly to health problems, such as birth defects or early delivery. The other third of infant deaths occur after the first months and are influenced greatly by social or environmental factors, such as inadequate health care or exposure to cigarette smoke.²¹ In general, children born to teenage parents, especially those living with their mothers alone, appear to be more likely than other children to have continuing health problems.

We can do better—if we take a preventive approach to health care and make adequate prenatal care available to more expectant mothers. The facts are clear: good prenatal care dramatically boost women's chances of giving birth to healthy babies. It is also a sound investment. Prenatal care reduces the number of low-birth weight infants, saving the health care system up to \$30,000 each time.²²

Prenatal care also leads to better nutrition for expectant mothers and

infants, a key factor in children's healthy development. The government provides critical nutritional support by means of the Women, Infants, and Children Supplement Nutrition Program (WIC) program, which provides nutrition to pregnant women and infants, and food stamps for low-income families. But expectant parents need information and guidance about the kinds of foods and food supplements that engender good health. Ideally, prospective parents should receive information and support even before they conceive a child. This is sometimes called "preconception care" and it can boost the health of mothers and babies, as well as fathers' knowledge and confidence.

Health care is unquestionably important in the early months of pregnancy. And yet, many women still do not get adequate prenatal care. The percentage of expectant women who receive late or no prenatal care is 8.2 percent for African-American women, 7.6 percent for Hispanic women, and 3.6 percent for white women. Very young mothers—those age 15 or under—are twice as likely as older teens and five times more likely than women over age 19 to receive late prenatal care or none at all.²³ Some expectant women lack health coverage that would pay for early visits. Others don't know where to go, or how to get there, or why a doctor would want to see them when they are not even "showing." Efforts are needed to ensure that the public is better informed, that prenatal care is accessible and affordable, and that care is not delayed while eligibility is established. Aggressive outreach could encourage more prospective parents to seek early care. And preconception and prenatal care should encompass not only health care and risk assessments, but also solid information and services such as screening and treatment for depression, smoking cessation, and alcohol abuse. While maternal health is the main focus of prenatal care, children benefit when fathers are brought into the process from the outset.

Prenatal care is a good start—but only a start—for a lifetime of good health. Infants and toddlers need regular well-child care, the full set of recommended immunizations, and swift attention when they show signs of illness or developmental delays. That is why health coverage is so important. We have made significant progress in this area. In 1997, the federal government implemented the largest expansion in health care in more than 3 decades, providing \$24 billion to provide health coverage to millions of uninsured children and their parents through the Children's Health Insurance Program (CHIP)—a federal-state partnership.

Despite this program, nearly 11 million children still lack health insurance. At least half of these children are eligible for federal-state programs, but too often their parents don't know or don't believe that they qualify. A national campaign called "Insure Kids Now"

has been launched to educate the public about the importance and availability of coverage.²⁴

Once parents have access to health care for their children, it must be family-centered. Many parents want more information, reassurance, and resources during well-baby visits than traditional pediatric practices can provide. When health care providers (and insurers) restructure their policies and practices to provide services that meet parents' needs and emphasize prevention, children benefit.

Family Support and Parent Education

Writing about the importance of parent education, an American physician asserted that parents too often undertake their new roles "without previous instruction, or without forethought; they undertake it as though it could be learned either by intuition, by instinct, or by affection. The consequence is, that frequently they are in a sea of trouble and uncertainty, tossing about without experience or compass."²⁵

This statement was written nearly a century ago by one of our nation's first women physicians. Despite having advanced light years in medical and scientific knowledge, the need for family support and parent education remains as strong as ever—perhaps stronger, since today Americans are far more mobile and less reliant on extended family living in their households or around the block.

Raising children is challenging for all parents; it is certainly stressful for the nation's large number of very young parents. The nation has made progress in this area. After rising in the late 1980s, the teen pregnancy rate has been declining steadily in the 1990s. The birth rate for teen mothers (aged 15 to 17) fell by 16 percent between 1991 and 1997. During the same period, there was a marked decline (21 percent) in the rate of second births to teens.²⁶

But the problem remains serious. The teen birth rate in 1997 was higher than it had been in the mid-1980s, when it was at a low point. Most were not married: in 1996, one out of every three births in the U.S. was to an unmarried mother. And while the birth rate for young African-American and Hispanic women fell substantially (by 23 percent and 8 percent respectively), it continues to be higher than for other groups.²⁷ These concerns have led to the establishment of the National Strategy to Prevent Teen Pregnancy.

Teen mothers have a particular need for parent education and support.

They are less likely to seek prenatal care, more likely to smoke during pregnancy, and more likely to give birth to low-weight babies. Compared with children born to older mothers, the children of teen mothers are less likely to have the emotional support and intellectual stimulation they need for healthy development.²⁸

Today, 3.3 million children live with adolescent mothers. These young mothers have a particular need for parent education and support. They are much less likely than other mothers to take advantage of prenatal care, and those who are 16 or younger are more likely to have low-birth weight children—with all of the health and developmental problems associated with that condition. In general, children born to teenage parents, especially those living with their mothers alone, appear to be more likely than other children to have continuing health problems.²⁹

But all parents can benefit from family support and parent education. Most say they have a pretty good idea of what to look for in terms of their babies' physical development, but need more help recognizing social and emotional milestones. They are perplexed by recent findings about the importance of the early years. They know they need to stimulate their children, but how and how much? And how can they be sure that the other adults who care for their children will give them what they need?

Parents want to do a good job. Many go to bed at night convinced that they haven't spent enough quality time with their children. More than half of today's parents believe they are not doing as good a job at child rearing as their own parents did.³⁰ The survey conducted by Zero to Three, a conference participant, confirms that few first-time parents feel fully prepared for their new role. The youngest and least financially secure feel particularly unprepared. They also want more information, including the findings about early brain development that were presented at the Conference. The Zero to Three survey found that 60 percent of parents are "extremely" or "very" interested in this subject, and another 21 are "fairly" interested.

But surveys are not the only indications that people who have responsibility for young children want help. Existing family support and parent education services are at full capacity; books and magazines on childcare are widely read. Corporations and community organizations that have set up 800 telephone help lines for parents have been flooded with calls. And online parent resources are expanding. Pediatricians say they are frustrated that they have so little time to respond to the long lists of questions and concerns that parents raise; and some are restructuring their practices to meet this need.

Family support and parent education programs are often aimed at new mothers, but can also help fathers adapt successfully to their new roles. We know that many fathers are having difficulty finding a place for themselves in the family setting, and that divorce rates are rising. By focusing on fathers' needs and roles, family support and parent education programs can help to support men who are struggling to adjust to new roles and responsibilities. The best programs address not only child rearing issues, but the challenges fathers and mothers meet as they raise their families, such as getting and keeping jobs, resolving conflict, and managing their time.

A number of well established family support programs have been subjected to rigorous evaluation. For example, an evaluation of Avance, a family support program featured at the Conference that has served low-income, predominantly Hispanic families over more than 2 decades, has demonstrated an improved ability by families to provide an emotionally nurturing and stimulating home for their young children, enhanced mothers' child-rearing knowledge, attitudes, and practices, and increased mothers' use of community resources.³¹ In general, research evidence on comprehensive family support programs is promising but not conclusive. Comprehensive, multifaceted programs are difficult to evaluate because they encompass so many activities, and tailor services to the needs of different families. Different programs serve children of different ages and target different kinds of families, so it is hard to make comparisons of their impact or cost-effectiveness.

We do know, however, that programs emphasizing home visitation can produce impressive results, particularly when they begin with prenatal care and include follow-up into the elementary school years. Programs that include regular home visits appear to be particularly effective in meeting new parents' informational needs and allaying their anxieties.³²

New parents have a lot to learn. Twenty-five years ago, when hospital stays for new mothers tended to be longer, there was more time for advice and instruction. Nursing an infant is certainly a natural process, but the know-how to begin successfully does not come naturally. The same is true for diapering or bathing a newborn, dealing with cradle cap, or establishing daily (and nightly) routines. Even a minimum hospital stay of 48 hours is not always enough time for parents to adjust to their new responsibilities before they bring their newborns home. Follow-up is helpful, but today, only a small minority of families receives follow-up visits by nurses. As the months pass, most parents gain confidence and competence, but they can still benefit from advice

about how to keep track of a baby's development, recognize and deal with illnesses and emergencies, baby-proof their homes, choose toys for their children, and play and chat with children at different ages. Some home visitors make videotapes which help parents learn what to look for as they watch their children grow, and spur important discussions about children's development in the context of family dynamics.

High Quality Childcare and Education

Today, more than half of all mothers go back to work before their babies' first birthdays. Many choose to continue their careers while raising a family; others prefer to stay home, but cannot afford to financially. Fifty-five percent of working women contribute half or more of family income.³³ Other mothers must work or attend training to meet new welfare requirements.

As a result, the great majority of infants and toddlers are in nonmaternal care for some stretch of time. This is a potential opportunity. Studies that have followed children's progress over decades, such as the Perry/High Scope Preschool Study, have shown that high quality early care and education programs produce long-term benefits, especially for children from low-income families. Programs with well trained staffs and strong curricula (geared to children's needs at each stage of development) have been shown to promote cognitive, social, and emotional development in young children. Children who attend such programs fare better in elementary school, especially if they receive ongoing support as they move through the grades. They are less likely to be held back and less likely to be referred for special education.³⁴

The trouble is that high quality, affordable childcare is hard to come by. Researchers who have observed and rated childcare programs (including both childcare centers and family day care settings) say that many are poor to barely adequate. They may have unqualified or poorly trained staff; too many children for each staff member; inadequate facilities; or other shortcomings. Programs for infants and toddlers appear to be the worst of all.³⁵ Moreover, childcare schedules often do not mesh with parents' work schedules. Many parents resort to makeshift arrangements; their children may be in several locations or programs during a single day.

Given the realities of today's families, the need for affordable, high-quality childcare has been hoisted high on the national agenda. This is an issue that affects not only children's healthy development, but also parents' ability to work outside the home with the

concentration and peace of mind needed to succeed in today's workplaces. Many businesses are beginning to realize that providing childcare to their workers makes good business sense, enabling the employees to work to the best of their abilities.

Researchers and practitioners are shaping many proposals to define and improve quality in early care and education, addressing ways to upgrade the training, qualifications, and working conditions of childcare providers; mechanisms for assuring safe environments for young children; and the content of early childhood curricula. Some take a broad view, arguing that changes must be made not only in programs, but also in the policies, financing strategies, and accreditation practices that underlie the nation's childcare services.³⁶ These efforts provide a broad framework for improving childcare so that children can thrive and parents can work and learn with peace of mind.

Today, childcare is at a crossroads. Ideas abound for improving services, but states and localities need the time and resources to plan and coordinate reform efforts. Otherwise, efforts to improve childcare may lead to further fragmentation. To ensure safe and healthy care for children of all ages, welfare reform legislation passed in 1996 created a Child Care and Development Fund—\$3.7 billion dollars in 1998. These funds go to states to help families make the transition from welfare to job training and work; they help low-income working families pay for the childcare they need in order to stay in the workforce.³⁷ In addition, 39 states spend nearly \$1.8 billion each year to fund their own prekindergarten programs, mainly for 3- and 4-year-olds, and/or to support Head Start.³⁸

We can base tomorrow's early care and education programs on the experience of today's successful programs. Much can be learned from the experience of the military, which has instituted excellent childcare programs by requiring substantial basic training for caregivers, offering them a career ladder, and providing sufficient wages and benefits to reduce staff turnover.

A Comprehensive Approach

Finally, to meet the many needs of our youngest children, we need a comprehensive approach. This is the toughest challenge of all. It is difficult, in part, because Americans tend to resist "systems." When it comes to young children, however, we pay systematically when we do not provide coherent, well-coordinated services. When services are fragmented, too many children, and too much promise, fall through the cracks.

If all of the core institutions discussed in the following chapter were to work together, and take concrete steps to coordinate their approaches, our communities could begin to move toward better results for children. But this effort challenges many people and many institutions to examine their policies and practices, and to make changes. It means reordering priorities. This is not easy, nor can it be quickly accomplished. It will take sustained attention and work.

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[II. Early Childhood Development and Learning: Ten Key Lessons]
[IV. Building On Success]

"How Are the Children?" Report on Early Childhood Development and Learning - September 1999

IV. Building on Success

The accomplishments of recent years can be a basis for sustained progress. No endeavor promises more long-term benefits for our nation than giving children a better start in life. But for this effort to succeed, every sector of our society must be involved.

Parents and Families

Parents can support their children's healthy development by doing what parents do best—loving their children, spending time with them, chatting with them, protecting their health and safety, and creating the predictable routines and consistent limits that help children feel secure. They can stimulate their children's intellectual growth by reading to them and engaging them in age-appropriate activities that will tap their creativity and spark their curiosity.

Generations of parents need no convincing that raising children is taxing, both physically and emotionally. It requires not only stamina, but also skill; not only nerve, but also knowledge. Mothers and fathers can enhance their children's development by becoming better informed about parenthood, beginning even before their children are conceived. Today, countless parent education programs, publications, radio talk shows, TV specials, videos, and Web sites are available in communities across the nation. Family support organizations, childcare centers, libraries, hospital and health clinics, human service agencies, and schools and universities are among the institutions that make these resources available to their communities.

Parents' familiarity with all of these institutions benefits children. Being involved in the community not only increases parents' knowledge and contacts; it interrupts the isolation so many mothers and fathers feel. And as young children grow, their parents' ability to access services and programs on their behalf becomes very important.

As parents reach out for information and support, two kinds of learning are particularly important. The first is learning to observe children closely, to notice their rhythms and preferences and to read and respond to the signals they send through body language, crying and other sounds, facial expressions, and responses to stimuli.

The second kind of knowledge challenges parents to know not only their babies, but also themselves. Child development specialists often speak of the "ghosts in the nursery"—the experiences in mothers' and fathers' pasts that affect their own parenting, consciously or not.³⁹ By thinking and talking together about their own upbringing, parents and other caregivers can gain insight into their own responses to their children. Why does the sound of crying drive Yvonne so crazy? Why does Kyle lose his temper so quickly when the children squabble? Thinking about their own responses can make parents more patient and decisive as they react to their own children.

Local Communities

At satellite downlink sites around the nation, local residents who gathered to view and discuss the White House Conference responded to speakers' viewpoints, related research findings to the concerns of their own communities, and conveyed their reactions. Some emphasized the need for better preparation for childcare providers. Others called for a special focus on teen parents. Many expressed a deep concern for the fate of abused and neglected children. But one theme was sounded most emphatically: the needs of young children and their families are so diverse and complex that no single institution can fully meet them. There is an urgent need to mobilize whole communities, and to ensure greater coordination within them.⁴⁰

This requires strenuous effort, and efficient, frequent communication among a wide range of service providers. It challenges professionals who may have only superficial knowledge of each other's roles to work together. Police officers need to talk to mental health specialists; welfare caseworkers need to be in frequent contact with the staffs of family support organizations; health care professionals need to link up with childcare providers. All of these professionals—and many more—need

to share information in ways that benefit children and families without violating their rights to privacy.

When coordination is strong, fewer children fall through the cracks. Most communities have a long way to go, because services for children and families are spread among so many agencies and organizations. The challenges are immense in terms of logistics, record keeping, and communication. Collaboration might include monitoring and documenting children's health, safety, and progress toward developmental milestones, analyzing the factors that promote or hinder healthy development and learning, and making the changes needed to improve results for all children.⁴¹

Beyond institutional coordination, people must also come together to envision a future in which children and families will thrive and take steps to move the entire community toward that future. In mayors' offices, town halls, houses of worship, and parent gatherings across the nation, a promising movement to mobilize communities is now underway. Parent groups, community leaders, policymakers, business groups, and many others are working together to shape broad-based action strategies aimed at improving life for young children and their families. As communities differ, so too do the strategies they employ. In many places, community mobilization efforts have resulted in the creation of Children's Councils to bring together the concerns and ideas of community members and policymakers. In other places, leadership on behalf of children has taken other forms—from parent groups, clergy, community organizers, educational leaders, health professionals, or other sources.

However different communities are, certain goals can be pursued almost universally.⁴²

- Ensure that every expectant mother receives timely care.
- Give every child access to the health care and support they need to get a good start in life, physically and emotionally.
- Help children build stable, trusting relationships with the adults who care for them.
- Support the adults who influence development and learning, and include both mothers and fathers in all parent involvement efforts.
- Focus on prevention, and respond quickly when problems arise.
- Set high expectations for every child.
- Offer varied, engaging appropriate activities that foster development, including opportunities for conversation and turn taking that begin in the early weeks of life.
- Make efficient, equitable use of resources, expanding successful efforts and eliminating those that are not effective.

- Collaborate with other institutions.
- Take responsibility for results.

Educational Leaders

Throughout the 1990s, strengthening education has been among the nation's highest priorities. Despite fiscal constraints, the nation has doubled its investments in training and education.⁴³ The federal government has called upon Americans to help ensure that every child can read well and independently by the third grade. It is also working closely with states to put into place educational standards that set high expectations for all students, while providing the learning opportunities and resources our young people need to meet them. Nearly every state has now set higher academic standards for its public schools.⁴⁴

To succeed, the nation's commitment to promoting learning and healthy development cannot take effect only when children enter elementary school. Across the nation, elementary school principals are hearing from their kindergarten teachers that large numbers of children—by some estimates, one-third—are not "ready to learn."⁴⁵ That is, they are unprepared for the academic, social, and emotional challenges they face in their kindergarten classrooms. Many principals are addressing this problem by shifting their focus from "ready children" to "ready schools"—rethinking kindergarten settings and programs to make them appropriate for the children who will fill them.

That approach is wise, but insufficient. As the education research plan issued recently by the U.S. Department of Education noted, there is mounting evidence that educational efforts that begin only a age five—the traditional age of entry into public schools—are too late and have limited payoff for children's schooling.⁴⁶ School leaders need to work more closely with the preschools and childcare programs whose children will soon be moving into their kindergartens, sharing curricula and engaging teachers and caregivers in joint professional development activities. Educational leaders need to become involved in community-based efforts to support young children's healthy development and learning. To the extent possible, they need widen their focus, and communicate with and provide support to parents from the time their future students are born.

As things stand, few districts or elementary schools make systematic efforts to stay in contact with their communities' early care and education programs. In a national survey, 10 percent of schools reported systematic communication between kindergarten teachers and their

kindergartners' previous caregivers or teachers; 12 percent said that their kindergarten curricula were designed to build on preschool programs. The vast majority of our elementary schools have no formal policy governing activities aimed at strengthening continuity and smoothing transitions. Different communities and schools benefit from different kinds of transition activities, but research shows that across the nation, the success of such efforts hinges on the involvement and support of principals and district-level administrators.⁴⁷

Educational leaders can take many concrete steps at the national, state, and local levels to support the healthy development and learning of children before the age of five. In so doing, they can provide more continuity for children and move the nation toward the first national education goal—school readiness for all.

Business Leaders

Business leaders increasingly acknowledge that they share significant responsibility for the well being of the families with young children who count among their customers, employees, and neighbors. They are keenly aware that today's tots are tomorrow's workforce. They realize that investments in early development and learning will save billions of dollars now spent by corporate America on basic skills training for employees. Moreover, they recognize that their employees can work more productively when they are free from worry about the care that their young children are receiving during the workday.

Some are making active efforts, leading community mobilization efforts, pioneering more "family-friendly" employee practices, and supporting innovation and research. Some are creating or subsidizing childcare care programs for their employees' small sons and daughters. Others are forming coalitions within the business community to address these issues on a larger scale.

Business leaders have unique access to American households through their products and services, and through their advertising capacity. As one panelist of the Conference noted, the back panels of cereal packages are one of the most powerful communication vehicles in America. Those who sell to families with small children usually have a great deal of credibility with consumers. All of these companies can provide to parents and other caregivers important information, including insights that spring from recent brain research.

The Media

Media leaders have often remarked that in America, if it isn't on television, it isn't real.⁴⁸ This is hyperbole, of course, but it does suggest the powerful impact of the broadcast media on our society. Programming that sheds light on the importance of the early years can help build and sustain efforts in states and communities across the nation to improve results for young children and families.

Media decisionmakers are increasingly taking young children into account as they make decisions about programming. They have also responded by giving parents more control over their children's program selections—V-chip and a TV rating system. These measures—once considered unlikely—are now in place. However, the broadcast media can do much more, supporting more programming aimed at parents with small children, increasing educational fare on TV and the radio, and disseminating new research findings. As the "I Am Your Child" campaign has demonstrated, media figures are powerful influences.

The print media are devoting more space to children's issues, and more journalists are now devoting themselves to the children's beat. To be sure, when a toddler is kidnapped or falls in a well, they capture headlines. But new findings about how children develop or the state of America's childcare care still tend to appear on back pages, or the "women's page." There has been significant progress, but the print media can do still more to communicate the importance of healthy development in the early years of life.

Finally, any discussion of the media's role must include the Internet and other electronic outlets for the dissemination and exchange of knowledge. In the next century, more parents will have access to these resources. Many Web sites, reflecting diverse concerns and emphases, offer advice to parents or let parents and caregivers chat online. Some are sponsored by corporations that specialize in baby products. Others have been created by national organizations, child advocacy groups, and research institutions or universities. Over time, these resources will expand. But information on the Internet is not always reliable; it has not been fact-checked as articles in reputable newspapers and magazines usually are. Parents may need help evaluating the knowledge and advice they receive. Efforts to strengthen Internet offerings for parents need to take into account the wide gap that now exists between technology "haves" and "have nots." Communities can provide access to more of their residents by placing appropriate technology in libraries, workplaces, schools, community organizations, museums, housing projects, and other places where parents can use them.

Government

At every level, government can make sure that parents have a range of choices about how to raise and care for their young children, as well as the tools and information that can help them make sound decisions. The federal government has a strong role to play in shaping legislation and policies that promote the health, well-being, and learning of young children and their families; supporting research; disseminating its findings; and providing technical support to states and communities as they plan, implement, and evaluate new initiatives. It also creates and supports programs that meet a clear national interest, such as Head Start and Early Head Start.⁴⁹

Many of the most exciting initiatives will come from states and communities that can tailor programs to local needs and adjust to changing circumstances. Across the nation, many states are launching or expanding family support efforts, home visitation programs, and a variety of health care initiatives designed to safeguard young children. They are setting higher standards for childcare accreditation, and focusing more on enforcement. They are encouraging or requiring professionals from diverse fields to work together. States and localities must keep children at the top of their agendas, confident that over time, their investments will strengthen the fabric of their communities, while increasing workplace productivity and containing social spending.

Researchers

Decades of research have led to breathtaking discoveries about early child development and learning, but much remains to be known.⁵⁰ How can we build on recent findings about how children think and communicate? What more can be known about how individuals learn? How can different kinds of developmental delays and disabilities be prevented or overcome?

The insights reported at the White House Conference resulted from decades of systematic inquiry. They emerged from the questions pursued by scientists and other scholars. But they also derived from the experiences of parents and other people who have spent their days working with children and families. Scientific inquiry requires independent thought, but no researcher is an island. Researchers can make a vital contribution by taking into account, at every stage of their work, the implications of their findings for policy and practice. After all, the purpose of their investigations is not simply to accumulate knowledge, but to reach a deep understanding of how children grow, and how families and communities, and the nation as a whole, can contribute to the next generation's healthy development and learning. We

need to build bridges between research and practice. And we need ways to understand how the many findings that spring from research connect to each other.

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[IV. We Know What Works]

[Notes]

"How Are the Children?" Report on Early Childhood Development and Learning - September 1999

Notes

1.This was a finding of a study published in 1993 by a group of scientists led by Dr. Matthew McGue of the University of Minnesota. The study suggested a steady rise in the lifetime role of heredity in cognitive function. It found that the genetic factor in general cognitive ability is about 20 percent in infancy, 40 percent in childhood, 50 percent in adolescence, and 60 percent in adulthood. These findings are consistent with the evidence produced by a more recent study on the role of genes in shaping intelligence sponsored by the National Institutes of Health and led by Dr. Gerald E. McClearn, director of the Center for Developmental and Health Genetics at Pennsylvania State University. See Malcolm W. Browne, "Role of Genes in Shaping Intelligence Is Lifelong, Study Says." *The New York Times*, June 6, 1997, p. A20.

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[IV. Building on Success]
[Selected Resources]

"How Are the Children?" Report on Early Childhood Development and Learning - September 1999

Selected Resources

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Federal Sources of Assistance for Young Children and Their Families

Corporation for National Service
Training and Technical Assistance
1201 New York Avenue NW
Room 9821
Washington, DC 20525

Even Start
U.S. Department of Education
Compensatory Education Programs
Office of Elementary and Secondary Education
600 Independence Avenue SW
Room 4400
Washington, DC 20202-6132

Head Start
U.S. Department of Health and Human Services
Administration for Children and Families

Office of Public Affairs
370 L'Enfant Promenade SW
Washington, DC 20202

Child Care Bureau
U.S. Department of Health and Human Services
Administration for Children and Families
Office of Public Affairs
370 L'Enfant Promenade SW
Washington, DC 20202

National Institute of Child Health and Human Development
U.S. Department of Health and Human Services
National Institutes of Health Building 31, Room 2A32, MS-2425
31 Center Drive
Bethesda, MD 20013

National Information Center for Children and Youth with Disabilities
P.O. Box 1492
Washington, DC 20013

Office of Special Education Programs
U.S. Department of Education
600 Independence Avenue SW
Room 4613
Washington, DC 20202

National Institute on Early Childhood Development and Education
U.S. Department of Education
555 New Jersey Avenue NW
Room 606
Washington, DC 20202

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P.O. Box 5367
Greensboro, NC 27435