

Research points to critical role of early years

by Marlene Weinstein

Research on human brain development and the long-term impact of early childhood education has established that the first five years of life are critical to laying a foundation for learning and success as an adult.

Researchers have long known that the human brain achieves about 85 percent of its adult size by age two-and-a-half and about 90 percent by age three. Thanks to new technology in which one can actually observe and track brain activity and growth, scientists have been able to show that a child's early experiences actually shape brain architecture ([see "The Developing Brain"](#)).

Long-term studies

Another strand of research on early development has investigated the long-term benefits of high-quality early childhood education – and the potentially harmful consequences when such experiences are lacking.

That National Institute for Early Education Research (NIEER) has recently culled findings from several major U.S. studies on the effects of various early childhood programs and their impact on children's lives.

NIEER's report highlights three "outstanding" longitudinal studies. Each found that children carry the benefits of high-quality early childhood programs into school and beyond, with a net effect of significant financial savings for society and increased success for the children.

The "Chicago Parent/Child Study" (1985-2000) found that children at risk of school failure, with even a half-day of high quality preschool, were more likely to graduate from high school (62 percent vs. 49 percent) and less likely to be arrested by age 18 than a comparison group. Only 14 percent in the preschool group required special education services vs. 25 percent in the comparison group.

The "North Carolina Abecedarian Project" (1972-1993), which looked at children who received full-time, high-quality early childhood education through age five and whose parents were in a parent involvement program when the children were 5-8 years old found that those experiences yielded higher rates of graduation from high school (67 percent vs. 51 percent). In addition, 48 percent of those in the comparison group required special education services, but only 24 percent in the preschool group. Only 20 percent of the comparison group went on to higher education compared to 40 percent of the preschool group.

The High/Scope Perry Preschool Project (1972-1993) compared two groups of low-income, high-risk children. Half were enrolled in a half-day, high-quality preschool program in Ypsilanti, Michigan public schools, and half did not have formal preschool. Both groups were followed until age 27. The benefits of preschool were significant for every measure studied. For example, the preschool group was four times more likely to earn at least \$2,000 per month than the comparison group; they were almost three times more likely to own their own home at age 27, and only half as likely to have multiple arrests by age 27.

Definitions of quality

Reports by NIEER and others have identified appropriate teacher preparation, curriculum, and parent engagement as among the key aspects of high-quality early childhood education.

Some of the common research findings are that quality care includes:

- Warm, responsive relationships with teachers who respond to children's cues
- Teachers well-trained in early childhood education who offer both teacher-directed activities and child-initiated activities
- Teachers who establish routines, help build confidence, and foster a love of learning
- Programs in which parents are valued and engaged as partners.

While inadequate funding for early childhood education in Pennsylvania and other states makes it difficult for providers to hire and retain highly qualified teachers, the research is clear on their impact in the classroom.

The landmark national study, *Cost Quality and Child Outcomes* (1999) found that “formal education levels and specialized early childhood training of classroom teachers” affect quality, which in turn “influences children’s outcomes through at least second grade.” The study found that these effects hold true for all children, but lower-income, at-risk children especially benefit from high-quality early education.

Investing in quality

Children in fulltime child care from infancy through age five spend as much time in that setting as they will in kindergarten through 12th grade-about 12,000 hours – and so the potential benefits of quality preschool programs are vast.

Each of the three highly regarded long-term studies estimated the savings derived from early childhood programs in remedial and special needs education, welfare costs, lost income tax, and engagement in the criminal justice system. The estimates of return for every one dollar invested in early childhood education ranged from \$4 all the way up to \$16.

“To practitioners in early childhood education, these results are not surprising,” commented Sharon Easterling, executive director of the Delaware Valley Association for the Education of Young Children.

“We observe on a daily basis how much children learn both intellectually and socially when they are in high-quality group care,” Easterling added. “It’s just common sense that that foundation will serve them well in school and beyond.”

Second Language Learning

Earlier is Better

In fact, California ranks among the top five states in the percentage of public primary schools offering foreign language programs. According to the National Education Association, California also leads the nation in cutting-edge elementary school immersion programs, which, as we'll see below, are the most effective for producing fluent speakers. Finally, privately funded "Saturday schools" offer another avenue for early language study.

Let's briefly summarize the science behind the "earlier is better" conclusion. Then, in case you don't understand why your 4-year-old should speak, say, Mandarin when you don't, we'll look at the overall benefits of foreign language acquisition. We'll see how language is taught and explore your options for taking advantage of your child's optimum language-learning years.

The Brain and Language Acquisition

The "window of opportunity" idea is widely accepted. Here is a very simplified explanation: From birth until puberty, the brain literally formats itself to perform various specialized functions, such as language, based upon the input it gets from the world. Neural networks gradually form, and they function more and more efficiently as they are used. If a second language is part of that input, networks for understanding and using it grow richer. Therefore, early exposure to a second language actually causes more connections to grow in a child's brain, and those connections, in turn, allow for easier additional learning in the second and first languages.



This "formatting" process, especially active in the first six years, ends at puberty, or around age 12, and the brain begins to shed connections it no longer uses. The capacity to distinguish and make sounds not encountered in languages the child speaks diminishes or disappears.

Many scientists believe that a newborn's brain is genetically "programmed" to learn language, just as a bird is programmed to sing or a spider to weave a web. No one actually teaches a child to talk. Rather, parents and others enable her learning by speaking while they interact with her. The interaction is a critical part of this process; merely hearing TV or radio is not enough by itself.

Baby talk by adults is part of this interaction. It involves simple sentence structure and vocabulary, exaggerated intonation and sounds, repetition, and questions, all of which help a child sort out meanings, sounds, and sentence patterns of a language.

During this early period, two languages can be learned simultaneously as long as the child regularly interacts with speakers of both languages.

Pronunciation is more like that of a native speaker when language study begins early. Some experts believe this is due in part to physiological changes at puberty; by age 15, a child's facial muscles and bones are nearly mature, and his musculature loses sensitivity to phonetic distinctions that are not relevant to the languages he speaks. It is simply harder for the older student to make new, unfamiliar sounds. A psychological factor may also be at work: Older children are more inhibited in trying out new sounds and more concerned about making mistakes.

For further information on language and the brain, an excellent website is www.1worldlc.org.

Why Should Your Child Learn a Foreign Language?

Isn't English enough? After all, much of the world's population speaks it as a second language, so your child can probably get by with English alone. Why add more academic study to his life?

These are legitimate questions, but the answers all favor introducing your kid to a second language as early as possible, preferably in an "immersion" program. The Bay Area offers many reasonably priced schools and classes and which language you choose may not really matter, since studying any one of them provides benefits. Let's take a look at a few of them.

- Acquiring a language is effortless for a young child. Getting him into a class early allows easy, natural absorption of a second language through play and exploration. I, for one, can vouch for the fact that starting Spanish in tenth grade is not effortless. Save your kid the struggle.
- Improvement of overall academic performance. Statistically, children who study a second language score higher on verbal standardized tests conducted in English, according to the College Entrance Examination Board. Language students also perform better in math and logic skills than children with just one language. There is also some evidence that foreign language students are more creative and better at solving complex problems.
- Likewise, Chris Clark, director of Contra Costa's immersion preschool, Kids Into Speaking Spanish (KISS), notes that "no one expects the very young to master complex points of grammar, but the program seeks to make the children open to exploring other languages and cultures, Spanish or otherwise."
- Retention of family heritage, culture, and language as the younger generation assimilates into mainstream American culture.
- Ability to communicate with non-English speakers in travel abroad or at home. If your French, say, is weak, your fluent child can keep you from mistakenly ordering "a barrel of your house wine," as one of my friends did recently in Paris!