

Early Childhood Development

BACKGROUND

In the last three years, scientific advances in the study of early childhood development—the period covering a child to age three—have radically altered the terms of the “nature versus nurture” debate and our understanding about how children become the adults they later are to be. These advances in our knowledge of how a child grows have immense public policy implications.

In years past, neuroscientists assumed that by the time babies were born, their brain structure had been genetically determined. Scientists now have evidence that both “nurture” and “nature” have a profound effect on brain organization and function. “It’s not a competition,” says one researcher, “it’s a dance.” How humans develop and learn depend both on their genetic endowment and their early care and surroundings.

The most dramatic finding may be that experiences stimulate electrical activity in a child’s developing brain, which in turn affects the brain’s delicate circuitry in ways that ultimately determine adult capacity.

The brain is composed of cells (neurons) and the synaptic connections they form to other brain cells. Through interacting with the environment, the child’s brain develops new synapses and, over time, forges new mental capacities. By age three, a child has acquired the vast majority of the synapses it ever will have and more than it really ever will need. During gestation, the fetal brain increases by 250,000 neurons a minute. By birth, the baby’s brain contains roughly 100 billion neurons—about the number of stars in the Milky Way. Within a short time thereafter, the baby’s brain produces trillions more connections. The ensuing maturation process is described by some as the “pruning” of connections that are not used.

Scientists maintain that this early development is what makes early experience so crucial. Synapses that a child uses continue to contribute to his/her personality and intellectual ability; those that are not used may be lost forever and with them a world of potential. Much of what we know about a person—from his/her mathematical and language abilities, capacity to control emotion, or make human attachments—may be laid to experience in the first three years.

- About 60 percent of human genes are dedicated to brain development.
- Each of the 100 billion neurons with which a baby is born rapidly form synaptic attachments with up to 15,000 other neurons. By age two, a child’s

GLOSSARY

Early childhood

One’s life until age three.

Synapse

Junction across which a nerve impulse passes from an axon terminal to a neuron, muscle cell, or gland cell.

brain has as many synapses as an adult brain, and by age three double that.

- The three-year-old's brain uses about 2½ times the energy of an adult brain. This powerful brain capacity remains at this level until about age ten, although experience will have changed it dramatically in that period.

Furthermore, and equally important, child brain development is characterized by “prime times” or “critical periods” during which the brain is especially efficient at particular kinds of learning. Timing is everything. The ability to process vision must, for example, be learned by age two. Other capacities—including the ability to speak, learn languages and develop vocabulary, exhibit motor skills, make social attachments, and learn emotional control—also form in these early years.

These facts suggest that with proper nurturing and teaching at the proper time, one can make dramatic, specific, and highly positive contributions to a child's development.

These facts also suggest that the consequences of a failure to nurture—to say nothing of outright abuse—may be devastating. When brain development is interfered with at critical times—whether because of illness, substance abuse, poor nutrition, or emotional or physical neglect or abuse—the result may be long-term deficit or handicap. For example, research repeatedly shows that when orphans are deprived of proper intellectual, emotional, or physical stimulation, critical areas of the brain never may develop properly. Similarly, there is considerable evidence that abuse can lead to serious long-term deficits for a child, including heightened anxiety, inability to process complex information, and impulsive behavior.

In some respects, the situation for the nation's children never has been better. The majority of families have more resources and better access to such crucial services as health care than at any earlier time. Yet many children are growing up in less than ideal circumstances. High-quality child care is not available for many families that require them. Cu-

mulatively, these social conditions may be having serious consequences. Renowned pediatrician T. Berry Brazelton spoke to this problem in a special article for *Newsweek* (1997):

We are paying a terrible price for our nation's inattention to the increasing stresses on children and families. Violence among teenagers, suicide, and teen pregnancy are the obvious signals that our children are growing up with hidden anger and self-destructive impulses. Less obvious is the cost in lost motivation for learning when we fail to inculcate decent self-images in our children.

Current Programs and Initiatives

Public Sector

Over the years, bipartisan concern for children has led to many state and federal programs to support families and children. A 1996 study by Public Sector Consultants, Inc., found that at that time there were more than 50 youth and family support programs administered by three state departments—Michigan Department of Community Health (MDCH), Michigan Department of Education (MDE), and Michigan Family Independence Agency (FIA). The non-profit group, Michigan's Children, finds that 15 state programs are especially important in serving children to age five and estimates that the 15 programs collectively spent more than \$150 million in 1995 (presumably the latest year for which they found comparable data) in serving some 80,000 children and/or families. Examples of these programs are early childhood education, adoption subsidies, abuse-prevention, and parenting for pregnant teens.

During fiscal year 1997–98, the FIA will administer a \$2 million grant program designed to encourage development of community-based collaborative prevention services for children; grants will require a 25 percent local match. The program informally is known as “0 to 3” and its objectives are to

- foster positive parenting skills, especially for parents of children under age 3;
- improve parent-child interaction;
- promote access to needed community services;
- increase local capacity to serve families at risk;

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- improve school readiness; and
- support healthy family environments that discourage alcohol, tobacco, and other drug use.

As of January 20, 1998, 50 local communities had submitted 63 grant requests. This new grant program's popularity and a perceived need to do even more in this area prompted the Michigan Legislature to put \$2 million in the School Aid Act for FY 1998–99 for a program described in virtually the same language as that for the “0 to 3” program in the 1997–98 FIA appropriation. Legislators are pondering whether to expand the grant program further by adding in FY 1998–99 another \$2.5 million in the FIA budget and at least \$4 million (with similar statutory language and requirements) in the MDCH budget. The idea, ultimately, is to shift all of the \$8 million-plus funds into a single grant program.

Private Sector

The “I Am Your Child” campaign is a self-styled “early childhood public-engagement campaign”; its national goal is to bring attention to the importance of the first three years of life and the policy implications of recent scientific findings. Michigan is home to many child-welfare advocacy groups, and although they have myriad missions and agendas, many are coming together in an “I Am Your Child—Michigan” campaign. The Michigan campaign has a dual focus: ensuring better coordination among the many state child and family support programs and actively lobbying to secure \$6.5 million in additional funds for the family preservation and the 0-to-3 grants to local communities. To date, “I Am Your Child” in Michigan has convened a bipartisan legislative forum on the science of early childhood development and is convening regional meetings on the subject.

DISCUSSION

Recent scientific developments—and their message that the early years are critically important to the nation's young—have serious implications for public policy debate pertaining to education, child care,

welfare, anti-poverty, and health-care programs. The new developments are potentially revolutionary because they suggest that if intervention—including education, counseling, and technical training—to help at-risk children and youth comes later rather than earlier, it may not be sufficient to overcome a legacy of early neglect.

Welfare

The effect that welfare reform can have on child care is especially significant. While the new federal welfare laws permit states to exempt new mothers from work requirements for up to a year, it is clear that some states will not do so. In Michigan and Wisconsin, for example, the work requirement for new mothers kicks in after 12 weeks, not 12 months. The public policy dilemma is apparent: If work requirements actually reduce the income of poor mothers, children will be hurt; yet even if these mothers do better financially, their young children still may be in jeopardy due to less involvement with their parent at a critical period. Obviously, the availability of high-quality day care for these families is critical, yet some recent studies suggest that 40 percent of the nation's daycare centers available to infants and toddlers are substandard.

Insofar as young children are concerned, perhaps the most significant of Governor Engler's proposals is his call to expand “Project Zero” and achieve “100 percent employment in every county for every parent on welfare.” Presumably, the proposal is based on the conviction that children, including very young children, will benefit from the sense of independence, confidence, and self-worth that having a job will give their parents.

Skeptics maintain that treating employment as a panacea leaves several key questions unanswered. Will poor families actually have fewer financial resources as the result of work requirements? Will low-income parents be able to retain their jobs after their initial employment period? Are there sufficient, high-quality daycare arrangements available to these low-income families? What will be the net effect of these children spending less time with their parents?

Early Childhood Education

The need to target education dollars on improving the prospects of poor children is well recognized in Michigan and elsewhere. Yet, the bulk of the money and resources thus far has been targeted toward children who already are in school. Early-childhood education advocates believe that the science of child brain development makes a strong case for more aggressive intervention during the pre-school years.

The need for such early intervention is recognized in federal policy through the Department of Health and Human Services's "Early Head Start" program—an expansion of the decades-old and better known Head Start program. In 1996 the budget for Early Head Start was \$146 million, and the department awarded grants to 143 sites nationwide. The money is used to provide a variety of services to poor families with children aged under four. As the exhibit shows, since the program began, nine Michigan locales have received nearly \$6 million in federal grants to provide services to more than 670 families.

Health Care

The importance of a child's first three years to his/her intellectual and emotional development makes it imperative that children in this age group have access to care. This year, the Engler administration will implement a joint federal/state plan—MICHild—that will provide affordable health care coverage to some 156,000 uninsured children in families at or below the

federal poverty level, many of whom will be aged three or younger.

Public Policy in Michigan

The new information on brain development may be much discussed and revolutionary in its potential effect, but as yet it has had little effect on public policy in Michigan. The dollar amount available to programs focused exclusively on the earliest years still are relatively small and dispersed among at least three state departments and many agencies therein.

In Michigan, developing and coordinating the administration's child-care and children's welfare policy has become a major responsibility of the lieutenant governor, who chaired the Children's Commission during 1995 and 1996. Although the commission was investigating primarily foster care, adoption, and child abuse, its 1996 report recommends forming "county-based collaboratives" that would offer support and prevention services to families with very young children. This recommendation, and the lieutenant governor's active interest, led directly to the 0-to-3 grant monies being included in the FIA and MDE budgets. As mentioned, advocates also are lobbying for approximately \$4 million in the MDCH FY 1998–99 budget for essentially the same purpose; at this time, the administration's position is unclear on the additional \$4 or any other expansion.

Early Head Start Programs in Michigan, 1996–98

<i>Agency</i>	<i>Location</i>	<i>Funds Received (thousands)</i>	<i>Families Served</i>
Eight CAP Incorporated	Greenville	\$728	120
Child Development Services of Ottawa County	Holland	204	20
Carman-Ainsworth School District	Burton	755	75
Mid-Michigan Community Action Agency	Clare	695	75
Northwest Michigan Human Services Agency	Traverse City	464	75
City of Detroit	Detroit	1,060	95
Menominee-Delta-Schoolcraft Head Start	Escanaba	163	16
Inter-Tribal Council of Michigan	Sault Ste. Marie	1,100	120
Region II Community Action Agency	Jackson	633	75
TOTAL		\$5,800	671

SOURCE: Michigan Head Start, April 1998.

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The resulting \$8–8.5 million fund would be small in the context of the entire state budget, and early-childhood advocates make it plain that they consider this only a starting point. They believe that the 0-to-3 programs will be popular and effective and thus attract the wide constituency necessary to support expansion. The ultimate goals, advocates say, are a larger commitment of funds for the 0-to-3 programming, the administration of them by a single state department, and much improved coordination among existing state and federal programs.

The governor's 1998 State of the State Message neither directly addressed the needs of the state's youngest children nor identified program initiatives directed specifically at this age group. The governor did, however, identify a number of "family strengthening" initiatives that may be expected to help all children, including those who are very young and most at risk. These include

- several across-the-board income tax cuts beginning in 2000 and designed ultimately to reduce the income tax rate to 3.9 percent;
- continued expansion of efforts to assist working parents with child-care needs; and
- implementation of the previously referenced MICHild initiative that will provide health insurance coverage to uninsured children.

While few lawmakers can be expected to oppose a tax cut in an election year, some critics note that the bulk of the proposed relief would go to people who are not poor and do not have children at risk. Similarly, while critics applaud the MICHild initiative, they point out that the program is essentially a federal one.

See also Child and Family Services; Child Care; Health Care Access; Medicare and Medicaid; Special Education; Substance Abuse; Welfare Reform.

FOR ADDITIONAL INFORMATION

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Families and Work Institute
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I Am Your Child—Michigan
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Michigan 4C Association
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"How a Child's Brain Develops," *Time Magazine*, February 3, 1997.

"Rethinking the Brain: New Insights into Early Development," Families and Work Institute, June 1997.

Starting Points: Meeting the Needs of Our Youngest Children, Carnegie Corporation, 1994.

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