



The 21st Century Learner

The Continuum Begins with Early Learning



Association of Children's Museums



Association for Library Service to Children,
a division of the American Library Association



Civil Society Institute



Families and Work Institute



Co-hosted by the Institute of Museum and Library Services



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SYMPOSIUM REPORT

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Mary Maher

Editor & Designer



The 21st Century Learner Symposium
took place on September 18 and 19, 2003
at the Omni Shoreham Hotel in Washington, D.C.

SYMPOSIUM OVERVIEW

The 21st Century Learner: The Continuum Begins with Early Learning is a national collaboration involving four partners: Association of Children’s Museums; Association for Library Service to Children, a division of the American Library Association; Families and Work Institute; and Civil Society Institute. The symposium was intended to build on the 21st Century Learner Conference convened by the Institute of Museum and Library Services (IMLS) in 2001, which sparked discussion around the needs of lifelong learners in the 21st century and how local partners can unite to support lifelong learning communities.



In response to the 2001 discussion, the convening partners assert that lifelong learning can and should be redefined and established as a learning continuum that begins with early childhood and is based in science. Not only are the building blocks for cognitive, social, regulatory and emotional development established during the early years, but early learning experiences also directly contribute to a child’s attitude and motivation toward learning throughout life. Guided by this research, the symposium focused a lens on early learning and its relationship to lifelong learning. It also explored new roles for museums, libraries, nonprofits and public broadcasting as partners in communities.

The two-day symposium is part of a larger campaign developed by the convening partners and others to create lifelong learning communities, beginning at birth. The agenda illustrates how national organizations can work together to encourage local learning collaborations. This report is a collection of edited transcripts from the September 2003 symposium.

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Institute of Museum and Library Services
www.imls.gov

The Institute of Museum and Library Services (IMLS) is an independent Federal grant-making agency dedicated to creating and sustaining a nation of learners by helping libraries and museums serve their communities. The Institute fosters leadership, innovation and a lifetime of learning by supporting the nation's 15,000 museums and 122,000 libraries. The Institute also encourages partnerships to expand the educational benefit of libraries and museums. For more information about the Institute, please log on to their Web site.

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www.civilsocietyinstitute.org
(For additional information on CSI, please see "Convening Partners" on page 2.)



Excelligence
www.excelligencelearning.com

Excelligence Learning Corporation is a developer, manufacturer and retailer of educational products for child care programs, preschools, elementary schools and consumers, providing quality educational products and programs for children from infancy to 12 years of age. The company has two business areas, the Early Childhood Division and the Elementary School Division, that address a broad spectrum of customer needs through proprietary product development, a successful educational products catalog, a retailer of early childhood furniture, a magazine published in print and online, and distribution of prepackaged school supplies and fund-raising programs. Excelligence's mission is to help further children's education and to reinforce the connection between schools and homes by providing educators and parents with high quality products, services and valuable resources.

CONVENING PARTNERS



ASSOCIATION OF CHILDREN'S MUSEUMS
www.childrensmuseums.org

While the first museum for children opened in 1899, the children's museum field is a relatively new phenomenon with over 75% of the Association of Children's Museums' member museums opening in the last twenty years. In that time, children's museums have emerged as new community institutions that bring children and families together in a new kind of town square where play inspires lifelong learning.

The Association of Children's Museums (ACM) is a professional service organization that serves over 400 members worldwide. Membership consists primarily of children's museums, but includes traditional museums with an interest in child and family audiences. Membership is also open to corporations, consultants and individuals.



ASSOCIATION FOR LIBRARY SERVICE TO CHILDREN
www.ala.org/alsc

The Association for Library Service to Children (ALSC), a division of the American Library Association (ALA), is the world's largest organization (3,762 members) dedicated to the support and enhancement of service to children in all types of libraries. In order to achieve its goals, ALSC partners with government and academic institutions, publishers, teachers and a wide range of organizations that serve children from birth through age 14, and their families. The mission of ALSC is to support the profession of children's librarianship, enabling and encouraging its practitioners to provide the best library service to our nation's children. ALSC is dedicated to creating a better future by creating better opportunities for today's children. Through its programs and publications, ALSC provides leadership to the profession and public on behalf of high quality library services that support children in becoming lifelong learners.



CIVIL SOCIETY INSTITUTE

www.civilsocietyinstitute.org

The Civil Society Institute is a nonprofit Boston-based organization that serves as a catalyst for change on a range of issues including kids and learning. CSI seeks and supports innovative, nonpartisan solutions to society's most persistent problems. From eliminating obstacles to success at the grass-roots level, to linking successful programs to individuals and groups who can use them, to encouraging informed debate of pressing issues, the Civil Society Institute applies new thinking and approaches to the most pressing issues of the day. A key tenet of CSI's work is that learning is the engine of a strong civil society.



Families and Work Institute

FAMILIES AND WORK INSTITUTE

www.familiesandwork.org

The Families and Work Institute is a nonprofit center for research that provides data to inform decision-making on the changing workplace, changing family and changing community. Founded in 1989, FWI is known for ahead-of-the-curve, non-partisan research into emerging work-life issues; for solutions-oriented studies addressing topics of vital importance to all sectors of society; and for fostering connections among workplaces, families and communities.

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Robert S. Martin, Ph.D.***Institute of Museum and Library Services***

Dr. Robert Sidney Martin became the Director of the Institute of Museum and Library Services (IMLS) in 2001. He is the first librarian to lead IMLS, which was formed in 1996 as a federal grant-making

agency dedicated to creating and sustaining a nation of learners by helping libraries and museums serve their communities.

A librarian, archivist, educator and administrator, Martin was Professor and Interim Director of the School of Library and Information Studies at Texas Women's University prior to his appointment at IMLS. From 1995 to 1999, he was Director and Librarian of the Texas State Library and Archives Commission.

From 1985 until 1995, Dr. Martin was Associate Dean of Libraries for Special Collections at Louisiana State University. Before that, he worked in the archives and special collections at the University of Texas at Arlington and the University of Texas at Austin. He also taught at the University of Wisconsin at Madison.

He has authored and co-authored several scholarly treatises including two best-selling books, *Maps of Texas and the Southwest, 1513-1900* (1984, 1999) and *Contours of Discovery: Printed Maps Delineating the Texas and Southwestern Chapters of the Cartographic History of North America, 1513-1930* (1982).

Dr. Martin has a Doctor of Philosophy in Library Science from the University of North Carolina at Chapel Hill, a Master of Library Science from the University of North Texas and a Bachelor of Arts in History from Rice University.

At the Institute of Museum and Library Services we are dedicated to the purpose of creating and sustaining a nation of learners. Our goal is to promote the broadest possible use of library and museum resources. We know how valuable these resources are for children and we are excited about the potential of bringing library, museum and learning resources of all kinds to new audiences in new ways. That's why we are very pleased to have a role in co-hosting the 21st Century Learner Symposium.

Each year IMLS grants help to provide a wide range of services in support of children's learning. These grants promote developmentally appropriate, multi-sensory approaches that enhance early learning, provide training to teachers and caregivers and encourage the involvement of families throughout their children's education. Some states have used IMLS support to develop statewide networks that bring library services to young children.

This conference advances several themes of central importance to helping libraries and museums create public value. It underscores the importance of building strong communities where intergenerational groups can support each other's learning and stimulates dissemination of the science of early learning to fuel the work of museum and library practitioners around the country.

It also emphasizes the benefit of partnerships. At IMLS we believe the strategy for the 21st century is partnership. The joint partnership of Association of Children's Museums; Association for Library Service to Children, a division of the American Library Association; Civil Society Institute and Families and Work Institute is a testament to the power of collaboration.

Libraries and museums can be ever more effective partners in reaching the goal of creating and sustaining a learning society. They are constants in myriad learning institutions that support inquiry, discovery and creativity throughout one's lifetime. From our earliest days to the senior years, we can depend upon librarians and museum professionals to connect us to rich learning resources and experiences. Library and museum contributions can be leveraged and strengthened by creating partnerships and networks with others that support lifelong learning and by establishing more direct links between museum and library programming and research about learning.

The ability to learn is a skill that is developed throughout the lifetime. Over the past twenty years, there has been an explosion of neuroscientific research. We now know more than ever about how the human brain learns. We are discovering that although there are intense periods of rapid brain development, as in early childhood, our brains continue to develop and form new connections throughout our entire lives. When does learning stop? The answer is probably never. But when it starts is becoming increasingly clear—the continuum begins with early learning. ■ ■ ■

Gene Cohen, M.D., Ph.D.

The George Washington University



Gene D. Cohen, M.D., Ph.D. is the first Director of the Center on Aging, Health & Humanities (established 1994) at The George Washington University (GWU), where he also holds the positions of Professor of Health Care Sciences and Professor of Psychiatry and Behavioral Sciences. Within the GW Center, he launched a new public

education program on aging that targets the young: SEA Change—Societal Education about Aging for Change. He also co-founded the Creativity Discovery Corps whose mission is to identify and preserve the creative accomplishments and rich histories of under-recognized older adults, especially those who are socially isolated and homebound. In addition, he is the founding Director of a think tank on aging—the Washington, D.C. Center On Aging (established 1994).

Dr. Cohen is a graduate of Harvard College and the Georgetown University School of Medicine and has a doctorate in Gerontology from The Union Institute. He is also the author of more than 150 publications in the field of aging. Dr. Cohen developed three intergenerational board games that have received recognition in national and international juried game and art shows and attention on national television; the games were the subject of three featured lectures he gave at the Smithsonian Institution. A PBS film has been developed on his book, *The Creative Age* (2001).

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We are at a remarkable time historically in the field of aging. We are witnessing a sea change in how aging is being thought about by older persons, by communities, by social policy makers. For the first time in history, people are seriously considering what's possible, what is the potential in later life. And, once you think about potential and possibilities, that expands all kinds of new horizons: lifelong learning, lifelong exploration, lifelong contribution to community and society.

This sea change is happening at a time when you also have to watch your assumptions. Let me illustrate this with an anecdote. A woman was at the breakfast table with her child. Her son said, "Mom, I don't want to go to school today." His mother said, "You don't want to go to school today? You have to go to school today. Give me two good reasons why you wouldn't go to school today." He said, "I'll give you two good reasons: 1) the kids hate me; 2) the teachers hate me. Give me two good reasons why I *should* go to school." She said, "I'll give you two good reasons why you should go to school: 1) you're 55 years old; and 2) you are the principal." So, you have to watch your assumptions today about any story that you hear in relationship to aging.

I was at NIH (National Institutes of Health) for 20 years. My last position there was head of the National Institute on Aging. As acting director, I had the wonderful opportunity to interview 97-year-old George Burns on the eve of his birthday. We got together to do a series of public service messages. Burns, just to illustrate how sharp and child-like funny he was at 97, staged an elaborate joke on me. To understand the joke you have to appreciate the context of our meeting. It was during the height of the surgeon general's campaign against smoking and I was there as a public health official. So, as I am meeting with him, handing him the certificate that he is holding to acknowledge his positive contributions to images of aging, in come the "Entertainment Tonight" cameras, at which point he hands me the then long illegal Cuban cigar. But, coming from Washington, I said, "Not to worry, I don't inhale." And, he said that he didn't either, and the more he thought about it, the more he thought he was going to run for president. He then went on to explain how he was adapting to his own advanced age. He said, for example, he had begun to ask for his applause in advance—just in case—and that he no longer bought green bananas.

This meeting was one of the best illustrations of the changing face of aging in contemporary times. Burns was 97. His agent, who was understandably very protective of his time, was 85 and the joke writer was in his 70s. His driver was in his 20s. A very, very impressive group.

Our purpose was to do a series of public service messages which, as you know, are very short—20 to 30 seconds. The goal was to catch people's attention and encourage them to write into the National Institute on Aging for information about aging. The message that was most successful was the one where I leaned over to him and asked him, "What does your doctor say about your smoking and your drinking?" And Burns, in his own inimitable style said, "My doctor is dead." He had outlived his doctor, of course.

Our whole understanding of what's possible with aging goes far beyond personal anecdote. Indeed, basic neuroscience helps us understand the extraordinary potential that exists. A schematic diagram (Figure 1, below) shows two neurons, nerve cells of higher intellectual functioning in the brain, as if they were magnified 100,000-fold in an electron microscope—one on the left and the start of a second one on the right. Humans have more than 15 billion nerve cells of higher intellectual functioning in the cerebral cortex, the grey matter of the thinking part of the brain, and these cells communicate with one another in two fundamental ways. First, through their anatomy or architecture. These extensions, for example, known as dendrites, are analogous to branches from a tree. Secondly, through the release of chemical messengers: neurotransmitters that move from one cell to another facilitating communication.

For the purpose of our discussion, I'd like you to think of those neurotransmitters as squirrels. A number of years ago, a series of experiments was done that turned upside down our understanding of the capacity of the human

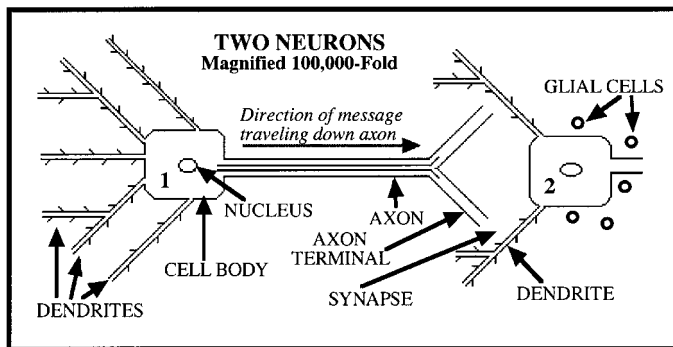


Figure 1

brain and especially the capacity of the aging human brain. The whole purpose of these experiments was to look at the impact of environmental challenge, stimulation and lifelong learning on what happens to the anatomy and functioning of brain cells involved in higher intellectual functioning.

In the experiment there were two groups of laboratory animals. The first was a typical group living in a normal laboratory environment. The second was an experimental group exposed to a much more challenging and demanding environment. They were placed in a more complicated maze, their incentive to negotiate the maze was heightened by the delectable morsels that were placed at the end of the maze. One of rats' most favorite foods is Fruit Loops, so there was an abundant number of Fruit Loops at the end of the maze to encourage them to negotiate while traversing it. In addition, rats, like people, are social animals. More rats were placed in that second group's maze. In addition, the rats' equivalent of toys and games was also placed in the maze. So, the rats in the experimental group were exposed to a more complicated and challenging environment, a

more social environment and a more fun environment.

Time passed. Eventually the brains of the two groups were compared. What the scientists found startled them. It introduced a whole new concept of brain plasticity. The challenged animals showed an extraordinary increase in the production of new dendrites, like a tree sprouting new branches. Brain weight itself actually increased. The size of the nucleus increased. Glial cells, little tiny cells that surround the neurons and have the function of nourishing the neurons, had multiplied. In the study of Einstein's brain upon autopsy, he was found to have a heightened number of glial cells. The challenged animals were found to have a heightened number of glial cells. The neurotransmitter that's most involved in memory function is called acetylcholine. The production of that neurotransmitter was enhanced with the challenged animals. Acetylcholine is the key neurotransmitter that is at deficit levels in Alzheimer's Disease. All the new drugs out today attempting to improve function in Alzheimer's patients have as their mechanism of action the attempt to elevate the level of acetylcholine. The challenged animals had an elevation of acetylcholine.

Going back to the squirrels analogy, when you picture squirrels leaping from one tree to another, if two adjacent trees have more branches, it's easier for the squirrels to leap from one tree to another. If adjacent nerve cells have more branches, more dendrites, it's easier for these chemical messengers to leap between adjacent cells facilitating communication between the cells. So, basically, bold, brazen, modern neuroscience validated folk advice, which was "use it or lose it." But, it took it a step further. Something that folk advice hadn't told us was that it's never too late to use it, to prevent losing it. When they studied the older animals, they found all of the changes that I described *continued* regardless of age. The older animals showed increased production of dendrites, glial cells, increased brain wave, increased production of acetylcholine. These were absolutely remarkable findings, and all of these brain plasticity changes are caused not by pharmacologic intervention, not by physical stimulation. These were entirely behavioral and environmental challenges. These experiments basically establish the neuroscientific basis for our understanding of the capacity for ongoing learning and ongoing creativity, independent of age.

Remarkably, subsequent studies found that the number of dendrites in a key part of brain, the hippocampus, which is involved in information processing, was found to reach the greatest number in humans in their early 50s to late 70s. This is the period when you go into a card store looking for a birthday card for somebody over 50, you typically see sentiments like, "oh well, you're over the hill, it's all downhill now, too late, you had your chance..." Well, this is actually the time when the brain is showing remarkable plastic, modified changes and *increasing* the number of these dendrites. Later studies show that these dendrites achieve their greatest reach, their greatest length from the

early 50s to the late 70s. This was extraordinary new information and enhanced our understanding of the brain's capacity to respond to challenge and literally to *grow* independent of age.

Now, what's interesting is looking at the newest perspectives and findings from behavioral neuroscience. One of the key principles of behavioral neuroscience is that experience can modify brain structure long after development is complete. Essentially what neuroscientists are finding is that the impact of challenge and experience as the life cycle progresses is very similar with regard to the anatomical and functional changes of the brain to the early program developmental changes that you see right from the start with the youngest of children.

In Joseph LeDoux's book *Synaptic Self*, published in 2002, he wrote about the increase of synaptic connections. (Synapses are the points at which the dendrites have one cell connected with the axons of another. The contact point between two cells is a synapse.) Just as challenge increases the number of dendrites, challenge increases the number of synapses—contact points. In studies of brain stimulations and brain challenge in humans, synapses, the contact points, were found to increase by as much as 20% just from challenge. This is an extraordinary magnitude of brain plasticity, of brain remodeling.

One of the newest concepts emerging from behavioral neuroscience is that experience can modify brain structure long after brain development is complete. As Joseph LeDoux described, "Synaptic connections are adjusted by environmentally driven neural activity in specific neural systems. When these changes occur during early life, they are said to involve developmental plasticity; when they occur later, they are considered learning. *But the line between developmental plasticity and learning is a fine one and perhaps nonexistent*" (italics added). The significance of these comments is that neuroscientists are now finding that the impact of experience—such as lifelong learning—on modifications in the synapses (contact points between nerve cells) is indistinguishable from the effects of built-in developmental processes very early in the life of a child. This is absolutely extraordinary, as are the ramifications of this for lifelong learning on the part of motivation, on the part of older people, with regard to communities and social policy makers being motivated to provide more opportunities for people to have opportunities for lifelong learning.

I'm currently involved in a major retirement study supported by Atlantic Philanthropies that has over 100 people, a roughly equal number of men and women. I now have over 1,000 hours of interviews that I've personally conducted. One of the most striking things I've learned is that nearly 100 percent, if not all, of the people in the study are involved or want to be involved in lifelong learning. It's really quite impressive.

I have another study, supported by the National Endowment for the Arts, that looks at lifelong learning

from the perspective of the expressive arts and the tremendous impact that involvement in community-based art programs has on general health, mental health and social functioning of older people. There is tremendous interest in all of these programs—traditional verbal learning programs, but also in the growing number of expressive arts programs and community-based art programs that are available for older persons.

Now from the perspective of children, certainly one of the most important things from their own conscious or unconscious attitudes about lifelong learning is what they think about aging. If they have a negative view of aging, obviously this is not going to be an optimal internal environment for helping them think about their own future selves. So what do the studies show about what children think about aging?

Studies are very interesting, and what they have found is that when children are interviewed about older people in their own family, their views of older people are very positive, but when the discussion centers on people outside of their family, basically their world view of aging, it's very negative. This is an interesting paradox. Within their own family it's positive, but their worldview is negative.

Now, in looking at what's happening in general with education in terms of older people, the changes that have occurred, basically in less than a generation, are extraordinary. Back in 1970, a time in our culture when images of aging were probably at their lowest, you heard phrases such as "you can't trust anybody over 30." Today, with the impact that the 20-something group has had on the dot-comers, you're more likely to hear that you can't trust anybody under 30 in terms of the demise of the stock market. Many of the negative views that the young had about the old and many of the negative phrases—intergenerational conflict, ageism—that were heard about aging came into high prevalence in the late 1960s and early 1970s.

What was going on at that time, from my research, was not an age gap, but an education gap. If you look at the median years of education of people over 65, the typical older person had less than a high school education in 1970: 8.7 years. But from the census leading up to 1990, look how that had changed. From under a high school education to over a high school education: 12.1 years. When I was doing research for my book, *The Creative Age*, and looking at educational patterns in the year 2000, at that time the fastest growing group of college graduates, percentage-wise, were those 50 and older. Indeed percentage-wise, the fastest growing group of graduate students were those 50 and older. This was a profound change.

Despite the changing face of aging with more and more positive examples of individuals who illustrate potential and accomplishment, there is still a historical legacy of negative images of aging. Indeed these still pervasive pejorative images have taken a toll on children's



world view of aging, which is largely negative. Interesting, there was an important study (conducted by the National Retired Teachers Association of AARP in conjunction with the National Academy for Teaching and Learning about Aging in North Texas) that revealed a paradox in how young children view aging. In this study, children, ages 6 to 11, from two racially and socio-economically diverse schools in two different states were asked to draw pictures of an older person and a young person and then asked to explain the pictures. When they drew pictures of older people they knew, like a grandparent, they were more likely to portray these familiar older persons in positive ways. But with their generalized drawings of older persons they didn't know, they often drew negative stereotypes associated with disabilities—older people were portrayed as unhealthy, ugly, eccentric, passive and dependent on others.

The paradox is that while children have a positive view of older persons in their own families, they have a negative world view of aging. Nobody had been able to adequately explain this paradox, but I have developed a theory that I have translated into a project to address the problem. My theory is that one of the major factors that influences the early world view that children hold about aging is the wonderful range of books that they are exposed to right from the start in life from the earliest stories read to them. And while so many of these books are great classics, they typically portray older persons as wicked, weird, or weak—very negative images of aging. Consider Cinderella's stepmother, the old witch in Hansel and Gretel, Rumpelstiltskin and the old lady who lived in a shoe as but a few examples. These are great classics, but what if families want to offer additional images—positive ones—of aging through literature to their children? To begin with, there have been no generally accepted and accessible formal reading lists available listing and describing books for the very young where older adults are portrayed positively. For its initial project, the SEA Change Program that I direct at The George Washington University is collaborating with the Association for Library Service to Children of the American Library Association to develop the first major and up-to-date reading list of such books. To the extent that the youth of America have a better sense of the potential that can accompany aging, they can develop a life cycle perspective that improves their preparedness for both the problems and possibilities of later life.

Allan B. Chinen reported on a cross-cultural, cross-national study he conducted on 2,500 fairy tales, where he found “only two percent featured a protagonist who was identified as old.” Older people were largely invisible in many of the classic stories that children read around the world. Then there was an interesting study looking at how older persons are portrayed or described in literature for children. In a novel when a character enters a room, sometimes there's a whole page, a paragraph or at least a few lines describing that character. But in children's stories,

the most typical way that an older person is described is with one word—old. Ah!—old—say no more. I know just what you mean. It says it all, and none of it is good.

Let me illustrate some of the classics in terms of what I mean. It isn't just verbal, it's visual. The wicked, and it's always the “old” queen, in *Snow White*. The wicked stepmother in *Cinderella*. Hansel and Gretel, a very revealing story, not only shows the wicked old witch wanting to eat the young children, but all of the protagonists, including the parents, are also portrayed as old in this story. The parents even abandoned their children! It's not just the negative images of older persons per se, but the terrible intergenerational relationships that are portrayed in these stories. The knight from King Arthur's court who was put through all kinds of tests, one of which was marrying the Loathly *old* Lady. The Six Swans, the wicked witch stealing the baby. Rapunzel—the old woman cutting off Rapunzel's beautiful hair. Ursula in *The Little Mermaid*. And it isn't just women. There's the scheming Rumpelstiltskin trying to get the young maiden's baby if she can't figure out what his name is. The sinister Captain Hook from *Peter Pan*. The evil Frollo from the *Hunchback of Notre Dame*. The plotting Jafar in *Aladdin*. The malevolent Hades in *Hercules*. These characters are not only the negative images of old people, but they depict adverse portrayals of relationships between the generations in contrast to a new generation of books such as *Harry Potter*, which contain very positive images of older persons and rich interpersonal relationships.

This phenomenon really hit home for me when my daughter, Eliana, was about four. A new version of *101 Dalmatians* came out in which Glenn Close was the evil, older Cruella DeVil. We took Eliana to the movie and then after the movie we read her the book *101 Dalmatians*. That night she woke up with terrible nightmares and stormed into our bedroom. She said, “I don't want Cruella in my house. Not even in a book.” This profoundly illustrates how powerful the images of these characters are in books, and how they form a child's early worldview. The point is not to burn the classics or to hide them. They are great books. We all read them and will always read them and we should be reading them. But what if people want to balance the view of these classics, keeping in mind that they play such an important role in shaping the worldview of aging? Are there positive book lists out there? Lists of books that portray aging in a positive light? Initially we didn't find any. There were a few that came up readily on the Internet. There were books on death and dying and depression—topics that kids can't wait to read about. There were very few, like one or two lists—one list was over 40 years old and another one was over 30 years old, but they all had different angles to them. There were no well-known, widely disseminated lists. So I called the Association for Library Service to Children, spoke to Dr. Malore Brown and asked her if she knew something that I didn't know about the

lists. She agreed that there is a real absence of visible lists. So we teamed up the Center on Aging, Health and Humanities at George Washington University with the Association of Library Service to Children and the American Library Association and we have just produced the first list of books portraying aging in a positive light. It's now being evaluated and we hope that it will be available early in 2004.

This whole focus on looking at children's worldview of aging is part of a new program that I have started within my center. It's called SEA Change. It's an acronym for Societal Education about Aging for Change and among the products that we're looking at, the first one is the development of this book list. Once it's available, we are going to be meeting with different libraries, museums and other public institutions to set up a series of reading salons conducted by typically older, retired teachers using books from this reading list. We want to provide additional opportunities for children to be exposed to positive images of aging in dynamic ways. In addition, starting locally and later expanding regionally and nationally, we plan to set up essay contests and celebrations for children, where they will be asked to write about aging, drawing upon familiarity with their own family, and thinking about different positive experiences that they have had with older people.

We are also in the process of developing new animated intergenerational computer games that will deal with images of aging. They are all part of the SEA Change program and focus on not only improving children's understanding of aging but also their receptivity to aging. Thinking about mentorship programs, one of the biggest movements developing in the country is called civic engagement, trying to involve older people in community roles and contributing to society in mentorship programs. To the extent that children have negative images of aging, it will be hard for them to take advantage of these mentorship programs. So, their images and worldview of aging are very important and, given what we know about the capacity for lifelong learning with aging and the plasticity of the central nervous system, our incentive to facilitate this should be very high.

It's never too late in life, regardless of age, to change. It's never too late to get out of a rut. I think everybody is familiar with this case history: a famous London figure in 1843 is described in literature as being miserable, mean-spirited, misanthropic, making the lives of all around him miserable. But he has been stereotypically perceived over a century and a half as representing the course of aging. What was really missed was an undiagnosed depression. But, in 1843, he was the fortunate beneficiary of a home visit by a multidisciplinary team of three. This was over 100 years before community outreach programs. They employed psychodynamic dream work over 50 years before

Freud's classic work in the interpretation of dreams and turned it all around. This, of course, is the famous case history of Ebenezer Scrooge in *A Christmas Carol*. The real reason that Dickens wrote *A Christmas Carol*—the story is true, only the facts have been changed—is that he wanted to show how often older people are misperceived, that they look at depression and see aging, when it's actually depression. He wanted to show how often you can intervene in the problems of later life. He wanted to show the value of psychotherapy, independent of age. He wanted to show that when you deal with the problems of older people, it needn't be at the expense of the young. Witness the benefit to the community of London, Bob Cratchit and Tiny Tim. But he especially wanted to show it was never too late to change and never too late to get out of a rut.

As a final point, let me share an interview that Dear Abby had with a woman who was 105. She asked the centenarian, "What are the advantages of being over 100?" The centenarian paused and reflected. She said, "The advantages of being over 100? There is less peer pressure."

Thank you very much. ■ ■ ■

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Alison Gopnik, Ph.D.

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Alison Gopnik received her B.A. from McGill University and her Ph.D. from Oxford University. She was a Natural Sciences and Engineering Research

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Dr. Gopnik is an internationally recognized leader in the study of children's learning and the author of over 90 articles and two books, *Words, Thoughts and Theories* (co-authored with Andrew Meltzoff, MIT Press, 1997) and *The Scientist in the Crib* (co-authored with Andrew Meltzoff and Patricia Kuhl, William Morrow, 1999). *The Scientist in the Crib* has been profiled and enthusiastically reviewed in many publications, including *US News and World Report*, *Time*, *Science*, *The New Yorker*, *The Washington Post* and *The New York Review of Books*. Dr. Gopnik has also written for *The New York Times Literary Supplement*, *The New York Review of Books* and *The New York Times*. In addition, she served as President of the Society for Philosophy of Psychology, Associate Editor of *Child Development*, the leading journal in the field, and Osher Fellow at the Exploratorium in San Francisco.

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Over the last thirty years, we have learned more about what young children know and do than we had known in the preceding 2000 years. And, what we have learned has completely revolutionized our ideas about what young babies and children are like. Thirty years ago, when I started in graduate school, the conventional wisdom—indeed, not just the conventional wisdom, but the wisdom of scientists, psychologists, psychiatrists and pediatricians—was that very young children and babies didn't know very much. They were blank slates. They lived in a blooming, buzzing confusion. Over the last thirty years, we have learned that, as a matter of fact, even the very youngest children—newborns—already know a lot about the objects and people around them; they even know something about the language that they hear. As we have continued this research, we have learned more and more about just how powerful those early learning mechanisms are.

Within the first three or four years of life, babies have already gone through several “scientific revolutions” in their understanding of how the world around them works. At a very early age, far from being the irrational, egocentric, solipsistic, mindless creatures of past legends, even the very youngest children are already making hypotheses, trying to test out theories, doing experiments and exploring the world around them. In fact, we think that children literally use the same kinds of methods of learning about the world that the very greatest scientists use.

Most of what we've learned about young children comes from my field, psychology. Psychologists have used new technologies to let us know what children know and are learning about the world. Parallel to this, while we have been learning so much about what young children's minds are like, we have also been learning about what young children's brains are like. And, the two stories are congruent. What we have discovered is that an incredible amount of early learning is underpinned by an equally incredible amount of early brain change and brain development. In the first five years of life, babies and young children's brains are more active. They do more things during that time than they will ever do during the rest of their lives. Very young children are making vast numbers of brain connections. They are also pruning—getting rid of brain connections at the same time.

Sometimes people think the pruning part—the fact that we are losing connections—is a bad thing. But, that is how learning takes place. What babies do with their brains as well as with their minds is try out lots and lots and lots of possibilities. They check them out against what they know about the world, seeing which ones work and which ones don't work, keeping the ones that work and getting rid of the ones that don't work. There is a parallel between the work that we've done in psychology, which shows that very young children are learning a great deal, and the work that has gone on in neuroscience, which shows that children have strikingly active brains. In general it has turned out that our brains are much more active, much more interactive, much more influenced by what's going on in the world

around us and remain more active throughout our lives than we ever thought before.

So, the idea that somehow genes dictate the shape of our brain and that that's the brain we are going to have for the rest of our lives has increasingly turned out not to be true. Every week we find out something new that suggests that there's more flexibility, more of what neuroscientists call "plasticity," more possibilities for change—especially in young children but also throughout life—than we ever would have thought before.

Childhood literally is designed for learning. That's what childhood is. It is a time when we can exercise these human capacities that enable us to go out into an incredibly wide range of environments and figure out what's going on. So, it makes sense if that's our strategy that we should have these very powerful learning abilities, and that those very powerful learning abilities should be in place in their most dramatic form very early on in childhood.

more flexible than others. They can do more things. They seem to be better learners. They're what we would think of as smart birds. A jackdaw, for example, is a very smart, clever bird that can figure out how to do lots of different things. It turns out that when you look at those kinds of species, they have other things in common, too. They eat a lot more different kinds of food. They have sex in a lot more different kinds of ways. They also have a much longer period of immaturity than the young of other species.

Human beings are off on one end of the continuum in terms of the variety of things that we can do and also in terms of how immature our babies are. Those of you with college age children will know that sometimes up until their mid-twenties our children are still incredibly dependent on us. That's actually an evolutionary puzzle. Why is it that our babies aren't like little baby kittens that we can throw out of the nest at three months and they live perfectly well? Why is it that we are still supporting them in their mid-twenties? It turns out that there's a connection between our incredible capacities for change, thought and learning and this fact of our protracted immaturity. Our evolutionary trick seems to be that human beings aren't very good at doing any one thing in particular, but we are very good at doing a lot of things. We are very good at learning and

There's a third piece to these new discoveries that we've made about children and babies. If you think about human beings from an evolutionary point of view, it actually makes a lot of sense that we see these apparently counter-intuitive learning abilities and incredibly powerful capacities for neural change in very young children.

If you look across a very wide range of animal species, it turns out that certain kinds of things seem to go together. If you look among different birds, for example, some birds are

figuring out new things to do in new environments.

That has given us an enormous evolutionary advantage. It has enabled us to have culture, science and all the other things that make us distinctively human. But, it has a disadvantage, which is that until you learn all the things that you need to know about your particular environment, you're helpless. The way that evolution seems to have solved that problem is by giving us childhood, a period in which we don't have to do anything in particular except to just learn and explore the world around us. We have adult caregivers who make sure that we get fed and changed, sleep and have all of our needs taken care of.

Childhood literally is designed for learning. That's what childhood is. It is a time when we can exercise these human capacities that enable us to go out into an incredibly wide range of environments and figure out what's going on. So, it makes sense if that's our strategy that we should have these very powerful learning abilities, and that those very powerful learning abilities should be in place in their most dramatic form very early on in childhood.

It's not just this period of protracted immaturity in our children that enables them to learn so much. In fact, this may be characteristic of humans in general. Compared to other animals, humans may be an extremely childish species. There was a fascinating experiment done quite recently not with people, but with mice. They discovered that there is a particular protein that changes in mice in the course of development, and there is a particular gene that turns this particular protein on and off. The protein is set a particular way that affects neurotransmitters early in a mouse's development. Then the protein gets set a different way later in the mouse's development. They actually genetically manipulated the mice so that they had a new strain of mice that were essentially children all the time. Instead of switching the protein from one state to another, the protein stayed in its childlike neurotransmitter state throughout the mice's lives. It turned out that the genetically altered mice were much better as adults at learning than standard mice were. They ended up calling them the "Doogie Houser Mice." In the scientific literature they are actually referred to as Doogie Mice. Doogie Mice could do things like learn a water maze much quicker than the ordinary mice could.

In some sense, human beings seem to be Doogie Mice—super Doogie Mice. If you compare us to other animals, our trick is not only do human children remain children for a protracted period, but human adults are more like children—we're more like the immature forms of primates—than we are like adults. We keep that capacity for curiosity, learning, the desire to figure out the world around us. Childishness is our great advantage, our great trick.

Developmental psychologists have argued for the need for an analogy between what children are doing—how they are figuring out about the world around them—and what

scientists are doing—how *they* are figuring out about the world around them. Our book is called *The Scientist in the Crib* not just because it's a catchy title, but because we increasingly think that the reason adult scientists are able to learn so much is because they are particularly designed to use childlike methods of learning about the world around them.

It's not that children are little scientists, it's that scientists are big children. Scientists happen when you take adult human beings and give them a little space and time aside from those immediate evolutionary demands of warding off predators, finding mates and all the other stuff adults do. Even as adults, if we have time to be children, if we have time to just sit in our labs and play, we seem to be able to use the same kinds of techniques for learning about the world that we used as children. That is viewed as a radical claim by many people. It seems odd to think that children could be doing the same things that brilliant scientists are doing.

In our most recent work we have been trying to give that claim a little more bite. We have been collaborating with people in computer science and the philosophy of science who are studying how scientists find out about the world around them. Computer scientists have been building artificial scientists—NASA robots, for example—that could go to Mars and actually do geological analyses of the rocks there instead of just sending the data back. What do you have to build into the brain of a robot to make it learn and find out about the world the way that a human scientist does? We're learning something about what calculations and computations, as we say in cognitive science, a scientist, robot or any creature needs to look at a pattern of evidence and figure out what's going on, what is needed to look at the world and figure out what's going on inside it.

Most recently in my research we have been giving children scientific problems to solve and seeing how they solve them. For example, we give a child a box that has a switch and two gears that spin. There's some causal relationship between flicking the switch, putting one gear on and making another gear go, but the children don't know what that causal relationship is. We show them various patterns of evidence, various combinations and permutations of the switch moving, the gear moving, taking one gear off, what happens to the switch, what happens when you put one gear onto the other gear, etc. Then we can see if the children will draw the right conclusions about the causal structure of this toy. We have been doing this with very, very young children—two-, three- and four-year-olds. It turns out that they're just as good as scientists, or for that matter, as NASA robots, at figuring out how a toy works just by seeing it and getting experience. We show them the evidence and they draw the right conclusions.

In fact, we could even just give them the toy—literally hand it to them—walk out of the room and leave the video

recorder on and what we discover is that just in their spontaneous play they do exactly the right things to find out what the structure of the toy is like. They are like the robots on Mars. We send out a robot on Mars and say, "Okay, here is what you should do to the rocks to figure out how they work." These two- and three-year-olds are little baby robots who are actually doing the same thing, but we did not program their behavior. It's already there.

We are beginning to demonstrate that children really are like little scientists. They use the same kinds of techniques—testing hypotheses, doing experiments, figuring out the result of those experiments—that scientists use. But, the important thing is that the way they do it is in their play. If we actually asked them, "tell me what the relationship is between the statistical independence of the gear and the switch and the causal structure of this gearbox," we would not get very much from three- and four-year-olds. But, if you simply give it to them and let them play, it turns out that exactly what they are doing is figuring out the relationships between the statistical dependence and independence of the gear and the switch and the underlying causal structure of the gearbox. That's a very brief summary of a much longer story.

We also have been trying to figure out ways to get this information out to the world at large. If you ask people in the street, you'll find that there is a common vision of what science is like. Science seems to be this very special activity done by genius men in white lab coats somewhere in "institutes" in Washington, D.C. It doesn't have much to do with ordinary people's lives and especially with ordinary children's lives. We have been trying to convey to people that what scientists do is just an extended form of what babies do all the time, and what ordinary adults do when they get a chance to do it. We have been collaborating with the Exploratorium in San Francisco where we set up an exhibit to try and convey some of the ideas that have come out of the science to the ordinary folks who were visiting the museum.

The exhibit is called *Preschool Scientists at Play*. The Exploratorium, like many other science museums, has a lot of very young children who visit with their parents but who are really too little to understand some of the typical exhibits there about physics and other subjects. So, we set up a space where babies can do experiments. But, instead of just saying, "Okay, this is the place where the preschoolers can be happy," we decided to also design it as an exhibit for older children and adults in which the babies are actually

We are beginning to demonstrate that children really are like little scientists. They use the same kinds of techniques—testing hypotheses, doing experiments, figuring out the result of those experiments—that scientists use. But, the important thing is that the way they do it is in their play.

the exhibit. *Play Lab* has little stations where children do the things that any good preschool would have them do. They play with blocks, play dress up, and sit and play with their parents. The exhibit contains signs pointing to the children, who are now the exhibits, which explain that when you see a child playing with blocks, what she is actually doing is being a little physicist and the signs briefly explain what is happening.

The Exploratorium always adds signs to their exhibits that indicate special things to notice. *Play Lab* signs have suggestions for parents such as “Here is something that you could try. See whether the children count. Do they get the counting right?” “What do they do when they put one on top of the other, what kinds of mistakes do they make?” This makes both the children and the parents scientists in the context of the museum. Children do the science, while the parents learn that what’s going on here really is science. We are teaching both the parents and the children about science that everybody is capable of doing.

In closing, I’d like to say that museums are good homes for this kind of informal science. Part of the reason why people think of scientists as being off in a world of their own is because they associate science with school. They think that “real” science can only be taught in school and only by specially trained people. But, in the context of children playing in a museum and adults interacting with them in a museum, you can learn that science is play. Science is exploration. And, to put it another way, play is actually learning. ■ ■ ■

Beth Frerking
(moderator)

**Casey Journalism Center on
Children and Families
University of Maryland**



Beth Frerking became Director of the Casey Journalism Center on Children and Families at the University of Maryland in March 2000, after 20 years as a print journalist. Ms. Frerking writes a regular column in *The Children's Beat*, the center's quarterly magazine, and guest lectures on media coverage of children and family issues. Prior to joining the Casey Journalism Center, she spent nine years as a national correspondent covering families, children and education for *Newhouse News Service* in Washington, D.C. While at *Newhouse*, two of her stories won national writing awards, and she was among 30 journalists selected in the Casey Journalism Center's inaugural class of national fellows in 1993. Previously, she worked for the *Denver Post* and the (now-defunct) *Dallas Times Herald*, where she was part of a reporting team that wrote a series on air safety, which was a Pulitzer finalist in 1986. Her work has also appeared in *Reader's Digest*, *Seventeen* and *Parenting* magazines. Frerking earned her bachelor's degree in journalism from the University of Texas at Austin, where she was editor of *The Daily Texan* student newspaper.

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I'm currently raising two sons, and my mom was widowed at 68. When I heard that Alison Gopnik and Dr. Cohen were speaking at this symposium, I thought, what I really want to do is sit and talk with them and get all their knowledge and expertise for my own life.

Actually, that is what we do in the media. The kind of information offered here encourages people to find the speakers' books and read more about it. But, for the average person out there raising children, trying to "ride herd" on homework, getting to back-to-school night, getting to soccer games, it's difficult to take the time to find and apply new information to your daily life. What the media does is try to take complicated information down one step, making it simpler than what we see in these wonderful books.

When people's time is so overwhelmed by daily tasks, how does new knowledge get transferred? In the media, most reporters have to write very quickly and succinctly, and they have to make the information relevant to what it means for readers today. Both researchers and practitioners should keep that in mind as they try to get news of what they're doing to the outside world. Reporters aren't academics and they are not researchers. They're more interested in people than in programs. Give them the people who illustrate what it is that researchers are trying to do. That's much more effective than talking in programmatic terms.

I'll give you an example. My husband and I were listening to NPR. They had a wonderful 30-second spot for the station in which they interviewed an 83-year-old woman. She gave her name and said, "I've lived on the Delmarva peninsula all my life and I am very interested in what happens in this community so I go to about 100 meetings per year." She is one of those very civically active people. "And I knit. I sit there and I knit and I listen. If you be quiet you can hear me." Then you heard this little tap, tap, tap, tap, tap. She talked about going to meetings and caring so profoundly about the area she lived in—keeping up with what's happening in terms of schools, land use and politics. I turned to my husband, who is also a journalist, and said, "If I were a reporter, I would look this woman up and I would keep in touch with her all the time." She is a resource—an elderly person who nonetheless makes it her mission to keep up with what's going on. Her views are important, and we don't hear them enough. ■ ■ ■

FRERKING

How do we tell the stories of early learning and lifelong learning? How do we make them relevant not only to the people who have resources, but especially to the people who have a harder time: single parents or low income households?

GOPNIK

There is a very widespread misconception [about early learning] in the media. When I give talks, someone always comes up to me and says, "Oh, my child is five, so I guess it's

too late.” Somehow all of the work on early childhood learning has been boiled down to “everything has to happen in the first few years or else it’s finished.” No academic ever thought that, and certainly not after all the recent work in neuroscience. But, it is difficult to convey the degree of subtlety present in the actual research. It would be good to try to overcome that misconception. Maybe making the links between what’s going on early and what’s going on later in life is one way to do that.

Children’s museums are interesting public spaces where parents and children can just *be* for an extended period of time and actually pay attention to things. On weekends parents and children are happy to go there. They offer a little more time and opportunity for thoughtfulness and the delivery of important information than just listening to a 30-second sound bite on the radio during a busy day.



Drs. Alison Gopnik and Gene Cohen

A COHEN

Over the past generation, the press has undergone enormous change. During the 1970s, the press fostered dated stereotypes of the elderly. In 1994 I wrote an editorial in *The Gerontologist* that came out swinging. It was titled “Journalistic Elder Abuse: It’s Time to Get Rid of Fictions, Get Down to Facts.”

Many of the leading media have a focal person on aging. Essentially they present facts around human interest stories to illustrate the point that learning happens at all ages. If you think many people mistakenly think that age five is too late to learn anything, what do you think they think about age 65?

I interviewed an 81-year-old woman, a high school graduate. She said, “Finally, turning 80 I have time to pursue my lifelong ambition.” She had a large family and all of her time had been consumed with taking care of her children. Then, when they became adults, two of them had serious marital problems and one had a disability. So, she was heavily involved for decades helping them. But, eventually, things settled down, and at 80 she was finally able to read these long historical and biographical novels, 800-1,200-page books. She had read thirteen in the last

seven months. She asked me how many I had read during that time. I said we had to go on to the next question. But it illustrates an important paradox: many older people feel like they finally have enough time to do what they want in later life.

In the NEA study that I mentioned, one of the groups involved is a Washington, D.C. group of older singers. Their average age is 80. They were invited to sing at the 9-11 memorial last year and to make a presentation at the Millennium Stage at the Kennedy Center. They range from people who had never sung before to people who had a lot of experience. I interviewed a 94-year-old woman in this group. She said she hesitated about getting involved, but she heard a lecture that I gave about those “what do you call those things in the brain, those branches and squirrels?” and she said, “I need some of that.” So she started singing and discovered that she could sing pretty well. She said, “Then I felt I could do anything.” I checked to see if she still had her feet on the ground. But, what this story illustrates is that people of any age, but especially older persons, can gain a new sense of mastery when they learn new things. They have a sense of empowerment, and then they want to do more things. Studies show that it’s better for their health.

This woman also joined the group for opportunities for new interpersonal relationships. Those are two key factors in maintaining quality of life. Opportunities for lifelong learning can generate new feelings of individual mastery, which is very good for quality of life, health outcomes and for interpersonal growth and relationship building. That’s a dynamic formula, and I think that’s how individuals, families and society should focus on program development.

A FRERKING

One of the things that happens with media coverage of these issues is that not all of the academics who we talk to convey their ideas in ways that are easy to understand. And, if journalists have a hard time understanding it, imagine how the average person feels? Communication can be improved on both sides.

When covering stories about children and the elderly, access to the actual subjects is often denied to journalists, especially with kids and especially when it’s about a controversial issue. For subjects like foster care or child welfare, we run into huge confidentiality problems: government systems don’t want journalists to talk to kids. Then they complain that we don’t cover the government systems accordingly. We need to talk directly to the people affected by the issue. So if you are designing programs, and you want the news to get out, remember that the media doesn’t just want the “institutional line.” We want to talk to the people your programs affect: parents and kids.

The elderly tend to be some of your best interviews because they are much more open about what they say. It’s

almost as if they're thinking, "What the heck, what am I waiting for? I'm going to go ahead and give great quotes." I know a reporter who was covering Al Gore. At one point they did not want the reporter to talk to Al Gore's mother because they knew she was going to speak her mind.

Kathy Degyansky, Queens Borough Public Library
Dr. Cohen, could you elaborate on how lifelong learning programs, such as community arts programs, positively affect participants' health?

COHEN
There was a classic study published in 1999 in the *British Medical Journal* that is one of the most important studies to date and certainly one of the key background studies for my latest research. The purpose of the study was to look at the impact in later life of programs that allow social engagement and the opportunity for productive activities and lifelong learning. They selected a large group of older couch potatoes. These people were all over the age of 65 and had very limited physical exercise. Researchers compared them with a group who was very physically active. We all know the tremendous value of physical exercise. Sure, it's good for you, but there's never been a quantifiable definition of exactly how good it is.

This study followed these people over an eleven-year period and found that the couch potatoes who were socially active, involved with productive, cognitively challenging activities had the same positive outcomes, the same positive impact on life expectancy as those individuals involved in vigorous physical exercise. The point is not which one is better. Many people, because of lifestyle issues or changes in mobility, are limited in terms of how physical they can be. But, here's a whole other pathway: you can learn all kinds of things sitting down.

This has become one of the guiding principles for writing, painting and performing arts programs that we're developing to provide new opportunities for challenge among older people. They all provide new opportunities for individual mastery, and that renewed sense of mastery is also associated with positive health outcomes. Biologists have looked at people who have a sense of mastery and have found a positive impact on the immune system—they seem to get an immune system boost, which may explain the better health outcomes.

Also, new challenges involve opportunities for new relationships. In interviews with a lot of older people involved in one of my retirement studies, many of these people had made very few new close or intimate friends. They don't have the same opportunities they did when they were in the workplace. It is so important for public institutions, including libraries and museums, to provide opportunities for older people to get together and make new relationships.

Debbie Cray, Children's Museum of Tacoma
We do a lot of family-oriented programs with children and adults. We know that learning through play works with young children, but are older learners also capable of using hypothesis testing and similar learning strategies? How can you set up an environment that's conducive to both groups learning along side of each other?

GOPNIK
As people get older, they rely more on language, on reading, on getting information told to them rather than actively discovering it. But, one of the things that we have discovered in our research is that adults can grasp concepts intuitively if they actually see them. They have a much harder time doing something if someone just tells them about it.

For instance, students are notoriously terrible at statistics, and so are adults. But, it turns out that if you actually use the techniques that we use with children, adults can grasp statistical concepts much faster. Instead of saying, "50% of people had this effect 30% of the time," you set up a little "exhibit" with a little box where they push a button and 50% of the time it has X effect, then people understand the concept much, much better. We tend to think of learning as information that is told to you, but even for adults, it seems that seeing things, especially fairly subtle things like actually seeing a natural phenomenon unfold in front of you, is a much more powerful way of learning. Also being able to intervene and test yourself in the midst of the learning process seems to be a more natural way for people to learn, at least about some sophisticated concepts such as probability.

Children's museums are interesting public spaces where parents and children can just be for an extended period of time and actually pay attention to things. On weekends parents and children are happy to go there. They offer a little more time and opportunity for thoughtfulness and the delivery of important information than just listening to a 30-second sound bite on the radio during a busy day.

COHEN
Today's older people are the most educated group ever in our society. There is tremendous diversity at every stage in the lifecycle. The attention paid to children as "visual learners," "verbal learners," "kinesthetic learners" also applies to older people as well. In the United States, there are over 35 million people over the age of 65. That's more than the entire population of Canada. It's a nation within a nation. When you have so much diversity in a very large population, one has to look at programs in terms of varied opportunities. There are many people who like Elderhostel programs, for example, but Elderhostel is

evolving with the times—they now have intergenerational programs.

One of the impressive things that we have seen with community-based performing arts programs, such as the Washington Choral Society, is the intensity of people's involvement. The Choral Society has 30 rehearsals and 10 concerts a year. After the first hour-long rehearsal, the participants, again average age 80, said, "Can we have more rehearsal time?" They are smashing stereotypes.

I have also been involved in game development and have noticed how games are designed very poorly for intergenerational involvement. They are not designed with equalizers or handicaps the way that I feel that they should be to foster intergenerational play or play among people with very different skill and age levels. Here's another opportunity for society to look at how to create opportunities for interchange that take into consideration differences of all kind. It's a whole new ball game, and in aging, it's a brand new field in terms of looking at human potential.

COHEN

I'd like to ask the audience a question. Are there any programs in any of your libraries or museums that bring the two generations together? Do any of you have programs with the elderly and children?

Darla L'Allier

Tulsa City County Library-Hardesty Regional

RSVP (Retired Service Volunteers) brought a service dog to our library. We had designed a story time for 9 to 11-year-olds based on the visit, but we had newborns through 60-year-old people actually come. We were thrilled because we want grandparents and all ages and all types of people involved in our programs. So now we are looking at bringing other service volunteers in to do more programs.

Susan Seligmann

Discovery Creek Children's Museum Washington, D.C.

We developed a mobile rainforest exhibit that travels in a 53-foot tractor trailer, primarily to schools. However, we also take it to venues where there are lots of people. For example, we recently took it to Washington's Adams Morgan district, primarily a Latino community. It was enormously successful in allowing adults and children to explore the stories of their lives because so many of these people had grown up in the habitat represented in the exhibit.

FRERKING

I've got a question for both Drs. Cohen and Gopnik. You both have talked about the research you have done in your respective fields, but do researchers in different fields talk to each other?

GOPNIK

There has been a tradition of thinking of developmental psychology as including the entire life span. But the methods that we use and the problems that we look at are typically quite separate. There's not as much commonality as you might expect. People are becoming more interested in learning. Learning in adults hasn't been a tremendous focus in psychology, which is sort of surprising. If you try to find out answers to questions like "How do people learn about the causal structured world?" or "How do people learn about the world around them?" you'll find tremendous amounts of work in developmental psychology in childhood and you actually find a lot of stuff about rats, but there is very little about how ordinary adult people learn.

COHEN

Collaboration is increasing with intergenerational studies—by definition. At the research level, when you have a study with different age groups, it forces you to look at the different instruments that you are using. When you add the intergenerational dimension, the shortcomings of the instruments appear. It's a rich addition to the whole research process. ■ ■ ■

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First Lady Laura Welch Bush



A former public school teacher and librarian, Laura Bush is dedicated to advancing early childhood education; promoting reading, books and libraries; and recruiting more good teachers for the classroom.

Mrs. Bush supports the President's work to ensure that no child is left behind in school. She created a national initiative, Ready to Read, Ready to Learn, to help inform parents and policy makers about early childhood education and the importance of reading aloud to and with children from their earliest days. In July 2001, Laura Bush convened a White House Summit on Early Childhood Cognitive Development at Georgetown University. During that conference, researchers shared information on how infants learn and how to help parents and caregivers prepare children for lifelong learning. Laura Bush hosted a series of regional Early Childhood Summits across the country to share this information with a broader audience.

Mrs. Bush also hosted the White House Conference on School Libraries in June 2002 to discuss the latest research in library science and the importance of supporting and expanding America's public, academic and school libraries. As First Lady of Texas, Laura Bush helped to create the Texas Book Festival to

share the joy of books and reading with all ages. This annual celebration of authors and books raises funds for Texas' public libraries. Building upon the success of this event, Mrs. Bush partnered with the Library of Congress to launch the first National Book Festival in Washington, D.C., in September 2001. The second National Book Festival, held last October, drew 45,000 book-lovers to the nation's capital.

Addressing the critical need for teachers in America, Laura Bush works with recruitment programs like Teach for America, The New Teacher Project and Troops to Teachers to encourage students, professionals and retired members of the military to become teachers. In March 2002, Mrs. Bush hosted the White House Conference on Preparing Tomorrow's Teachers, where researchers shared information on how to better prepare teachers for the classroom.

Dear Friends:
I am delighted to send greetings to everyone gathered for this important symposium on the 21st century learner, sponsored by the Institute of Museum and Library Services. My thanks go also to the co-sponsors—the Association of Children's Museums; the Association for Library Service to Children; the Families and Work Institute; and the Civil Society Institute.

Along with our homes and schools, museums and libraries provide the strongest foundation for learning in our communities. Children and adults know that when they have a question about the world, their local museum or library is the place to go. Someone will always be there to help them find the answer—dedicated museum directors and librarians. As directors and librarians, your jobs are important ones. Our nation runs on the fuel of information and imagination that museums and libraries provide. You educate and inform the public, and by doing so, you help to strengthen our democracy.

I share President Bush's goal of building the capacity of libraries and museums and welcome his fifteen percent increase in the budget. Investing in our museums and libraries is essential to expand public access to information, bridge the digital divide and sustain a rich learning environment for children.

The first five years of life are critical for children to develop the physical, emotional and cognitive skills they will need for the rest of their lives. The ways children think, talk, listen and learn are forming before they even enter their first classroom. A child's interaction with others and abilities to solve problems and resolve conflicts are all shaped by early childhood experiences.

As museums and libraries broaden children's minds and imaginations, activities that engage children enhance their development and academic success. Imagine building a catapult and using it for a marshmallow-flinging contest at your local library. Children in Phoenix, Arizona, did just

The first five years of life are critical for children to develop the physical, emotional and cognitive skills they will need for the rest of their lives. The ways children think, talk, listen and learn are forming before they even enter their first classroom. A child's interaction with others and abilities to solve problems and resolve conflicts are all shaped by early childhood experiences.

that during a student-led Satellite Science workshop offered by the Arizona Science Center and the Phoenix Public Library. The Satellite Science program was created with IMLS funds to provide science education for kids in a library setting.

Children's well-being and cognitive and social development contribute to their preparedness for success in school. In cities and states across the

country, museums and libraries are finding that partnerships with Head Start help them reach the youngest learners and their families.

Recently, the Please Touch Museum™ in Philadelphia was recognized with an IMLS National Award for Museum Service for its innovative work with local Head Start Centers. The museum hosts Kindergarten Mixers for parents and teachers to help families learn about the importance of school readiness. During the first mixer, children searched for treasure during a scavenger hunt while parents learned how to prepare their preschoolers for kindergarten. Children met their new teachers and principals and received their first book bag filled with school supplies.

I commend Dr. Robert Martin and Secretary Tommy Thompson of the Department of Health and Human Services for working together to further these partnerships. This collaboration will help us achieve our goal of strengthening Head Start and making sure that all children start school with the skills they need to succeed.

Today you are hearing from some of our nation's leading researchers on how young children learn. But the best scientific knowledge is effective only if it's shared with parents, caregivers and teachers. Each of you has an important role in helping to see that America's children benefit from the information shared today. We can work together to ensure that every child has a strong education and a bright future. ■ ■ ■

Message delivered by Anne Heiligenstein, Director of Policy and Projects for First Lady Laura Bush.

Joshua Sparrow, M.D.
Harvard Medical School



Dr. Sparrow is Assistant Professor in Psychiatry at Harvard Medical School, Senior Consultant for inpatient psychiatry services at Children's Hospital, Boston, Associate Director

of the Brazelton Touchpoints Center, and has served as Associate Professor of Psychiatry at the School of Medicine of the University of Marseille, Marseille, France. A graduate of Yale Medical School, Dr. Sparrow went through residency training and a child psychiatry fellowship at Harvard Medical School teaching hospitals.

Co-author with Dr. T. Berry Brazelton of four books (*Touchpoints Three to Six: Your Child's Emotional and Behavioral Development; Calming Your Fussy Baby, the Brazelton Way; Discipline, the Brazelton Way; Sleep, the Brazelton Way*) and a weekly *New York Times* Syndicate column, "Families Today."

Dr. Sparrow's work with the Brazelton Touchpoints Center has included consultation on child development and parenting to the Harlem Children's Zone and to American Indian Early Head Start Programs.

Dr. Sparrow has served as consultant to the Fox Family television show "Brazelton on Parenting," the I Am Your Child Foundation video "Discipline," and other children's educational programs. Dr. Sparrow has been called upon by a wide range of media, including "ABC World News," *Boston Globe*, *Child*, *Family Circle*, *Parents*, *Time*, *The Wall Street Journal*, *The Washington Post*, *USA TODAY*, *US News & World Report*, "Prime Time Live" and "MSNBC Town Hall (America on Alert)."

Web: www.touchpoints.org

The Emotional Basis of Learning

There are several key ingredients in how early learning really happens, and I hope that you will bring this information back to your institutions, your museums and your libraries to inform the work that you already do with young children. We first got excited about the idea of bringing Touchpoints to children's museums and libraries in April 2002 when we had an opportunity to present a special evening for parents and, the following day, a series of professional seminars at the Children's Museum of Richmond.

In 1996, there was a White House press conference that pulled together research on brain development that had been accumulating over the preceding couple of decades. It was a very important event because it began to draw attention to the critical learning that happens in the first years of life. We learned, for example, that a child's brain is not a smaller version of an adult brain. There is rapid and dynamic change going on in a young child's brain. At birth a child is born with one hundred billion brain cells. So, in fact, brain development begins before you can even give a book to a child, although you can give it to expectant parents because brain development occurs in the womb.

In the course of the first two years of life, these one hundred billion brain cells have the enormously challenging task of finding their way to each other, of starting to talk with each other and to make connections. This happens in part based on genetic programming, but in large part because of the environments in which young children live. At fifteen months of age, brain cells have begun to reach out to each other. Then by two years of age, they have created a dense set of connections so that the brain cells can signal to each other. This goes on throughout life, but at no time as vigorously as it does in the first years of life.

Despite this new understanding, our approach to early childhood education has not changed. The stodgy rate at which we currently spend on children's education nowhere near matches the explosive rate of brain growth in those early years. Even with this new information, spending patterns really haven't changed. If anything, it's gotten worse in the past four years where we now have more children living below the poverty line than before Head Start and Early Head Start. Currently these two programs are only available for a small fraction of the children who are eligible for them. Furthermore, with the increase in poverty among children, there are more children eligible than ever before.

Unfortunately, with the convening of this research in 1996, a misunderstanding was generated: early learning takes place by a simple kind of imposing of information or cognitive stimulation on the very young child. I, in fact, was approached by a venture capitalist several years ago who asked if I would consult with him to develop a "wearable device," he called it—sort of like a Sony Walkman or Discman or something that you could just put on a baby that would stimulate his or her brain so you could go about your fast-tracked life as a parent. I said, "I would

love to work with you so that I could talk you out of doing that, because there is lots of evidence that children learn in the context of their most critical relationships with the people who matter to them in their lives from the beginning.” Of course, he didn’t call me back. In our increasingly competitive world, parents’ anxiety about doing everything they can for their children has unfortunately been sidetracked in some cases by commercial enterprises that have attempted to capitalize on this by taking advantage of that anxiety.

Many quick-fix devices have flooded the vulnerable young parents market in recent years. A perfect example is the “Pregnophone,” a megaphone-like apparatus designed to be placed on the pregnant woman’s stomach through which mom or dad can send messages to baby directly through the uterine wall. You can imagine how appealing this could be to parents who really want to give their children a head start. In fact, starting at about the seventh month of pregnancy, if you read the same nursery rhyme to your fetus over and over, at birth they will distinguish between that nursery rhyme and one they have never heard. Of course, you are welcome to try this, but what are we trying to accomplish, anyway? Somehow, I think we have gotten lost. So, today I am going to briefly touch on five of the critical ingredients for early learning—the “how” of early learning for children.

The first of these five is a rather opaque term, “state regulation.” Simply put, it refers to how a three-day-old baby, for example, works hard to learn to shift from a state of crying to a state of alert attention. At seventy-two hours of age, because he can use his hand and his thumb to soothe himself, he is able to take in information and learn about his environment. The capacity of a newborn to do this varies depending on each child’s constitution and environment. The extent to which a child needs his caregivers to teach him how to soothe himself from a crying or fussy state to an alert state in which he can take in information about his environment varies from one child to another. From the very beginning of life, newborns need parents and professional caregivers who are emotionally available to respond to the differences in their capacities to regulate their states so that they can learn, and they must learn from the very beginning. Can a child who has lost a series of relationships with critical caregivers soothe himself in order to be able to learn about his environment? It’s very difficult. The capacity to settle oneself, to get oneself under control is the first critical ingredient in early learning. You don’t figure it out at three days of age, you start working on it. But ask any teacher, from kindergarten to high school, and he can tell you about the students he has who do not know how to do this yet, and how it interferes with their capacity to learn.

The next critical early learning ingredient is called “mutual regulation,” a term which describes how a baby acquires the skills to engage his or her parent or caregiver.

Dr. Brazelton did a wonderful film in which he asked the mother of a two-month-old to engage as she normally would with her two-month-old. Then he asks her to stop, turn her face away and then turn back and be completely unresponsive—completely inanimate, immobile, expressionless. The idea was to try to simulate some circumstances in which critical caregivers are not emotionally available for a host of reasons to be able to participate in their child’s learning about themselves, about their caregivers and about what happens in relationships. As the film opens, we see a very animated two-month-old being held by and actively engaging with his mother. He gets a little bit overstimulated, turns away to regulate his state and then turns back to take in more. Then, as part of the protocol, the mother turns her head away from the baby, holds it there for a few seconds, and then turns back to face the child but now she is stone-faced and unresponsive. Now this child already knows he is capable of winning his mother’s attention back because he has an emotionally available caregiver. He tries very hard to win back her attention. It takes him eleven seconds to realize that he doesn’t have her. And then he tries fifteen different behaviors to bring her back. The baby of a depressed mother will give up after three.

In the early weeks of life, all babies have the opportunity to learn about what it takes to reengage a parent when the phone rings or when they have to attend to something in the kitchen or when another sibling needs attention. But, parents who have more stresses on them than those few I just named will be unable to support this kind of exploration of the environment that is so critical to learning. We must do far more than simply supply a baby with information or books. We have to create an environment that supports the child’s capacity to take the risk to explore that environment.

The next critical ingredient is one that happens at nine months of age in healthily developing children. It’s called “social referencing.” This was demonstrated in a brilliant experiment in which a nine-month-old is placed on a piece of clear Plexiglas on top of a checkerboard pattern just underneath it, which at a point in the distance drops off. Nine-month-olds know that this is an ambiguous situation already. Nine-month-olds who have grown up in environments where caregivers are emotionally available to give them constant feedback about what’s going on in their world and to interpret for them what their world means so that they learn to make it on their own eventually will look immediately to a trusted adult’s face for information when faced with an ambiguous situation. Babies quickly learn to read the faces of the trusted adults in their lives, and they use that information to make decisions in unclear situations like this one.

Very young children learn from their most important relationships. Imagine what happens to children whose parents’ faces are clouded by multiple stresses, whether they

be poverty, hunger, domestic violence, or a whole host of other issues that can interfere with a child's early learning. Then, again, fast forward to the kindergartners or the high school students who are not successful learners and think about whether or not we are really talking about interferences that began in infancy.

I am going to race ahead to another critical ingredient of early learning, which is termed "symbolic thinking." This is what happens between the ages of eight and fifteen months when babies go from exploring objects with their senses and their muscles to being able to make an image in their minds of what that object stands for. Words are concepts that stand for things, and infants who cannot make a mental image of an object will not learn how to speak. Many children with autism, for example, don't develop language—or develop limited language—and therefore have trouble developing symbolic thinking or the capacity to make mental images for things in their world.

This is truly a miracle of early learning. In an emotionally impoverished environment, even if a child has a toy telephone, some blocks, a doll or a cup, I do not think that she will go through the process of learning how to think symbolically unless that process happens within a trusting and emotionally rewarding relationship with her caregiver. Play objects, such as a toy telephone, a cup or a doll, are all about human interaction. The cup is about nurturing, the phone is about communication, the doll is about nurturing. The way that symbolic thinking takes place for babies is in the context of their relationships with their most important caregivers.

Now I'm going to move ahead to two and a half years of age because there is another remarkable phenomenon in early learning that can be observed at this point in life. It's called "theory of mind." A two-and-a-half-year-old not only knows how to read a caregiver's face and to make sense out of it, but he or she is already ready to start figuring out why. What is it about? Two-and-a-half-year-olds are already looking at adult behavior and making up theories to explain it. They are sort of like young child psychiatrists. They look at what their parents and other caregivers are doing. They look at their caregivers' behavior and they make up stories for themselves to explain why adults do the things that they do. And, guess what? At two and a half years of age, the stories that they make up are always about themselves. They always see themselves as being the reason for adult behavior.

In a short film also developed by Dr. Brazelton, we see a mother playing with her two-and-a-half-year-old. Scattered on the floor around them are a number of toys, including a doll and a stuffed alligator. At one point, the two-and-a-half-year-old thinks it's very amusing to pretend the alligator is eating the doll with its big snapping jaws. After awhile in the film, the mother is asked to stop interacting. What kinds of theories is this two-and-a-half-year-old developing about why his mother is behaving like

she is? First, he gets so upset that he has to state regulate so he shoves his fingers up his nose to calm himself down. Then he disengages and pulls away, but he is so resourceful. He'll come back and keep on trying to learn—what is it going to take to draw my mother out? When she starts interacting again he pulls away from her. He pulls back his whole body. He's not ready to reengage with her yet. No eye contact. He's mad. He starts to come around. You know a two-and-a-half-year-old is reengaged when he starts disagreeing with you again. Look at how resourceful and how persistent this child is. This child will clearly be a successful learner. What do you think his theory was about why his mother withdrew? He had this terrible idea about having the alligator bite the baby. He probably has a baby sister who he'd like to bite and his mother made it very clear that that wasn't such a great idea, and he quickly understood his mother's perspective, became remorseful and changed his tune to try to draw her back.

Once again, think about what it takes for a parent to be able to be sufficiently emotionally available for a child to do this kind of learning, and then think about the kinds of things that unsupported families in our country go through that lead children to develop all kinds of theories about their parents' behavior. Situations where they blame themselves and withdraw and no longer succeed as learners.

I want to close with a couple of ideas that we developed in a very early brainstorming session with some folks from the Children's Museum of Richmond—and we would love to continue to engage in this process with children's museums and libraries around the country. The first issue is that we have heard from time to time that people in museums and libraries get discouraged because parents seem to just dump their children. What we'd like to suggest is that you try to value your role as a support for children, rather than calling it "dumping them." Understand that you are providing critical support for stressed parents and feel good—pat yourselves on the back—about providing that service for parents. Then look at ways of reconnecting parents and children after they have had a break by creating environments that facilitate parent/child interaction, exhibits or programs that really are designed to get parents and children to learn from each other. Think about using elements of development, like the ones I have just presented along with others, as the subjects of your exhibits or programs. Design exhibits or environments in libraries or museums where children's behavior becomes the subject that both parents and children can learn about.

Finally, you all have such a critical role in fostering healthy relationships with children, parents and other community institutions. We're hoping that we can work with you so that you might try using Touchpoints as your common language. Thank you very much. ■ ■ ■

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T. Berry Brazelton, M.D.
Harvard Medical School



Dr. T. Berry Brazelton, a world renowned expert in child development, received his training in child psychiatry at Massachusetts General Hospital and the James Jackson Putnam Children's Center.

Dr. Brazelton subsequently served as a Fellow at the Center for Cognitive Studies at Harvard University. There, the process of integrating his dual interests—primary care pediatrics and child psychiatry—culminated in 1972, when he established the Child Development Unit, a pediatric training and research center at Children's Hospital in Boston.

Dr. Brazelton has written several books on pediatrics and child development, including *The Irreducible Needs of Children, Infants and Mothers, Working and Caring, Touchpoints*, which has reached nearly a million families, and most recently, the national bestseller co-written with Joshua Sparrow, M.D., *Touchpoints: Three to Six*. Dr. Brazelton has made a three-part video series on Touchpoints, and his television show, "What Every Baby Knows," ran for twelve years and won two Emmy Awards. In January 2003, he launched a series of books, also co-authored by Joshua Sparrow, *The Brazelton Way*. The first three titles are: *Sleep, the Brazelton Way; Discipline, the Brazelton Way; and Calming Your Fussy Baby, the Brazelton Way*.

Dr. Brazelton's current appointments include **Clinical Professor of Pediatrics Emeritus at Harvard University Medical School and Professor of Psychiatry and Human Development at Brown University**. In 1995, Harvard Medical School established the **T. Berry Brazelton Chair in Pediatrics**.

Dr. Brazelton is an active member of the **Child Development Unit at the Children's Hospital, Boston**, where he continues his clinical, teaching and research activities.

One of Dr. Brazelton's foremost achievements in pediatrics is his **Neonatal Behavioral Assessment Scale (NBAS)**, published in 1973 and revised in 1984 and in 1996. Known as the "Brazelton," this evaluation tool is used worldwide, clinically and in research, to assess not only the physical and neurological responses of newborns but also their emotional well-being and individual differences. Increasingly, the NBAS is being used as an intervention to help parents understand and relate to their new babies.

In 1993, Dr. Brazelton launched the **Brazelton Touchpoints Center (BTC)** at Children's Hospital in Boston. BTC is a preventive outreach program that trains healthcare and childcare professionals nationwide to better serve families of infants and toddlers. Since 1996, BTC has taken hold in 52 communities in 22 states.

In March 1998, in Washington, D.C., a gala event celebrated Dr. Brazelton's work and established the **Brazelton Foundation**. The Brazelton Foundation's mission is to disseminate Dr. Brazelton's positive approach towards working with children and their parents, and for all professionals to incorporate the value of positive relations into their framework for working with families.

Web: www.touchpoints.org

Necessary Ingredients to be "Ready to Learn"

It's fun to be here and to see all of you who are so dedicated to doing such fabulous work with parents and children. We are thrilled to be back in the world of children's museums and libraries. We had a wonderful time at the Open Minds, Open Doors Forum sponsored by the Children's Museum of Richmond in April 2002. It stirred us up to go on to similar forums in other communities such as Pittsburgh and Philadelphia and share with them our concepts about what's going on with families now and what roles museums and libraries might play in their communities. It stirred up our imagination and I hope I can stir up yours to see how we can put some of this

thinking together because parents today could use our support. They are under a lot of stress.

We travel around the country speaking to groups of parents on a weekly basis. We listen to them, too, and as a result we have collected a list of the stresses that parents go through today that are significantly greater than they were when I was raising my children. They are the kinds of things that are dogging people today and all of you are familiar with them.

We know the solution to each of these stresses but we haven't got the national will to do anything about it. Now, that is a real indictment. So, as we go through these stresses, just think about what we already know, about how much we know we could do with that knowledge and about how we could respond to the challenge Hillary Rodham Clinton gave us in *It Takes a Village*. How do we get back to a motivated and problem-solving mindset like the one represented in her book?

The first stressor, the change in family structure, has really hit new parents hard. They don't have somebody next door to turn to, they can't go borrow a cup of sugar or get a babysitter. As long as things are going alright, it doesn't matter. Grandma is at the other end of the phone. But do you know who parents call first when they are in trouble? I'm fascinated with this piece of research that comes from one of our Touchpoint Sites in Napa Valley. Parents call pediatricians seventh, not first, but seventh. They call the woman in the pediatrician's office first. If they don't get an answer from her, then they turn to their own mother, then to their friend next door and then right down the line. Isn't that an indictment of how our medical system is failing?

I think we are at a real Touchpoint right now with regards to the current status of women, the second stressor faced by our nation's families. A Touchpoint is a period of regression that occurs just before we take a spurt in development. Regressions are absolutely critical to gathering steam, to reorganizing. Right now, women are split apart. Women at home are just as torn as women in the workforce. We need decent childcare but how do we get it in a country that really doesn't value it, in which people really don't believe women ought to be working and if they are they ought to be punished for it and their kids ought to be punished, too? What are we doing to women? Then, on the other side of the divide, the stay-at-home moms experience feelings of loneliness and isolation. If they go to the park they are practically the only parent there. If they try to find friends in similar circumstances, they find it very hard. People are so much busier today than they ever were before. There seems to be no time in which to forge new connections, new friendships.

Lack of time for family rituals is another significant family stressor. Look at how few people even eat dinner with their children—what is that all about? Breakfast and dinner together as a family are so important. I've told parents in my own practice (I was in practice for 50 years)

that if their child is grumpy at breakfast, try putting a glass of juice or ginger ale by his bed and let him drink it down like a pregnant woman before getting out of bed. It raises the blood sugar, then maybe he won't be so grumpy and breakfast can be fun. Everybody could get together in the morning before they had to separate and say to each other, "Oh, I'm going to miss you all day."

Another stressor: lack of values. Now that our country stands, as it does, for war, aggression, money and power, what do you think that's done to young families? They don't know where to turn for their values. Unless they turn back to their own families, to their own religions or ethnic values, our country has really deserted them. Since 9-11, the families in New York are very stressed and searching more than ever for new values. It's time we re-thought what the war in Afghanistan and now the one in Iraq have done to our children's values. It's costing us a lot more than the defense budget alone. Whatever billions are requested for defense are a drop in the bucket compared to the cost to our children and to our national values.

Our medical system stinks. It is not working for anybody, and particularly, not for doctors. Fifty percent of pediatricians around Boston have given up their practices because they weren't trained to do the things that they really need to do—to sit down when they come in the room with a new mother and her small child and say, "Have you any questions?" Who has a question when the doctor stands with his hand on the door knob saying, "Have any questions?" Nobody's going to have a question. The relational value of primary care is being lost and we are not really giving parents what we could when they come in for their checkups.

We've made diversity into a negative in this country. It's very serious what that mindset does to children about four and five years old when they begin to compare hair, skin color and all the rest. Children come home having been beaten up, bullied and called names—all because of their unappreciated differences. I wonder how we got there.

If you go around the world, as I've done, looking at newborn babies, you begin to understand cultural differences in light of all that they bring to us. Newborn babies in Asia are very quiet, very gentle. They move like ballet dancers. They move so quietly and gently, and have their states under such control that they can pay attention to a red ball or to my face or to my soft voice for 30 minutes without a break. Watch a Caucasian newborn when you give him or her an object to focus on, maybe just your face. She watches and then she throws off a startle and then you have to bring her back. On average we can get three minutes of attention from a Caucasian baby and 30 minutes from an Asian baby. In Beijing and Tokyo first grade teachers model that behavior with their students. They talk very quietly and they watch every child's eyes for when they brighten. Then they know they've got them. We visited Kenya and worked with African babies. We have a

film of a three-day-old baby. I handed him a red object and this baby reached out and grabbed it and then looked at it as if to say “That’s what I meant to do.” Three days old! When you played with him and pulled him up to sit, that baby didn’t come up to sit, he stood, as a newborn, and looked around the room like “here’s the world, I wanna conquer it!” As they get older, African children are active. Activity is a very important part of their growth. Couldn’t we teach kids on their feet in the first grade? Couldn’t we give them a chance to learn how to learn and then make them sit down? We haven’t even tried it. Now is the time for us to re-think some of this.

Unless we reduce the stresses on families, however, all of the things we are talking about aren’t going to work. I challenge each of you to think of ways in which museums and libraries can become places where people can turn in order to learn and to reduce stress.

More family stressors are the T.V. and the media competing for our time and attention. By now most of you have learned how to use computers, and you better because your children sure have. My seven-year-old grandchild came over recently to retrieve my email, because I can’t do it. After he finished, he looked up at me and said, “You’re the

dumbest man I ever saw.” And, when it comes to technology, I am! There is a backlash though to our children’s speeding ahead of us in the technology world. Parents say, “Everybody knows things but me.” Maybe that’s where we can meet a challenge: give parents more feelings of success and reassurance that yes, they know what they are doing.

The latest stress is September 11th and what it did to parents and children. After it happened, we went down to New York every week to help parents because they were so zapped themselves that they were just unable to talk to their children. What came out of that experience from both the teachers and the parents who we talked to was that we could never promise our children a safe future again. And, I guess we are still dogged by that thought.

So, these are the stresses that are going on. What do we do about them? First, we don’t give in. We would like to work with you to make a paradigm shift. We have all been trained so well to look for people’s failures and their

deficits. When a patient comes through my door in my medical practice, what do I look for? I don’t look for his successes, I look to see what’s wrong with him. It’s like an experiment they did at Harvard with rats. They randomly put a bunch of rats in two cages. They labeled one group the “smart rats” and the other group the “dumb rats.” Then a graduate student put them through a maze. None of the dumb rats got through, but all the smart rats did. But, they filmed the graduate student. She’d pick up a smart rat, put it down carefully and it would run right through. She’d pick up a dumb rat and just drop it in and of course it couldn’t stagger through. This is what we do with our eyes, and our approach when a “dumb rat” comes into our office. Is that what we mean to do when people are vulnerable?

The second you change your approach, the outcome can change, too. I’ll tell you about an eight-month-old baby I cared for. She came in with her mother. Mothers seem to be either scared to death of me or hate me, I can’t tell which. But anyway, the mother walked in very anxiously, stiff as a board, and her eight-month-old was clutching her. I thought, “Oh Lord, we’re going to have a terrible time.” So I did not look the child in the eye. Never look a small baby in the eye. If you do, you get just what you deserve: a screaming baby. Look just beyond them—they can’t stand that. They want to get your attention. So the baby began to move around to get my attention and I began to move around just like her and she knew it. She softened and began to look at me and all of a sudden she gave me the raspberry. And I thought, “Okay, here she is.” So I began talking to the mother, punctuating each sentence with a raspberry of my own. “How is she (raspberry!) eating?” The mother and the baby leaned toward me, and I said, “Is she (raspberry!) sleeping alright?” The baby reached out and let me take her. At eight months, right at the peak of stranger anxiety, she reached up and felt my mouth, so I gave her another raspberry and she raspberried right back. And this mother said “You really like babies, don’t you?” We all had a wonderful time from then on. I didn’t even have to ask her another question.

These few minutes of interchange represented a shift from a deficit model to a positive model. Start looking for people’s strengths. As you look just past a baby, start noting what the baby’s doing. Watch her grab for that toy. Isn’t that beautiful? Look at the hand shape itself for the toy. And, just as she goes for it, watch her mother’s face as it softens. When you start talking about her child, talk about the baby’s temperament and where the baby is in the developmental process. From then on, you’re on a different wave length.

Our Touchpoints model is a map of development. In it, we don’t think about linear development. We think about multidimensional development in which there are Touchpoints at each stage. Instead of being prescriptive, the Touchpoints model advocates being collaborative and looking for empathic opportunities. But people in the fields

of medicine or education can't do this by themselves. I challenge all of you to join us in working together—we need flexible disciplines.

If you think of the family as a system, you come to systems theory, which says that every member of a system is in balance with every other member and if you put a stress on that system, every member learns how to respond: either to succeed or to fail. Every stress on a family becomes an opportunity. If we want to be in there to help that family succeed, we have to become part of the system. That means we can no longer be “top-down,” “telling.” We have to understand the family's system—learn their ethnic belief systems, their religious belief systems, their language and all the rest. We have worked with American Indian families where we have learned how to elicit their language and their customs. It's been a very positive experience for both sides. Barriers of all kinds have broken down when we become part of their system. Then, every stress becomes an opportunity that leads us into new discoveries about parents and their babies.

When I look at a young child like that eight-month-old I told you about, I look for three things. First, I try to determine where the baby is in her nervous system development. That system that has a relentless push behind it. Second, I watch how the baby reacts internally when she does something like giving me a raspberry and then gets a response. She suddenly realizes, “I just did that. I did it myself!” Finally, I look at the internal/external feedback system, which, of course, is the adult or the parent.

That leads us to our Touchpoints model. We have discovered that there are six distinct regression points in the first year, and four to six each year after that. Regressions occur at different points in a child's development and are times for reorganization just before the next growth spurt. Each of these regressions becomes an opportunity for us to join with parents in helping them understand what's going on in their child's mind. Because of the vulnerability in the child as he regresses, and the vulnerability that that brings about in the parent, it becomes a major opportunity to enter the system and play a role. It is important to a family's well-being that we give parents back the feeling that they understand what they are doing. Newborn babies, for example, have four midbrain reflexes that they use to help themselves get under control as they come from sleeping to waking. They throw off a tonic neck reflex, then send hand to mouth, then rooting, then sucking. When they suck, their face lights up. This is an opportunity to say to parents, “Look what your baby just did. She knew she wanted to get herself under control. Look at her face now.” Then the parent begins to realize, “I can watch my baby and understand what she's doing and what my new role is with her.”

The first Touchpoint happens during pregnancy when the mother is always dogged by at least two questions: 1) how will I ever understand my baby, and then 2) what kind of baby could I nurture? Every parent-to-be I have ever met

has two babies in their mind: the perfect baby who's already smiling, vocalizing, has hair and all the things that go with being three months old and the second is the impaired baby. Every parent-to-be is getting ready to nurture a baby who falls somewhere in between those two. When you give them some ideas about what the newborn's behavior is likely to be, you're giving them an answer to their question. This baby will tell you what you need to do to get close to each other.

There are now sixty Touchpoint sites around the country. Two of them are in Harlem in the Harlem Children's Home. We also have eight sites among the same American Indian population who wouldn't accept Early Head Start from our government. They said, “We have never gotten anything from the white man yet that didn't cost us more than it was worth.” Unless Early Head Start (ages 0-3) would help them preserve their language and their customs, it wasn't worth it to take the funding. These Native Americans were already aware of what we also came to believe: in the first three years there are three things that you can depend on a child getting. First, the child gets his self-image, his self-esteem. “I matter.”

Where does it come from? Not from flash cards or any of the other things people buy. It comes from when a mother looks back in her baby's face and says, “Yeah, that's right.” The baby says, “Ooh,” and she says, “Ooh” back. Every time you do that, the brain cells not only proliferate, but the baby's self-esteem proliferates. The second thing is that if you have enough self-esteem as a child, you can care about others. The third thing is what we are all gathered here for today: the motivation for learning. If a child has the first two, he is ready for the third. A child who feels good about himself will learn anything we want him to. This is our goal. If we helped these Native Americans adjust the Early Head Start curriculum to their values and their language, it would be worth it. So we came along.

The guiding principles in our Touchpoints model help us train people to try to value the relationship between the practitioner and the parent. I think this is what museums and libraries already have under their belts. Use the child's behavior as the basis of your language because that's a universal language. Every parent wants to hear you say,

Use the child's behavior as the basis of your language because that's a universal language. Every parent wants to hear you say, “Gee, he sure is active, isn't he? He goes after everything.” Or, “Isn't she quiet and gentle? Isn't she lovely?” Focus on the language between you and the parent. The hardest part is recognizing what you bring to the interaction. Because everyone comes with biases, but biases only dominate our behavior if we aren't aware of them. If we can become aware of them, they no longer invade our behavior.

“Gee, he sure is active, isn’t he? He goes after everything.” Or, “Isn’t she quiet and gentle? Isn’t she lovely?” Focus on the language between you and the parent. The hardest part is recognizing what you bring to the interaction. Because everyone comes with biases, but biases only dominate our behavior if we aren’t aware of them. If we can become aware of them, they no longer invade our behavior.

Be willing to discuss matters that go beyond your traditional role. Value passion, wherever you find it. This is a wonderful one. If a mother comes in and says, “I could smash this baby against the wall.” Instead of calling a social worker, just say to her, “Isn’t it wonderful how much you care.” I used this the other day in a grocery store. This mother was whacking her two-year-old and I was ready to go over and hold her arms, but instead I went over and I said to her, “Isn’t it awful to bring a two-year-old to the store?” And, the mother said, “Yes,” and started weeping and sat down in a chair and the baby climbed up in her lap and started patting her on the face. And, I thought, this really is valuing passion where you find it.

Look for opportunities to support parental mastery. As they walk in your door, you know you can say, “Oh, look at how that baby looks at you. When you look back in her eyes your whole face softens.” Then, of course, at the other end of the spectrum, value disorganization and the opportunities it brings.

Now, what does this have to do with running children’s museums and libraries? I think we can all take this shift in thinking and use it to help children and families wherever we find them. How about setting up exhibits or showing films or videos about child development in museums and libraries? Sharing this important information with parents and with children, too. I had a television show that had more kids as viewers than adults. Present information in museums and libraries that not only captures parents, but captures children as well. You have an opportunity to set up peer relationships in museums and libraries by getting the parents and the children together, and then letting them talk to each other. You can even offer a facilitator, somebody to help them make the connections.

We have an institution called “Toilet School” at Children’s Hospital in Boston where, for example, we take four- to six-year-olds who have not yet been willing to comply with our pressure to toilet train. They come in for a new approach. One of them the other day said, “I got it made. I have fooled my BM. I cut some holes in my diaper, so when I sit on the potty, it goes right through. The diaper thinks it’s gonna get stuck in the diaper. It’s not.” Where do they get these wonderful ideas? And they share these ideas with each other. It’s incredible what they can teach each other and what they are ready to teach their parents.

So, how about thinking about holes in your diapers at your museums or at your libraries? We’d love to share the Touchpoint ideas with you in training sessions, and then

send you back to be trainers in your own communities. In Napa Valley we have a wonderful center where Kristi Brant has trained every telephone operator, every bus driver and anybody who has anything to do with parents and children. If you get on the bus there, the driver says, “Are you here for Touchpoints?” That’s what we are aiming for. We want the whole community concentrating on parents and children—on families. What about establishing our Touchpoints outreach goals for museums and libraries? We hope to work with some of you. Thank you. ■ ■ ■

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Lindsay Miller
Kensington, MD

I am in the instructive arts and I wonder if you have any words for parents who have begun their family relationship with their child when that child was three, four or five years old—adopted children.

BRAZELTON

Adopting a baby today is a lot harder than it used to be because we know too much. Whenever things are going right, everybody feels good about it. But, when they go wrong, when one of these Touchpoints hits, every adoptive parent thinks, “Here we are. This problem began in the uterus.” or “I am failing with this child.” And, when you make a cross-cultural adoption, it becomes extra hard. The worst thing that I have seen is that parents build up energy to make the adoption. They are just passionate by the time they get the child. I have seen them go to the airport to pick up a baby and of course they leap on the baby, “Hello darling, how are you!?” The baby pulls away, spits up, has a BM, anything he can do to try to control this overflow, and the parent immediately feels, “Uh-oh, I’m not going to make it.” By three and a half years of age, a child has already had a lot of experience. Every parent wonders, “Is this baby going to be okay?” We’ve got to help parents understand their newly adopted baby without even having to look at him, touch him, or get close to him. Let them understand the baby and pull back and wait until the baby gives them permission.

I’d warn people ahead of time not to dive at the child, and to expect some regression—you might call it a kind of depression—as the baby makes this adjustment to the new environment. Give parents some help in understanding the child. Give them a chance to understand where that child is in his or her cognitive, motor and affective development. Then the fourth thing is—and every one of you who assesses children ought to be looking for this—does the baby expect to succeed or to fail? We can tell by eight months of age if a child expects to succeed or fail. If the mother of an adopted baby knows that, she can already see

how much she may have to pipe into that child to make up for the three and a half years of whatever deprivation the child may have experienced.

Unidentified audience member

At children's museums we translate the information we hear from you today and share it with our communities. How can we be the most effective at being the secondary deliverers of this information and working with parents to understand the research that is out there?

BRAZELTON

We have had some parallel experience. We have been working with childcare providers who are being trained by folks who have come to Boston for Touchpoints training. Childcare providers often do not recognize their own value. They do not recognize how important they are. I suggest that the first step you take in training your staff members is to have them stop and reflect on just how critical they are to supporting families and children. You can't help adults learn without first respecting their wish to be confident and to be successful as professionals, much like you can't help parents if you don't first start by respecting their own expertise.

I'd like to add gatekeeping to it. When we train people for childcare, which we do a lot of now, because they are the readiest for it, readier than pediatricians are, we find that something interferes when they are asked to identify what parents are doing well. You know what it is? It happens between mothers and fathers, between grandmothers and their daughters; it happens with everybody who cares about the same small child. Competition. I call it gatekeeping. Everybody who cares about that child will say, "If I had that child, she wouldn't be doing that [bad behavior]." They start out with a negative, critical image of what the parent is doing. Now these situations are bound to happen in museums or libraries. You look at this kid and say, "He's just so active, I wouldn't put up with it. I would discipline him." Even if you don't say it, it's on your mind. Don't you think the parent knows that? So, you must face it openly—talk it out. Suggest to a parent of an "active" child, "You know, when you do that I get so competitive I can't keep myself from feeling like I wouldn't have done it that way." She'll say right back to you, "Well, whose kid is it?" Then you know you are right on the same wavelength. ■ ■ ■

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magazines and has appeared on “Good Morning America” and many East Coast regional morning shows. Dr. Golinkoff has published five books, written dozens of professional articles and presented more than 100 papers at professional conferences. She has also held leadership roles in several scientific organizations, including the American Psychological Association, the Jean Piaget Society and the International Society for Infant Studies. She has served on the panels of U.S., Israeli and Canadian funding agencies. She is presently on the editorial boards of two of the finest journals in her field: *Developmental Psychology* and *Infancy*. Her research is funded by the National Science Foundation and finds outlets in professional journals and books.

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Kathy Hirsh-Pasek is a professor in the Department of Psychology at Temple University, serves as Director of the Infant Language Laboratory and as the Director of the Psychology Department Honor’s Program. She has written six books, published more than 80 professional articles and has given more than 60 invited lectures worldwide.



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Though much of her research is in the area of early language and cognitive development, Dr. Hirsh-Pasek also serves as

Co-authors of *How Babies Talk* (2000) and *Einstein Never Used Flash Cards: How Our Children REALLY Learn—and Why They Need to Play More and Memorize Less* (2003).

Co-Principal Investigator on the National Institute of Child Health and Human Development Study of Early Child Care, a national longitudinal project investigating variations in early child care in infants and toddlers and the effects of these variations on social, emotional and intellectual development. In her work on the “hurried child” (Rescorla, Hyson, & Hirsh-Pasek, 1991), Dr. Hirsh-Pasek has studied a wide variety of preschool programs and examined how children’s experiences in these programs affected their development.

Dr. Hirsh-Pasek has been a spokesperson on early development for national magazines (*Parents Magazine*, *Parenting*, *Newsweek*) and on radio and television (“Good Morning America,” “20/20,” “NPR”). Hirsh-Pasek is also the co-founder of the Center for the Improvement of Resources for Children’s Lives, which translates research into practice. In addition, she is co-founder of *An Ethical Start*, a curricular program in moral development for children ages three through five.

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Today, let me share with you how early learning experiences shape the lifelong learner. First, let me introduce you to the 21st century child. Meet her hurried parents. They are the ones who walk around with the Palm Pilots while the cell phone is ringing, the email is buzzing and their child was supposed to be at soccer five minutes ago. Meet the child's hassled teachers. They are trying desperately hard to figure out whether they should be doing meaningful learning or *fact* learning. Creativity or accountability? Play or high stakes testing? What's wrong with these pictures? These very well intentioned people have been misled by exaggerated science, by societal pressures and forces and by marketing ploys.

Exaggerated science. How many of you out there remember the Mozart Effect? I actually found a product on the Web called "Mozart for Mommies and Daddies." Guaranteed to "jump start your newborn's I.Q." But, what about that data? It turns out the real evidence comes from a study conducted by Ellen Winner and Lois Hetland from Harvard Graduate School of Education's Project Zero. Hetland examined 67 studies that had been done on the Mozart Effect using 4,564 adults, and she reveals the existence of a short-lived effect by which music enhances performance in adults. By the way, they mean *short-lived*—the effect is only 10 minutes—and then it peters out. It most definitely does not lead to the conclusion that exposing children to classical music will raise their intelligence. In fact, do you know that none of these studies was even done on babies? Amazing! Yet, in certain states they now *require* that you play Mozart to children. Now, it's not a bad idea to play Mozart but it's not going to raise your newborn's I.Q.

There are societal forces. Even comic strips reflect our insatiable appetite for products that will boost I.Q. and save our children from the fate of being (gasp!) normal. In a recent comic strip called "Baby Blues" new parents ponder the claims of a company that says that its new "baby formula will make your baby smarter and improve her eyesight too."

Let's move to marketing ploys. Go into any toy store and you will see them. There's "Baby Genius," a program advertised as the "Best of the I.Q. Builders." But if you don't want to raise the whole brain and the whole I.Q., you can just work on the left brain. There is the DVD "Brainy Baby," which claims to work on the left brain and "inspire logical thinking." They have one for the right brain, too.

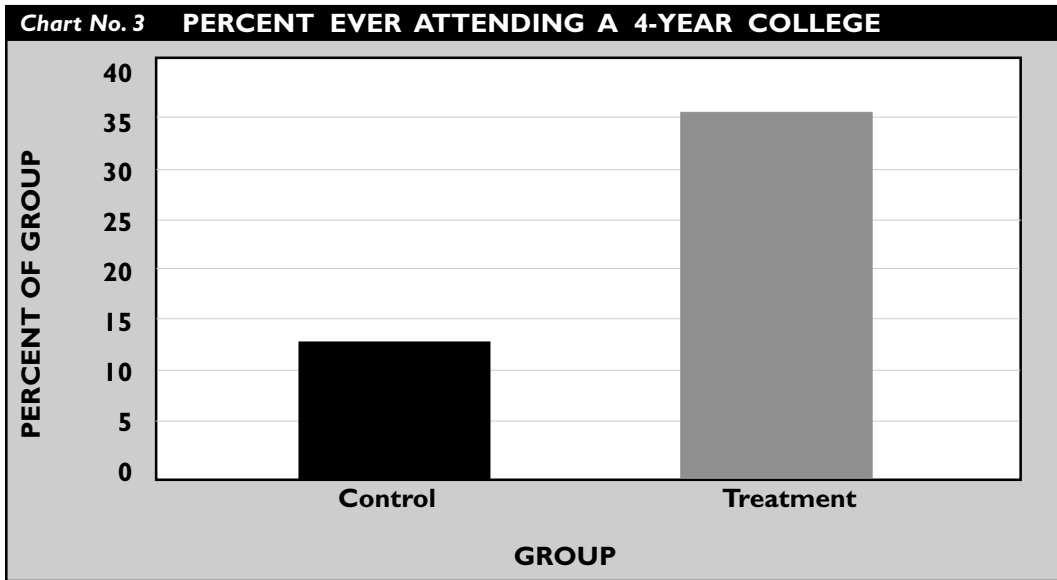
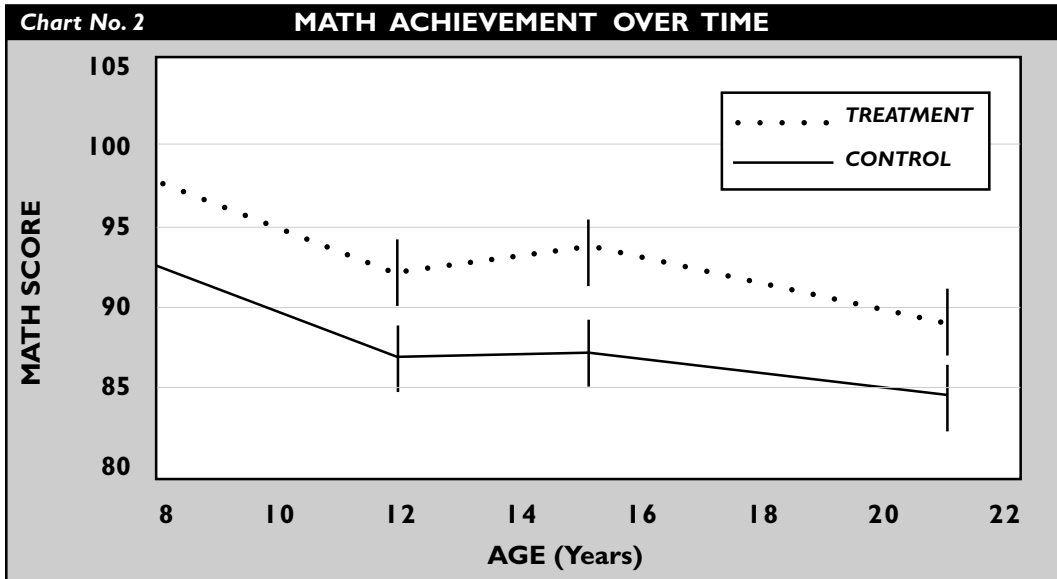
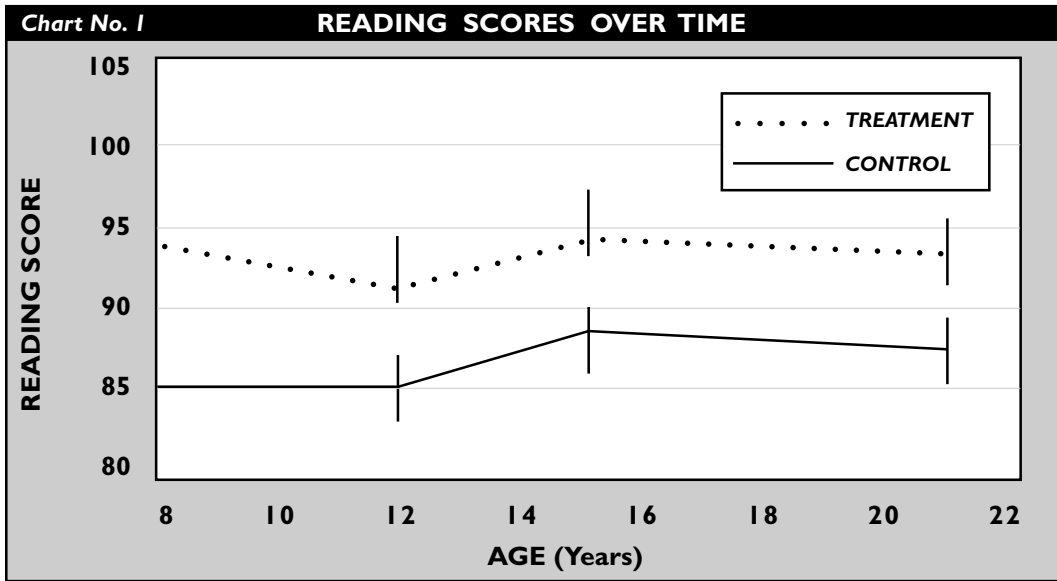
Yes, we are confused. Our society confuses learning with memorization. We confuse academic achievement with success. The 21st century child is a child who will have the facts at her fingertips. To be a lifelong learner, she must become a creative problem-solver, who can use information in innovative ways. In this talk, we will demonstrate...

...what 30 years of developmental science has taught us about how to create lifelong learners. It's not that we don't know anything about this. We just aren't putting into practice what we know. The accumulated evidence suggests, and we will tell you about this in three parts, that early education is important. In fact, we are preaching to the choir. This is the crowd who knows that. But, *how* you learn is as important as *what* you learn. Unfortunately, that's what our culture is losing sight of. Emotional intelligence or E.Q. is as important as I.Q. Each of you has a role to play in helping children become lifelong learners. You are the "village." So, what's the evidence you need to know about why early education is so important?

You're probably going to be familiar with these studies. Some of the work in early language development helps make the case for early education. The Abecedarian Project was conducted in Chapel Hill, North Carolina, by Dr. Frances Campbell and Dr. Craig Ramey of the FPG Child Development Institute. These researchers wanted to know how much cognitive development and other life outcomes can be enhanced by providing children with optimal environmental stimulation. They conducted a long-term intervention study that followed children from age five out to age 21. We rarely find studies of this duration. Children were either in a high-quality childcare environment where there was lots of extra stimulation, or in an ordinary childcare environment. What they found might shock you.

In Chart No. 1 (*page 30, top left*) the top line represents the children who were in the treatment, or the enriched environment. The bottom line represents the children who were in the control, or the ordinary childcare environment. The children who were in an environment in which people told them stories and children told stories back, where children did rhyming and poetry and all kinds of fun stuff, had reading scores that were consistently higher than the control group, and not just when they were little. Look at the bottom axis: between 8 and 22 years of age, the gains remained with these children who had enrichment early on. Amazingly, the same is true of mathematics (*Chart No. 2, page 30, middle*). But, this is the one that really knocks me out. If you look at the percentage of the kids who ever attended a four-year college, it's only about 12% for the kids in the control group, but it's about three times that for kids who were in the enriched environment at age five (*Chart No. 3, page 30, bottom*). That's an amazing finding: how long the effects of early enrichment last. Early learning definitely matters.

We see this in early language development, too. There is a book that was on the desk of every policy wonk in Washington when it came out in 1995: *Meaningful Differences in the Everyday Experience of Young American Children*, by Betty Hart and Todd Risley of the University of Kansas. They were interested in how parents speak to



In Chart No. 1 (top left) the top line represents the children who were in...the enriched environment. The bottom line represents the children who were in...the ordinary childcare environment. The children who were in an environment in which people told them stories and children told stories back, where children did rhyming and poetry ...had reading scores which were consistently higher than the control group, and not just when they were little. Look at the bottom axis: between 8 and 22 years of age, the gains remained with these children who had enrichment early on. Amazingly, the same is true of mathematics (Chart No. 2, middle left).

But...if you look at the percentage of the kids who ever attended a four-year college, it's only about 12% for the kids in the control group, but it's about three times that for kids who were in the enriched environment at age five (Chart No. 3, bottom left). That's an amazing finding: how long the effects of early enrichment last. Early learning definitely matters.

their children. So, they looked at 42 families: welfare families, working class families and professional families. They wanted to understand the achievement gap that we see in these social classes once kids enter school.

The findings? In an average year, if you're lucky enough to find yourself in a professional home, you're going to hear 11,000,000 words addressed to you. If you are in a working class home, you're going to hear about half that: 6,000,000 words. And, unfortunately, if you are in a welfare home, you are only going to hear about 3,000,000 words addressed to you.

Why does this matter? Because we teach children all the time—by talking to them. And, when we don't address language to them, they develop smaller vocabularies and a smaller range of concepts. These things, in turn, predict success in school. So, by age three, not surprisingly, children in these three groups split out. They have huge differences in vocabulary and in I.Q. scores. Although we know that I.Q. is a much overused measure, the one thing that is important to keep in mind is that it correlates with success in school. So, this could, indeed, be part of the achievement gap.

The bottom line: early experience matters!

Hirsh-Pasek

But, *how* you learn is as important as *what* you learn. Preschool children in highly academic, what we call “drill and kill” learning environments tend to be a little more aggressive, a little more anxious and a little more perfectionistic. Those children who learn in playful environments, like libraries or children's museums or even schools that have more playful environments, learn because it is meaningful. Here's the mantra we need to walk out of here with: play equals learning. We're going to prove it to you now and show you how you can use it.

How would it work in reading? Believe it or not, researchers found that one of the foundations for early reading is storytelling. We've forgotten how to tell stories. How many parents tell stories to their children? Maybe libraries, museums and the media can find and broadcast more reasons to get parents to tell stories. Use old toys as they do at the Please Touch Museum® in Philadelphia to spark a parent to begin sharing stories through messages from their children such as, “Hey, are there any toys here that you used to use? What did you play with?” Talk to your child. Tell your child something over dinner. Talk to them when you go out with them or when you're sitting in the car. Tell stories! We can get children to tell stories all the time. Try starting one, and we may have to model this for some parents. “Once upon a time, there was a large elephant named Will who lived in the deep recesses of Africa. Will looked like every other elephant you have ever met, but he had one big difference: he ate....” Then you pass it on to the child or your friend, and he or she

continues the story. Story-building with a beginning, a setting, characters, conflicts and resolution—these are the building blocks of what we'll later be reading.

We used to have a game that we played with my children to get them into storytelling. We called it “Imagination is...” We used to sit in the bed in the morning and close our eyes and say “Imagination is...when you are sitting in bed, you close your eyes and open them, you're somewhere else instead.” And, I'd say “Where are we?” And, they'd say “We're in a desert, and there is a big dune in the desert and it's really, really hot and we can't find any water and, oh my gosh, there's something really scary coming our way!” Well, that was the cue. Imagination is...when we are lying in bed and close our eyes and open them we're somewhere else instead. We have now gotten out of the drama. We have gotten out of the scary place. And, guess where we are now? Well, that's up to you and your imagination. Stories or books can take people anywhere we want them to go.

Dialogic reading is another example. It's a big word for just saying that we have dialogs while we are reading. In fact, today we don't. Many parents in the rush to make sure that they read bedtime stories for their children open the book and read it word-for-word, and then they shut it. Sometimes, by the way, they try to skip a few pages and the kids say, “You skipped a few pages. Go back and read it again.” Kids love hearing stories time and time again. But, they also would love it if we would break up that story, and the research shows us that this works. Go part way through the book and say, “What do you think is going to happen next?” “Wow! Where do you think he is going?” “What would have happened if Zephyr hadn't saved the princess?” When we do that we're engaging children in the books, not just reading the books at them or to them. We are talking with them. That is the hallmark of how we get children engaged in reading.

Reading is not phonics without fun. Reading is not memorizing the ten letters of the alphabet that you need to know to get past the Head Start protocol. Reading is not memorizing the written words that happen to appear on the toy Speak 'n' Spell. These do not build great readers. Why? Because learning works best in a meaningful context.

In math, finding and identifying patterns everywhere, builds a foundation for formally taught mathematics. When you are driving in your car and you see buildings and you say “I spy a rectangle,” and the kids start looking for a rectangle in the building, they are building the foundation for mathematics. When they look at the patterns of snowflakes, they are building the foundation for mathematics. At the Chicago Children's Museum, when they cut up the pizza and make sure that each person gets a piece they are doing mathematics. When children go to the supermarket at the Please Touch Museum in Philadelphia and put each thing that they have purchased on the counter, they are doing mathematics. Kids do mathematics

at lemonade stands, but it's still meaningful mathematics. Maybe what we have to do in museums and libraries is to help parents see that all these activities their kids are doing are mathematics. We know it, but not all parents know it. I'm amazed that little five- and six-year-olds understand batting averages. They know everyone's batting average, and they know what it means! They won't learn about decimals for a long time, but they are doing mathematics! Math is not memorizing equations. Math is not flashcards of numbers, nor is it computer software for toddlers so they can memorize what they are doing. Math is understanding who has more cookies and who got less ice cream.

Physics. Do we believe physics can happen in the preschool? Kids can keep a ball in the air, bounce it around, send it backwards. Play is learning. They learn how hard they have to hit it to make it fly to the front of the room. They learn from doing it. Why does the ball fly at all? Does the ball come down again if we throw it up? They're learning about gravity. They're learning about pressure.

As Einstein once said, "The only thing that interferes with my learning is my education." Early education is important. But, *how* you learn is as important as *what* you learn. Mary Poppins got it right. Learning should be fun and learning should be meaningful. Why? Because play equals learning.

E.Q. is also as important as I.Q. How do you develop emotional intelligence and how do you use it? Let me tell you the tale of two Spocks. Dr. Benjamin Spock got it right all along. He knew that emotional skills mattered a lot. Star Trek's Mr. Spock didn't get it at all. He was all intelligence and no social skills. You probably know people like him: brilliant, got double 800s on their SATs and GREs. But, they can't deal with a party. We know "from the last two decades of research," writes Cybelle Raver, director of the Center for Human Potential and Public Policy at the University of Chicago, "that it is unequivocally clear that children's emotional and behavioral adjustment is important for their chances of early school success." Not just for getting on in the world and being the best party-goers, but for early school success. For example, when parents talk about emotions they create children who are more sensitive to others' emotions. Rather than just clobbering the other kid, kids could hear from their parents, "Hey, why do you think Johnny took your toy away? Maybe we could try to understand his perspective, and talk it out, not fight it out." Identifying emotion is important for understanding yourself and for understanding others. We can show kids pictures of happy kids and sad kids and prompt the dialog about emotion. We can prompt cooperative play in our libraries and museums.

◆ Golinkoff

Emotional intelligence is important. The data shows us that it builds moral character in children. It helps them learn right from wrong and to try to take the perspective of the other person. It gives us an understanding of who we are. If we don't know who we are, there is no hope. It gives us an understanding of others and, believe it or not, the research clearly indicates it is critical for success in school. But, emotional intelligence doesn't develop on its own. Children learn it from adults, and they learn it through play. Yet, even the new educational accountability movement says little about promoting children's social skills in our schools. It's all about memorizing those ten letters. Emotional intelligence—E.Q.—is as important as I.Q. Fred Rogers had it right! He knew that helping children understand their feelings builds a foundation for early and lifelong learning.

Each of you has a role to play in helping our children become lifelong learners. You may think Hillary Clinton made up this line, "It takes a village." She didn't but she was smart enough to resurrect an ancient African proverb. And, it's true whether you grow up in a high rise, in a hovel, or in a hut. As Andrea Camp of the Civil Society Institute said, "Learning is the heartbeat of a strong society." And, who makes up our strong society, our village? Family is where we all start, but there are other institutions in the community, as you all know, that make a difference: libraries, religious institutions, museums, the media and schools. This is our village.

How can you create a foundation for lifelong learning in the particular institution in which you find yourself trying to make a difference? You can start by asking some questions. Ask yourself whether the program, the exhibit, the curriculum, the discussion—whatever it is you're working on—is at the child's level. That's where learning works best. Is the program meaningful, playful and joyful? Do the kids laugh? Is the program geared to children's emotional concerns? That's when they really pay attention.

If you want to find out if your program is at the child's level, thirty years of developmental science can tell you the answers. Learning works best when it's within reach, when it's just a little bit above where the child is and not way above. By playing with balls, children can learn about force and energy, but, they don't need to learn $E=MC^2$. Ask yourself: is your program meaningful and playful? Are the children listening to music and moving to music, or are they memorizing composer's names and faces with some of those "wonderful" flashcard sets out there for toddlers? Does your program plug into children's social and emotional development? Are there opportunities for kids to collaborate and work together at your sites? Or is each child out for herself—working on her own? Children learn tons from interacting and playing together.

There is a huge gap out there between what we know

works best for kids and what we do. It's time to bridge this gap. It's time to take what we know from developmental science and translate it into what we do—and this is the crowd that does it.

What do we hope you will walk away with from this talk? We hope that the following messages will stick with you when you're creating programs for lifelong learners.

- The Mary Poppins Effect: Early education is certainly important, but *how* you learn is as important as *what* you learn.

- The Fred Rogers Effect: Emotional Intelligence—E.Q.—is as important as Intellectual Intelligence—I.Q. We all know people who have really high I.Q.s who are supervised by people with really low I.Q.s. Why is that? Because emotional intelligence counts just as much as intellectual intelligence. And, it takes both to be a success in life.

Each of you has a role in helping children become lifelong learners, because you are the village. In *Einstein Never Used Flashcards*, we have attempted to bridge the gap between science and practice and to show how children really learn. We have tried to give real-life examples that you can use in the schoolroom and in the living room, in libraries, in media, in museums. We wanted to provide people with examples of how they could translate the science in their own lives and effect the lives of children.

To reach full potential as a lifelong learner, the 21st century child has to do more than learn the facts. We all have Google now, right? She needs to integrate the facts into a creative framework that meets the demands of our global society. We turn to Einstein again in our closing. "Imagination is more important than knowledge." Thank you! ■ ■ ■

Andy Ackerman

Children's Museum of Manhattan

The research is unequivocal. We understand it. But, I'd like you to address the gap a little bit. We're told over and over again, particularly in children's museums: "Well, the kids are just playing, it's not serious. It's not learning." With the level of advocacy that needs to take place with decision-makers, funders and parents, how do we bridge the gap to get play taken seriously?

HIRSH-PASEK

There are a couple ways. The first starts with this conference—we are all talking to one another. Another thing that will help is to have more people provide information like what is contained in our book. That data is the evidence you can put on the line to show people that what you are doing really does work. Everyone in this room has to be an advocate. We all have to go out there to help

parents understand what we know intrinsically. There already are a lot of us trying to get the message out. I think we've raised a generation of parents who don't really understand that play equals learning. Perhaps children's museum exhibits could include little hints or signs that let parents know the importance of what their children are really doing when they play. That could go a long way.

GOLINKOFF

I think our culture labors under the myth that achievement is the same as learning. I heard a story from someone at the University of Delaware who's going to be running our early learning center. She said that when her child was three, she had a big map of the world behind the child's bed. The child could run over and point to Asia and to Africa. She was so thrilled. She thought the child was just a genius. Then her husband came home with a globe. The kid was clueless. The child had no idea what he was doing, and she realized at that moment how what looks like achievement, what looks like success, what looks like learning is hollow unless it's meaningful. This is the message that we have to emphasize over and over again. Just because children can recite some facts doesn't mean that those facts have any significance to them or that those facts are integrated anywhere in their head or that they mean anything at all to them. We have gotten caught up in having children produce answers.

Andy Ackerman

So, at your universities, does your research affect how students are admitted?

[Laughter]

GOLINKOFF

I think it does. At the University of Delaware, we certainly look at grades and SAT scores, but we look at all kinds of other things as well—activities, contributions students have made outside the classroom, the things they say about themselves in their essays. We may not be as far along as we might be, but certainly we do pay attention to the whole person and not just to the scores.

HIRSH-PASEK

Your point is very well taken. You're right. We are all fighting an uphill battle. When I look at what's going on in Head Start today, I'm frankly horrified because I think it's as wrong as it could be. It's not necessarily bad to have accountability, but how you do it is what's really important. It's not just about memorization. So, you're right, we all need to get the message out, and for young children, it's even more critical.

Unidentified audience member

I'm all for play equals learning. But play sometimes also equals competition, which also sometimes equals

rewards. At our library we give prizes. Granted, they are distributed equally, but they are presented in a competitive way. There is a book called Punished by Rewards by Alfie Kohn that argues against over-rewarding children for academic achievement. Can you talk a little bit about rewards for learning?

A **GOLINKOFF**

I think rewards have their place along with cooperative learning. Research suggests that cooperative learning helps everybody—from the kids who are at the lower end to the kids who are at the higher end. Nobody suffers from having to explain and work with someone who is at a lower level than you are. The children all profit. I think competitive learning can be fun, too. I wouldn't necessarily throw it out. Our culture is highly competitive. Kids need to learn to compete, but one always wants to emphasize that in the end everybody is a winner. I would like a mix.

A **HIRSH-PASEK**

I think a little bit differently than Roberta on this subject. I would prefer to see our youngest children doing cooperative learning because I think learning ought to be a goal in itself. You shouldn't want to read a book just because you're going to get a prize at the end. We have to think through a healthy mix but if learning is just being done as a competitive piece, then I think we have lost the balance.

One of the things that Roberta and I stress in our book, *Einstein Never Used Flash Cards*, is this sense of balance. We have a problem right now in our society at large. We have become convinced that faster is better. We all live our lives that way. We are always feeling so stressed and so rushed. When we feel that way, what comes along with it is the myth that we must *make every moment count*. If we have to make every moment count, you know that sure gets us in the competitive spirit.

A **GOLINKOFF**

I spoke to a friend on the phone last night who said that there are mothers in Richfield, Connecticut, who are dying because they cancelled two days of school for Hurricane Isabel and they think their children will be behind.

A **HIRSH-PASEK**

What more can we say? Every moment counts. Of course, these mothers will be home with flashcards, so they needn't worry.

The third myth that we think society is operating under is that “we” know everything and “they” know nothing. We have a linear way of dealing with people. The “experts” speak to the people who don't know anything and “they” teach them.

Of course, what goes along with that is the fourth myth that children are empty vessels that need to be filled. What we suggest in our books is that many of these myths are just simply wrong. They are not healthy for us as parents or teachers or as educators in museums and libraries either. But, they are really, really wrong about children. Children bring a lot to the interaction. We can learn from our children almost as much as they can learn from us. We need to start thinking more positively and cooperatively. We need to think about learning within reach. We need to think about slowing down, going to one less activity, taking a field trip to our own backyard. There are many wonderful things that happen in the grass and in the ant hills when we just slow down to look for them.

A **GOLINKOFF**

The key word is balance. We are not arguing in our book that you return your child to the jungle and allow your child to live au naturel, a la Rousseau, but that you find a way to have balance in your lives, to respect your child's limits and needs and to respect your own. When parents are so stressed and feel under such pressure that two unexpected days off from school are seen not as a boon or a chance to play and reconnect with their children, but rather as an “Oh my god, they'll be left behind. They will never go to Harvard. They missed two days!”—that's an out-of-balance perspective.

Q **Vardhini Mohan**
Child Care and Development Instructor
South Texas Community College

You said that children living in families of professionals had 11,000,000 words addressed to them each year. When I did my master's, I did early childhood research on the father's involvement in child-rearing. I compared fathers from India to fathers in the United States. It was not very in-depth, but I did compare fathers from different professional levels. What I found was that the dads who were professionals did the talking because it sounded good—“Hey, I am an active dad.” But the dads who were blue collar workers were actually more interactive.

A **GOLINKOFF**

So, the professional dads were kind of preaching?

Q **Mohan**

Correct. My question is how do we reach all of the parents? How do we tell them how important their involvement is?

A **HIRSH-PASEK**

This audience here today is the “village.” One of the things that we talk a lot about in childcare settings—and as a member of the panel for the NICHD (National Institute of Child Health and Human Development) Study

of Early Childcare and Youth Development—is not only about how childcare workers help children but about how children help childcare workers to learn about development. But, one thing hasn't happened yet. People in the childcare industry are really helping parents parent today. We need to change our image of people in the childcare industry, and recognize that they need to be empowered, that they have a lot of information that's useful, especially in today's world where we don't have as many extended families. Childcare workers are on the front-lines—they can get to the parents. Sixty-two percent of children under age three are in some form of childcare now. If that's true, it means that childcare providers are really in a very, very important position in our society with respect to the next generation.

A GOLINKOFF

And the great irony is that we pay them peanuts.

A HIRSH-PASEK

They are valuable professionals, and we need to treat people in childcare as professionals.

A GOLINKOFF

There are many ways in which we can influence parents. Producing videos to sell to pediatricians that they can play in their waiting rooms informing parents about the ways to read to their children. Many parents know it's important to read to their kids, but they don't talk about what they are reading or understand how important dialogic reading is—interacting with their child around the book. That process could be modeled in videos. Children play at a higher level when they play with their parents. That could be modeled as well.

Q Unidentified audience member

I was a learning curriculum specialist very early on when the military started new programs. One of the things we did back then that might be helpful to children's museums now was to hang signs from the ceiling that put the name of the play activity above the play station. For instance, "water play" and then we listed the concepts that were operating there. This may be a simple but helpful parent education system.

A GOLINKOFF

It feels like borrowing from Groucho Marx with the duck dropping down with the word.

Q Unidentified audience member

Your presentation is a joyful affirmation of what many of us believe and do. I'm concerned about who speaks out for us to schools, to the community at large and to the nation about these issues that are so important. In children's museums we see increasing responses from schools who say they can't visit any more because all of their time must be

spent "meeting academic standards"—which museums can do very easily but they don't seem to see it that way. We realize that schools are under pressure to deliver quantifiable results, but we are losing the art of teaching and settling for achievement and memorization. It's so dismaying for people who have been in education for 35 years to see this backslide. What can we do? Who can be our spokesperson at a national level?

A HIRSH-PASEK

It's a very, very difficult period right now. A number of people in my field have been writing constant letters to senators and congressmen to try to get this issue on the front burner and to explain to them that what is going on here is developmentally and scientifically unsound. We're trying very hard to set up policy briefings at both national and state levels to get that message across.

If any of you in this audience could use us to be spokespeople for something that you care about, let us know. We want to help. As academicians, sometimes we don't know all the right levers to push to get that message out. We did our best by at least putting it down in the book. When you go home, if there is a way that we can help you get that message out in your local community, call us. We will do whatever we can to support you. I am thrilled to say that our field is in complete and total consensus on this issue.

Q Unidentified audience member

Referring to your statistics on the number of words heard by children in various kinds of families, I'm from Arizona where recently an anti-bilingual education act, similar to one in California, was passed. The real danger with these initiatives is that people misunderstand—they do not think that bilingualism helps kids learn English. Secondly, that misunderstanding is taken to the next level and now kids are forbidden to speak their native language. We should be encouraging parents to speak to their children in the language of the home, because that's the way their concepts are developed. Legislation like California's and Arizona's may have the intent of getting kids to learn English, and that's very important, but we feel that bilingualism is a way to develop their English language. The development of exhibits, displays and programs in both museums and libraries that have both languages should be encouraged. Everybody profits. Bilingualism is like adding more RAM to your hard drive.

A HIRSH-PASEK

For anyone who wondered whether bilingualism is good or bad for children, Roberta and I are here to tell you our actual specialty in life is language development and the truth is, it helps a lot! A lot! Children who hear two languages, one from the mother, one from the father, by two and a half years of age can keep them totally apart in

the sense that they have no problems going from understanding one to the other. They are not mixed up. They are not any slower. In fact, they tend to read earlier.

A GOLINKOFF

We wrote a book called *How Babies Talk*. One of the things that we talk about in it is how it's a gift to know another language. When children know more than one language they are cognitively advanced relative to children who know only a single language, and yet we wait in most cases until middle school, after the critical period for language learning, to introduce a second language. In my own state, Delaware, we rejected a Spanish immersion program that was going to be offered. So, it's unfortunate but we really tend to have a very parochial view about the value of learning more than one language.

Q Susan Hooper, Family Life Specialist Iowa State University Extension

I came to this symposium because of its early childhood emphasis. I am concerned when I hear comments here today that sound like it's this group against the world, because the early childhood world is fighting this just as hard as they can. There are marvelous materials already developed out there. Do a good search. Materials, including videos, from an infant/toddler care program in Sausalito, California, are wonderful in terms of bilingual education and early learning. There is a reading program that has been developed by Randy Weingold from the University of Colorado, Denver, on family storytelling and how to read that would already be wonderful to put in doctors' offices, as someone suggested earlier. Before you start developing new things I would urge you to be sure to see what is already available by contacting your other partners within the village.

Q Unidentified audience member

Everyone in here agrees that play equals learning. How successful have you been in getting this message across to your co-workers and to the students who you are training to be future teachers?

A GOLINKOFF

Many people in education and in developmental psychology already have the message and they believe it. There is, as you know though, a great deal of pressure on teachers. On the other hand, the teachers' training, in many cases, tells them that experiential learning works best, that cramming kids' heads with facts is not what it's about, that straying from the curriculum and bringing in things from the world really make sense. But they are under the gun to deliver "measurable results," and many of them feel like they can't veer off that track. So, we try to encourage the

education students whom we work with to recognize that just as much learning—and just as good learning—can take place in meaningful contexts.

A HIRSH-PASEK

The same is starting to happen in other universities that I know of. In one sense, the fact that the educational climate is so extreme right now will help us. It will allow what's going on in the backlash to be more vocal and hopefully more visible.

Q Maryann Cosgrove Ralkin, Cincinnati Art Museum

There have been a lot of studies in recent years about how studying the arts—visual or performance—can enhance children's learning abilities. We need research backup to be able to say to schools "You've got to get the arts back into the curriculum." or "You need to bring kids to the museum." They are not bringing them now unless we teach to the test. Have you done any research in particular with the arts?

A GOLINKOFF

Part of play is self-expression and that also happens through art and music. There's a whole field of therapy in which children use art to work through emotionally upsetting events and try to assimilate things that have happened to them that they couldn't quite deal with. The arts are critically important for children's development, and they also feed into reading. Pre-literacy activities involve doing art projects where colors and images stand for other things. Through art, children learn about symbols. So, art is critical for children's emotional and social development as well as part of their pre-literacy skills.

A HIRSH-PASEK

You asked the question, however, about specific research and I have to tell you it's pretty slim pickings. There is a little bit of research going on now on music and brain development. There is a little teeny bit on drawing. There really isn't much. The only research I know about is that it is really good to put pens and crayons in your children's hands because that activity is not just a precursor for self-expression, but also for later writing. So, you're right, there is a research gap in this area that needs to be addressed.

A GOLINKOFF

Using pencils and crayons is not just practicing motor skills. Somebody did a study years ago where they gave 18-month-old kids pencils without points. The kids had absolutely no interest. But, once they could make marks on the page, they were thrilled. ■ ■ ■

William D. Novelli

Executive Director and CEO, AARP



Bill Novelli is Executive Director and CEO of AARP, a membership organization of more than 35 million people age 50 and older, half of whom remain actively employed.

Prior to joining AARP in 2000, Mr. Novelli was President of the Campaign for Tobacco-Free Kids, whose mandate is to change public policies and the social environment, limit tobacco companies' marketing and sales practices to children and serve as a counterforce to the tobacco industry and its special interests. He now serves as chairman of the board.

Previously, he was Executive Vice President of CARE, the world's largest private relief and development organization. He was responsible for all operations in the U.S. and abroad.

Earlier, Mr. Novelli co-founded and was President of Porter Novelli, now one of the world's largest public relations agencies and part of the Omnicom Group, an international marketing communications corporation. Porter Novelli was founded to apply marketing to social and health issues, and grew into an international marketing/public relations agency with corporate, not-for-profit and government clients. In 1990, Mr. Novelli retired from the firm to pursue a second career in public service. He was named one of the 100 most influential public relations professionals of the 20th century by the industry's leading publication.

Mr. Novelli is a recognized leader in the international practice of social marketing and managed programs in cancer control, diet and nutrition, cardiovascular health, reproductive

health, infant survival, pay increases for educators, charitable giving and other programs in the U.S. and the developing world.

AARP is a nonprofit, nonpartisan membership organization dedicated to making life better for people 50 and over. It provides information and resources; engages in legislative, regulatory and legal advocacy; assists members in serving their communities; and offers a wide range of unique benefits, special products and services for its members. These include *AARP The Magazine*, published bimonthly; *AARP Bulletin*, its monthly newspaper; *AARP Segunda Juventud*, its quarterly newspaper in Spanish; *NRTA Live and Learn*, its quarterly newsletter for 50+ educators; and its Web site, www.aarp.org. AARP has staffed offices in all 50 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands.

Web: www.aarp.org

The Most Important Thing is Knowing How to Learn

We are born knowing nothing. We have some survival instincts, like taking nourishment, but otherwise we know nothing at all. But we are also born with a wonderful advantage: we are genetically armed to learn language.

The language we acquire is learned through experience so it may be Urdu or Navajo or English or any other language, depending on where we are born and who is teaching us. We are also genetically armed to learn many other things—how to tie our shoelaces, how to use a knife and fork, how to read and so on—depending on how and what we are taught.

It is this remarkable innate ability to learn that makes us what we are as human beings. By learning, we find possibilities and opportunities. We make discoveries. By learning, we devise inventions and master the use of them. And by learning we take one piece of information or one kernel of knowledge and multiply it, pile it on top of others, so that learning to make a wheel finally leads us to making the automobile.

All this is obvious to you. But unfortunately, learning is often something that many people associate only with the young and particularly with school. It has, from this limited point of view, a precise time and setting in a person's life, perhaps beginning with preschool and going, in some cases, as far as graduate study. This is certainly important to the process of learning.

The greatest thing about learning is the opening and awakening it provides. A child learning the basic arithmetic

operations of addition, subtraction, multiplication and division is learning to be able to learn more. She is learning to learn.

Just as learning basic arithmetic enables us, ultimately, to learn geometry or calculus, virtually all the foundations we master—like the alphabet and sounding out words—enable us to learn to do more significant things: to read and write. The things of greater significance may be solving Fermat's last theorem—someone finally did that eight years ago, by the way—or writing *Moby-Dick*.

Few of us are a Herman Melville. But what we learn enables us to live our lives, to earn our livings, to be good citizens and neighbors, to shape ideas, to develop opinions on the ideas of others and to express ourselves. What we learn enables us to be fully human, with all our strengths and defects.

Learning does not perfect us. Learning enables us. And that's why it is so limiting to think it is only for the young and takes place only in schools.

Learning should be lifelong, in any setting. To illustrate what I mean, look at ourselves in this room.

There are several hundred of us here today. I wonder how many hundreds of degrees we collectively hold. How many hundreds of thousands of hours we spent in formal learning in classrooms and doing homework and writing theses and dissertations. These are huge, impressive numbers, to be sure.

But how much have we learned in other ways in the course of our lives by reading, by learning on the job, by experience, by fortuitous inquiry? In my experience, the answer is an enormous amount of information and knowledge, almost certainly more than acquired in formal education.

What we learn formally—"book learning" is the lovely old phrase—gives us what we are ready to learn next in a step-by-step process. And we explain this to our children.

Learning, we tell the young, is part of a continuum, and that continuum is life. Just as we begin to age from the moment we are born, so too we begin to learn.

And by far, the most important thing is knowing how to learn. If we know how to learn, then we can grow and we can develop throughout our lives. One of the most important things we can acquire, beginning early, is the continuing and changing knowledge of how to live a healthy life.

Researchers at the National Institute of Child Health and Human Development now routinely define osteoporosis, a disorder we generally associate with the elderly, as "a pediatric disease with geriatric consequences." Why is that? Because we develop about 90 percent of our adult bone mass by the time we are nineteen years old and without enough calcium, those bones will never have their full size and strength. And yet only one teenage girl in seven and one teenage boy in three gets enough calcium.

Learning about healthful living, beginning at a young

age, is not very different from learning how to read. Both are lifetime skills that show the way to a good life.

The same is true about many other facets of human life. At AARP, we have been talking about economic security for many years. An important part of this is the personal responsibility we all have to take to save money, however we go about doing it.

This is something that, like good bones and literacy, needs to be learned young because it has consequences for the entire continuum of life. There are too many baby boomers right now whose savings will not be adequate for a decent retirement. And there are far too many young people in their 20s and 30s who think that saving is something that begins "later."

"Later" is often too late. Yes, it is possible to learn to read as an adult. It is possible to correct some of the problems of inadequate calcium later in life. It is possible to heap up enough money starting in middle age to retire comfortably, but the efforts are not always easy and not usually successful.

AARP and its National Retired Teachers Association (NRTA) have been advocates for lifelong learning since their founding. Last year, we released the first national and comprehensive research on learning after fifty. We have found some interesting things about lifelong learning. Older adults are internally motivated to learn. And, that internal motivation is often triggered by major life events such as an older child coming to live with them, retirement, divorce, or children moving out on their own.

The impact of life events also influences what older adults want to learn. About half our respondents clearly want to learn more about diet and health, about hobbies, about acquiring new skills.

About forty percent are especially interested in learning to manage their health and spiritual growth. About a third want to learn about improving their fitness. And about a third want to learn more about getting along with others.

They want to learn in informal settings that are easily accessible through adult education classes, online, as well as in formal education or degree programs. And, most of them are passionate learners who learn best when they are actively engaged with the learning task. Age has not dimmed the gloss of learning for them. And that is so because they still, no matter their age, know how to learn.

Knowing how to learn makes us adaptable and able to shift gears. Look at it this way. What will you need to know in ten years to succeed in your work? For me, the answer is that I don't know. I feel almost certain that some things I cannot yet imagine will change the way I go about my business and will change the way we all go about our work.

But we do know how to learn and we're willing to do so. So, the odds are that we will do pretty well in the environment of 2013. Our ability as individuals to learn has an enormous impact on our organizations and institutions and on society.

For example, how many of us had even heard of IT, information technology, fifteen years ago? IT was there, and I think the phrase was first used about then, maybe a bit earlier. How many of us, fifteen years ago, had heard of the Internet or actually used it? Not all of us, that's for sure, because the Internet explosion didn't really take off until 1996. Fifteen years ago it was certainly not commonplace to see a personal computer on everyone's desk in private business, in government offices, in nonprofits and certainly not in our homes.

Yet, in that time, just about all of us have learned the importance of IT, have learned to use computers, have learned to use the Internet. Fifteen years ago Google and Yahoo didn't exist. Nor did we have any idea that we would ever need them. Today, they are woven into the fabric of our lives, and we use them almost without even thinking about it.

And, I would add that many older Americans have become devoted to the Internet. They are taking informal classes and even pursuing degrees. We just had our annual member event in Chicago. The most popular exhibit, next to the Anheuser Busch one with the free samples, was the computer demonstrations.

The pace of change is only going to accelerate. Our technical knowledge will probably become obsolete. A colleague of mine at work, a civil engineering major in college, says she still has her slide rule at home. So, we will have to learn to see familiar things from a different angle, a different optic. And of course, much of what we will need to know is still unknown to us.

Ten years from now demographic changes will also affect our learning. There are two great trends underway: immigration and aging. There will be many more older people in America and throughout the industrialized world. We have seen in the last couple of generations very substantial increases in longevity. We are also seeing large increases in productivity among older men and women, and our workforce will have a much larger percentage of older workers.

What these changes imply is that we are learning what it means to age and to age successfully. This involves many things, including new ideas about work and retirement. We need to learn even more about how older people learn and what motivates them to learn. A professor from Oxford said in a meeting I attended not long ago that the research is clear: older people can learn and relearn and be trained and retrained. The issues being explored are about how best to do this, not whether it is possible. Dr. Gene Cohen and others have done some marvelous work on creativity and learning in older adults, and AARP, through our NRTA Alliance with the Dana Foundation, is continuing to explore how the latest research on the brain relates to learning and intellectual functioning in older adults.

Age has not taken the gloss off the desire to learn, nor

has it interfered with the ability to learn. I think the idea of learning is as universally imperative to older people as it is to youth. Both their worlds are changing, and both older and younger people want to learn.

The new things sneak up on us. They appear suddenly, or so it seems, and we have to master them. If we know how to learn, we will. As individuals learn, they stay relevant and employable, and their organizations continue to thrive.

But not everyone is learning to learn. One key problem that stands out in this regard is America's ability to keep our good teachers. What do we do when a third of all new teachers—nearly half in urban areas—leave the profession within five years? How do we retain the teachers who will guide learning along the first crucial steps?

This is a serious national problem. My son is a dedicated elementary school teacher in St. Paul, and he has taught me about many of the problems teachers face inside and outside the classroom.

At AARP we're tackling this problem by drawing on the experience of our retired teachers to support and mentor new teachers. We are in a pilot phase now, and our goal is to help early-career teachers learn how to be successful in their early years so they will continue in the profession.

Schools must also be organized for success, that is, to focus on the kind of teaching that really delivers learning. To achieve this, teachers need the best preparation possible, with support and mentoring in the early and often most difficult years on the job. And the rewards of teaching should be commensurate with the value teachers give. They are certainly not now.

Educators should have more allies in business and in the public sector who understand that their future successes will depend on being able to hire and retain people who have learned something, and are capable of learning more. Without teachers being successful in the early steps, this will not happen.

We talk casually these days about our "information" or "knowledge" society. Most of us are what H.G. Wells first called about a century ago "brainworkers." There weren't that many then. Now, "brainworkers," not "backworkers," are the majority of the American workforce. As the knowledge we rely on to do our work, to live our lives in good health and to provide for our future security grows more complex or less familiar or becomes outdated, all we can rely on to be successful and healthy and happy is what our genes armed us for in the first place—the ability to learn.

Developing and using that ability, from our first days to our very last, is the most important work facing us. And we can do it, and do it well because we know how to learn. And we have an obligation to all generations to see to it that pediatric learning becomes a geriatric blessing, and keeps America strong. ■ ■ ■

William A. Ryan

**HERO Family Resource Center
Hale County, Alabama**

Honorable District Judge William A. “Sonny” Ryan earned his engineering and law degrees from the University of Alabama. He has been a judge for seventeen years. Judge Ryan also serves on numerous nonprofit corporations, state organizations and committees that promote children’s issues and education.

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I am a juvenile judge. About ten years ago on two successive days I had two mothers bring in their sons and both say, “This is my son, he’s 16, I’ve done all I can with him. Now, you can have him.” I was at a loss. At the time, there were no programs in Hale County to help children in trouble.

I could not get the situations out of my mind so I began to talk with anyone who would listen. After many meetings and conversations we realized that we were seeing the same children or children from the same families over and over again. Most of them came from homes where poverty, illiteracy, poor housing and poor nutrition were the rule. We decided that education was the key to addressing their needs.

I will share with you some of our experiences with lifelong learning in Hale County, Alabama, a rural county with over 17,000 residents, 30 percent of whom live at or below the poverty level and 40 percent of whom do not have a high school diploma or its equivalent.

The HERO (Hale Empowerment and Revitalization Organization) Family Resource Center was formed to address the needs of children, youth and families in Hale County and from it the Interagency Network (IN) was created. Through IN, all agencies met to collaborate and learn from each other and to form partnerships. Working in partnership with the local school system, social services agencies, the University of Alabama, Auburn University, local governments and local businesses, programs were devised to address specific educational needs of our citizens.

Initially we began with our own WTW (Welfare to Work) program—even before that legislation was passed in Congress. This program teaches life skills and work skills to welfare moms and then places them in jobs where they receive further training from the employer. These women learned important skills that helped them become more self-sufficient and thus improve the lives of their children. From that beginning we have provided or been a partner in

learning programs in pre-K, K-12 and adult education.

Pre-K programs include Jump Start, ANGEL (Active Nurturing and Growth through Early Learning), pre-K classrooms and the childcare center. Jump Start was started about six years ago and was the first pre-K classroom in Hale County. It is designed for three-year-olds to develop proper social skills, language skills and motor skills through age-appropriate activities. ANGEL provides home visits to parents of Jump Start students to help them learn new ways to handle problems. Parents are also offered strategies and activities to stimulate their child’s continuing growth and development. Jump Start led to the establishment of eight programs for four-year-olds around the state (one at a local elementary school) and later expanded to 43 classrooms around the state (two in local elementary schools). Hale County now has three classrooms and the local school system is trying to create at least one in every community school.



HERO Childcare Center (above) and playground (below) in Greensboro, Alabama, both designed and built with help from architecture students at Auburn University.



Jack was four years old when he joined the first Jump Start class. He was totally nonverbal. He could only communicate by pointing and grunting. Staff initially thought he was either mildly retarded or had a hearing disability, so they had him tested. Tests revealed no problems. He just hadn’t had enough stimulation to learn how to talk. Within a year at Jump Start, Jack began to talk

and we discovered that not only was he normal, he was gifted.

HERO is about to open a full service daycare center on our “campus” in Greensboro, Alabama, to create more learning opportunities for children and to further help their families. This center will partner with a local community college to provide training for those who want to work in the field of daycare thus providing workforce development and an education program for adults.

A variety of K-12 programs have been created to meet the needs of children throughout their school years.

- **Abstinence** is a school-based program designed to create an awareness of the risks of premarital sexual activity by educating junior high students and boosting their self-esteem. It further teaches them to set goals for their future and to make healthy decisions regarding their bodies.

- **Bright Beginnings**, a program for first time teenage moms, teaches proper prenatal care and childcare skills and encourages them to graduate from high school. To date, 85 out of 90 teenage moms have graduated and did not have a second pregnancy before graduation.

- **The Summer Learning Experience** is a twelve-week reading program for K-12 students sponsored by HERO, the Board of Education and the county library.

- **ARC (Appalachian Regional Commission) Higher Education Program** is designed to expose high school students to various aspects of college life to encourage them to pursue post-secondary education.

- **Knowledge Cafe**, an on-line learning program that accommodates students taking on-line coursework who do not have computers. The City of Greensboro has also established a computer center for the same purpose as well as for adult use. Hale County students also have access to technology at school.

- **Arts Camp**, two-week camp to learn about art.

- **Aquaculture**. Producing pond-raised catfish is big business in Hale County. Currently a classroom is being built to provide a specialized hands-on class in this subject while incorporating other core subjects.

- **A computer van** is used to provide programs in low-income housing areas during the summer months.

- **Hale BOPP (Builder of Positive Partnerships) Comets** is a youth leadership program in which 24 county students are selected from public schools and the private academy to participate in nine leadership training sessions. The program includes trips to several museums, theatrical and musical performances, a visit to the legislature and dining experiences. Through this program, the mostly Caucasian private school children and mostly minority public school children learn and socialize together.

HERO adult education programs also include:

- **CCRC (Community Career Resource Center)**—Part of Knowledge Cafe, a job readiness training center.

- **School to Career Program** educates classroom teachers about the real worksite skills needed to perform certain jobs. Teachers incorporate this knowledge into their

teaching curricula. Students are also able to participate in job shadowing activities in the community.

- Through the **Workforce Investment Act**, HERO can certify and enroll youth to qualify for various college support and summer job training opportunities.

- **Fast Track** is a program brought to us by the CEO of Mercedes-Benz USA, located about 60 miles away from Hale County. Its suppliers need new employees because of a doubling of plant capacity; Mercedes-Benz sees the need in Hale County. In partnership with Alabama Industrial Development Training, we provide a ten-week training program to prepare people for employment in the manufacturing industry.

- **GED classrooms** are provided on our campus and in the jail. Anthony is an example of someone who turned his life around through HERO programs. Anthony had been convicted twice of serious crimes and was put on probation. He showed up at my office clean and looked like a different man. He finished his GED through HERO. He is now working and making over \$35,000 a year. ■ ■ ■



Judge William A. “Sonny” Ryan, HERO, Greensboro, Alabama, and Jeri Robinson, Vice President of Early Childhood Programs at Boston Children’s Museum.

Jeri Robinson**Countdown to Kindergarten
Boston Children's Museum**

Jeri Robinson is Vice President of Early Childhood Programs at Boston Children's Museum. Since starting at the museum in 1973, she has led numerous workshops, taught courses, developed curriculum materials for children, parents and early childhood educators and has worked as an advocate for families with young children and audiences of color. She developed *PlaySpace*, one of the first prototypes for early learning spaces in children's and other museums, founded the Boston Cultural Collaborative for Early Learning and co-founded both "Families First" parenting programs and "Countdown to Kindergarten, Boston."

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During the 1990s, a variety of city and community organizations were independently considering ways to improve the transition into kindergarten. Some of the organizations started collaborating on simple efforts to support families, such as having children from Head Start visit Boston Public School (BPS) kindergarten classrooms. These organizations included Head Start, BPS, Boston Children's Museum, the Zero-to-Eight Coalition and the Citywide Educational Coalition.

In the spring of 1999, those five organizations gathered at Boston Children's Museum to look at how they might work together more formally to improve the transition and to raise public awareness about the importance of kindergarten. Collectively, the group moved forward to launch a few new activities for families whose children were entering kindergarten that fall. These efforts launched the collaboration and helped to raise awareness of this new cooperative effort:

- The Zero-to-Eight Coalition (now Community Partnerships for Children) and BPS created the School Readiness Committee, a group of BPS kindergarten teachers and childcare providers. They met to build relationships and share information to help children move from childcare to public school.
- BPS teamed up with ReadBoston to offer a series of workshops for Spanish-speaking families on kindergarten readiness.

- BPS's West Zone Parent Information Center (now the Family Resource Center) and Parents United for Child Care (PUCC) created a new one-day workshop for entering kindergarten families, called The Ins and Outs of Kinder-



A new kindergartner and his mom attend a Countdown to Kindergarten event at Boston Children's Museum.

garten. Two hundred parents learned about parental involvement, after-school programs, the BPS transportation system and more.

- In August 1999, Boston Children's Museum hosted a night called Countdown to Kindergarten. A few hundred new kindergartners met the mayor and the superintendent, participated in educational activities, rode on a school bus and received welcome gifts and information.

In the fall of 1999, BPS and the mayor's office convened more than a dozen organizations to decide whether to expand their efforts into a coordinated, citywide campaign. Noting that Boston had made great strides in expanding and improving early childhood education as well as improving the quality of the public schools, the participants agreed that a gap existed in helping families make the transition from one system to the other. They agreed that it was important to involve the whole city in helping children get off to a great start in school. The group then chose the title of the campaign: "Countdown to Kindergarten," a name that had been used for some of the earlier activities.

Moving forward, the group piloted additional projects to support families. For example, every organization helped distribute information in numerous languages about the importance of registering for school early, and the group organized interpreters speaking six languages for BPS's annual Showcase of Schools. The Zero-to-Eight Coalition and BPS reunited the Kindergarten Readiness Committee to develop the Home is a Child's First School poster.

To demonstrate the importance of the initiative, Mayor Menino designated a senior staff member to coordinate the campaign, working closely with a new steering committee and with all the participating Countdown organizations.

Given the growing number of activities, the group identified a need for dedicated staff to effectively carry out all of its desired objectives. A second, part-time position was created in May 2002 to support the new director's position. Currently, two staff members manage the project and perform outreach to families, childcare and healthcare providers and social service agencies across the city that work with families with young children. ■ ■ ■

Elaine Meyers

**Manager, Children and Teens, Phoenix Public Library
Phoenix, Arizona**

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Reinventing Library Services: Early Literacy Partnerships in Phoenix, Arizona

The Phoenix Public Library is reinventing its service to children ages birth to five years through a series of new partnerships with families and caregivers. The process began in 2001 with our participation as a pilot site in the *Every Child Ready to Read @ Your Library*® initiative. In three years we transformed and expanded our programs for preschoolers, added parent education programs to our services and rethought and redesigned our public service areas. Our story, while not unique, testifies to the flexible, responsive and community-focused nature of today's public library.

Starting Points

In 2001, Phoenix Public Library offered excellent standard services for preschool children. All our libraries offered preschool story hours. We had excellent collections of picture books and an established outreach program, Book Bridges, that serves under-resourced inner-city childcare centers. In public forums, we pointed with pride to our contribution to early literacy.

While not complacent, Phoenix Public Library staff was taken aback as many public librarians when the Public Library Association challenged our assumptions about our effectiveness in early literacy. In 2000, the Public Library Association (PLA) began a dialog with the National Institute of Child Health and Human Development (NICHD) about how public libraries could be more effective in preparing young children for reading success. The National Reading Panel's report had just been issued and provided research-based findings concerning the reading development of America's children. While researchers praised public librarians for their programs, they announced that our contact time in story hours was insufficient to claim impact on a child's reading success. To be truly effective in emergent literacy, the public library would have to impact the behavior of the adult who provided daily care for the young child.

The Public Library Association contracted with Dr. Grover C. Whitehurst and Dr. Christopher Lonigan, well-known researchers in emergent literacy, to develop a model program for parents and caregivers. The research was clear: public libraries had to become partners with families. Phoenix Public Library was selected as a pilot site for the program that is now known as *Every Child Ready to Read @ Your Library*® and our reinvention of preschool services began.

Programs for Infants and Toddlers

Phoenix's librarians discussed the need to acknowledge that the parent was the young child's first and most important teacher and that parents must learn that reading readiness begins with

the birth of their child. From staff discussion of the latest research, our Bonding with Baby programs were created. The program targets parents and caregivers and their children birth to 23 months. The program is developmentally responsive to the young child's needs and provides not only the latest research on child development in digestible portions known as "parent pointers," but also is a wonderful way for parents to support each other as they model and discuss ways to create language rich environments for their young children. Within the first months of this program, the Phoenix Public Library began serving more than 100 families each week. Parents frequently comment that there is no other community resource targeting their youngest children. Today we serve more than 200 families weekly in our Bonding with Baby series. These successful programs necessitated the creation of programs for two- and three-year-olds who had graduated from Bonding with Baby. Our existing preschool storytimes continue to serve older preschoolers through age five.

Workshops with Focus on Teens

Our commitment as a pilot site was to implement parent and caregiver workshops using the newly created workshops developed by Drs. Whitehurst and Lonigan. In the past three years, we have offered 15 workshops and served 187 parents. Our success is chronicled in the national evaluation of this project that affirms "parents—of every age, educational background, income level and ethnicity—who participated in the workshops...significantly increased their literacy behaviors." Parents read more frequently, at early ages, provided more print and language and learned to ask follow-up questions while reading and to play word games. (For an evaluation abstract see www.ala.org/ala/pla/plaissues/earlylit/researchandeval/abstract.pdf.)

While all parents benefited, our national research found that the youngest parents with young children received the greatest benefit from parent programs. In the second year of the program, Phoenix began to focus on reaching teen parents and worked with community partners serving teen parents. Our list of partners continues to grow and includes public and charter schools and a variety of public and private social service agencies. We are planning monthly parent workshops for teens beginning in fall 2004.

Designing Family Learning Places

While programs and parent workshops reached a number of families, we realized that many families had lives that would not allow formally scheduled meetings. To reach these families, we wondered if we could create public spaces that by their very design could inform parents of the behaviors and skills needed for early literacy, i.e., what a young child knows about reading and writing before they can read and write. As a result, Phoenix's Burton Barr Central Library will open a new public space, The First Five Years, in fall 2004. The area includes a carpeted corner defined by a bookshelf bench for babies, walls with mag-



Bob Rink, City of Phoenix

More than 200 families are served each week through the Phoenix Library's Bonding with Baby series. The program targets parents and caregivers and their children from birth to 23 months of age.

netic letters and games, bookstore style shelves for parenting materials, and interactive kiosks that allow parents and children to develop skills in dialogic reading techniques, narrative skills, phonological awareness, letter knowledge and print awareness. This center will serve as a testing ground for similar spaces to be developed in all Phoenix libraries in the future.

Fundraising and Strategic Planning

The need for young children to be prepared for reading success is valued by the Phoenix community as well as the library. As our vision for expanded services emerged, grant officers from both the Library and Phoenix Public Library Foundation created a variety of proposals that produced \$281,780 in new funding for our work. The Phoenix Public Library is in the final stages of developing a strategic plan for the period 2004-2007. In the course of staff and public meetings, the critical need to address services to children ages birth to five years was frequently identified as a strategic need. The result was one of Phoenix's strategic goals: "Families will learn necessary skills to foster early literacy for their children ages birth to five years."

Conclusion

Three years is a short time for radical change, but the needs of our youngest children are radical needs. The Phoenix Public Library has made the shift from providing model materials and programs for parents to being partners in building family skills that will assure a new generation of able readers. ■ ■ ■

Karen Knutson

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What Does a Lifelong Learning Community Look Like? Pulling It All Together

How do learning communities evolve? How do partners find each other and figure out how to work together? A unique partnership developed in Pittsburgh, Pennsylvania, among philanthropic, public television, business and family support organizations that effectively promotes early and lifelong learning to create a rich fabric of resources for learners of all ages.

Family Communications, Inc., the Children's Museum of Pittsburgh, the Grable Foundation and the University of Pittsburgh Center for Learning in Out of School Environments (UPCLOSE) have developed an unusual and long-term community collaboration among child and family-related organizations.

In 1995, to celebrate the 25th anniversary of "Mister Rogers' Neighborhood," Fred Rogers and his company, Family Communications, Inc. (FCI), wanted to create a museum exhibition for children. Bill Isler, CEO of FCI, approached the Children's Museum of Pittsburgh with the idea. Jane Werner, executive director of the museum, saw the proposal as a great opportunity for the museum. The result was the exhibition *Mister Rogers' Neighborhood*, which opened in Pittsburgh in 1998 and continues to travel to children's museums across the country to this day.

In June 2004, the museum received a National Science Foundation (NSF) grant for \$1.5 million to develop a new exhibition, *How People Make Things*, which will use some of the memorable "Picture Picture" videos from the "Mister Rogers' Neighborhood" TV show that reveal the manufacturing processes and the people involved in making everyday items for children.

Two traveling exhibitions were created in ten years and resulted in a partnership that has grown, matured and expanded. Ten years after the first exhibition, as the museum heads into a second exhibition project with FCI, Grable and UPCLOSE, we have the opportunity to look back at the development of our collaborations and offer some insight into how we got to this place and how other museums might similarly utilize local resources to create better opportunities for families and children in their region.

After initial meetings about the *Mister Rogers' Neighborhood* exhibition in the mid-'90s, Chip Burke from the Grable Foundation was invited to hear about the proposal. Grable ultimately agreed to sponsor the project. The Grable Foundation is dedicated to improving the lives of children in the Pittsburgh region. It supports educational opportuni-



Jane Werner (left), Executive Director of the Children's Museum of Pittsburgh, sits next to Cathy Droz, FCI, and Kyung Youn Kim, researcher for UPCLOSE, as Carnegie Mellon University students present their conceptual designs for the exhibition in development, *How People Make Things*. Students learn about museums, children and museum design with a real-world problem for their senior design course.

ties for children, both in formal and informal environments. Chip and Bill had previously worked together and had established a working relationship, producing educational materials for families in other media, including print, audio, video, training workshops and the Internet.

As the exhibition was being developed, Dr. Kevin Crowley from the University of Pittsburgh joined the project to conduct an evaluation of exhibit components. Crowley's work focuses on parent-child interactions and learning in informal environments. Crowley was beginning to bring his students to the museum to conduct research studies on family learning.

Complementary Missions/Unique Skills

The descriptions above reveal that each partner was already working on improving the lives of parents, children and families in the region. Yet each partner in the collaboration had something unique to offer. FCI was able to bring exhibit content to the table and to bring consultants in to help develop materials for the exhibit. With Fred Rogers as a focus for the exhibition, FCI brought an icon and a message that was a popular draw for visitors, but more importantly, Mister Rogers was a great resource for parents and children; he helped families think seriously about parenting issues. The Grable Foundation provided essential and generous financial backing for the project. However, they were also able to offer financial advice and made the grant contingent on putting the income from the traveling exhibit towards establishing the museum's endowment. That endowment now stands at more than \$4 million and helps ensure the museum's future. Finally, the University of Pittsburgh team was able to provide objective feedback on exhibit design, evaluating prototypes as they were developed. In Jane Werner's opinion, this constellation of different skills and abilities creates a successful partnership because of the complementary missions of each of the organizations. While some skills might overlap, none of the groups could effectively manage such a project alone.

Trust

As the initial exhibition phase continued, the new partners developed a sense of trust in each other. This trust is key to future collaborative ventures. The partners have an easy way of being upfront and supportive with each other. Yet they recognize that partnerships, including their own, are not always easy. Opinions must be heard and compromises made. Reflecting on their past work together, the partners acknowledge that sometimes partnerships are "a pain," time-consuming exercises in negotiation and give-and-take. The personalities of the collaborators happen to work well together. They laugh a lot, but they also trust one another and the integrity of their work.

Future: Leveraging Synergy

Once trust was established, and working relationships built, the goals were ratcheted up a notch, and bigger and better things were planned and implemented. As time moved on, Werner stepped up to the challenge and leveraged past successes to keep the museum's momentum going. The partnerships have helped. Unlike what is typically classified as a museum partnership (a one-time corporate sponsorship or specific supported program), these partnerships are ongoing and multi-layered. What started small seems to gather steam, spiraling outward in each cycle. The projects get bigger, and more partners come into the mix. The Grable Foundation was the first contributor to the museum's capital campaign, donating a million dollars toward the \$28 million goal. FCI was excited to develop another exhibition using parts of the Mister Rogers video archive. And Crowley moved his lab into office space at the museum to conduct ongoing research. His work at the museum was recognized with a 2004 Promising Practice Award from the MetLife Foundation and the Association of Children's Museums.

The Next Steps

The capital campaign supports a large-scale reinvention of the museum. In November 2004, the museum re-opened in its new iteration—from a 20,000-square-foot building to an 80,000-square-foot facility that incorporates its original historic Post Office building, a once vacant historic planetarium building and a new connecting building between. In addition to becoming a certified LEED (Leadership in Energy and Environmental Design) green building, with state-of-the-art building materials, environmentally friendly finishes and using solar and wind energy, the Children's Museum of Pittsburgh embodies the town square model of museums by including office space for related organizations with child and family-focused missions within the building. UPCLOSE will occupy the largest space. New partners renting additional space include Childwatch, Reading is Fundamental and the Saturday Light Brigade, a children and family oriented radio show that will broadcast from a specially built studio in the museum. ■ ■ ■

Dana L. Thorpe, Museum Director
Western Reserve Historical Society
Cleveland, Ohio

My participation in the 21st Century Learner: The Continuum Begins with Early Learning Symposium was most timely. The Western Reserve Historical Society, Cleveland's oldest cultural institution, has embarked on rediscovering its role as a resource for lifelong learning. Traditionally, history museums and historical societies have focused their programming attentions on adult audiences and have tended to regard children, particularly preschool children, as a secondary audience. In the past, exhibits, public programs and outreach have been primarily designed, marketed and directed to an adult audience.

A new era of re-evaluation, self-examination and renewed vision has resulted in history museums and historical societies becoming more inclusive of all age groups and establishing themselves as catalysts and partners in creating lifelong learning communities. The Western Reserve Historical Society at a strategic planning session held in June 2004, focused on its role as an active participant in lifelong learning, resulting in aggressive internal revisions to the organization's five-year exhibition schedule, public programming, community outreach, early childhood education and school education programs. The bridge that connected these sweeping revisions between the organization's departments was our institutional commitment to meeting the needs of children and families in support of lifelong learning. Our institutional goal now is to take this commitment to the lifelong learner and connect it directly to the historical society's mission statement of "preserving, protecting, presenting and promoting the history of northeastern Ohio."

The 21st Century Learner Symposium provided meaningful information and dialogue that the Western Reserve Historical Society has since incorporated into its daily operations, strategic planning and vision for the future. ■ ■ ■

Laurie Habich, Education Coordinator
Head Start Action, Inc.
Muncie, Indiana

Working in a busy world of three- to five-year-olds, with assessments, lesson plans and paperwork, it is easy to forget the reasons behind your daily work. How reaffirming it was to listen to prominent early childhood professionals chant "Play equals learning!" at the 21st Century Learner Symposium. I have shared the information that I gained from the sessions with our staff over the past months, and I've used the symposium to inform my conversations with Head Start parents.

At Head Start, our teachers are well-trained and knowledgeable about how to plan the classroom environment and activities for learning through play. However, as Head Start mandates come down requiring more assessments and accountability, our teachers sometimes feel the pressure to "teach for the test." It is my task to redirect them back to making sure that each child's needs come first. Information that I gained from the symposium speakers has helped validate what I say to the staff on a daily basis.

One of the joys of working for Head Start is being able to work with families as well as children. My discussions during post-symposium parent meetings centered on parents as first teachers, the link between school success and a child's emotional and behavioral adjustment and about how children learn through play. I stressed to them that it is better to spend time talking with their children and sharing experiences than purchasing expensive toys that claim to increase intelligence. Dr. Cohen's example of squirrels jumping from the branches of one tree to another to explain how the brain works provided a wonderful visual picture to help our parents understand brain development.

The panel discussion on learning as a catalyst for community building was informative and, again, relevant to my work. Our agency strives to continually expand our community partnerships. We are building our transition-to-kindergarten component, so I was eager to share with my colleagues the information presented by Jeri Robinson from Boston Children's Museum. The opportunity to meet Charlotte Brantley from PBS was timely also because our program had just begun a new partnership with our local PBS station to take part in the Ready to Learn program.

On a personal level, the symposium was beneficial and energizing. I was enrolled in a graduate early childhood seminar and the information that I gained from the sessions tied in directly with the content of my class, not to mention that I was the envy of everyone in the class because I had spoken with Drs. Brazelton and Sparrow! Mr. Novelli's session about AARP's current activities was so informative and interesting that I finally made the move to join AARP.

The symposium was truly a remarkable meeting of the minds, and I was honored to attend. The presenters were passionate and impressive, and it was clear that every participant, from educator to librarian, PBS affiliate staff to children's museum director, was committed to a common goal. ■ ■ ■

About this Award

The 21st Century Learner: The Continuum Begins with Early Learning Symposium was conducted on September 18-19, 2003. It was convened by the Association of Children's Museums (ACM); the Association for Library Service to Children (ALSC), a division of the American Library Association; the Civil Society Institute and the Families and Work Institute (FWI), and co-hosted by the Institute of Museum and Library Services (IMLS).

One of the outcomes of the symposium was to provide a forum for museums, libraries, public broadcasting stations and others to build collaborations that support lifelong learning communities. Specifically, the convening partners hoped to encourage the formation of community-based partnerships that would work to build a lifelong learning community for the benefit of museum and library users, as well as public television viewers. To that end, three competitive community collaboration awards of \$5,000 each were given to seed partnerships that demonstrate the potential to impact children and families community-wide. The award recipients would serve as national models for how museums, libraries, public broadcasters and other community-based organizations and leaders could join forces to inspire and enable lifelong learning communities.

All proposals were reviewed on a competitive basis by a committee of the convening organizations. Final selections aimed to provide a range of outreach models that could be easily adapted and implemented by any museum, library or public television collaboration. Selection criteria included:

- Identification of a partnership with a library, museum and/or public television station and other community partners;
- Evidence of the partners' understanding of and commitment to the project's goals; and
- Completeness, originality and replicability of a proposal that described a community collaboration that developed lifelong learning opportunities.

Awardees:**KINDERGARTEN KICKOFF****Lincoln, Nebraska****Partners:**

- **Lincoln City Libraries (lead)**
- **Lincoln Children's Museum**
- **Lincoln Public Schools**
- **City of Lincoln**
- **Ventures in Partnerships**
- **Nebraska Educational Telecommunications/Ready to Learn NETV 3**
- **Lincoln Action Program (Head Start)**
- **Lincoln Public Schools ExCITE Program (Early Childhood Infant Toddler Program)**

This initiative had a wonderful breadth of partners. Not only was there a library, museum and public television station involved, but also the city, public schools' early childhood program and Head Start, among others, were involved. This program was based on Boston Children's Museum's "Countdown to Kindergarten" and was very successful in its first year (2003). The program addresses the needs of rising kindergartners and younger children, as well as their parents, and promotes lifelong learning.

EINSTEIN SYMPOSIUM**Appleton, Wisconsin****Partners:**

- **Fox Cities Children's Museum (lead)**
- **Appleton Public Library**
- **Appleton Area School District**
- **Child Care Resource and Referral**

The Einstein Symposium essentially replicated the 21st Century Learner Symposium at the community level. It focused on how young children learn, how the early years impact lifelong learning and how this knowledge about learning can be applied in many settings. The partnership included the museum, libraries, schools and childcare providers—all coming together to convene a symposium for parents, teachers, students and caregivers. It is hoped that this will become an annual event.

WAVES, WORDS AND WONDER**Virginia Beach, Virginia****Partners:**

- **Virginia Marine Science Museum Foundation (lead)**
- **Virginia Beach Public Library**
- **Virginia Beach Ready to Learn Team**

To help children enter school ready to learn, the Virginia Marine Science Museum, the Virginia Beach Public Library and the Virginia Beach Ready to Learn Team collaborated to offer Waves, Words and Wisdom, a series of literacy rich, environmental education programs for at-risk four-year-olds and their families over the course of the school year. This was the first time the public library, the museum and the Ready to Learn Team had designed a cooperative program to promote lifelong learning.

