

The Myth of the Early Years: All Is Not Lost By Age 3: Adults Can Learn and Their Brains Can Grow by **Thomas G. Sticht**

The Myth of the Early Years: All Is Not Lost By Age 3: Adults Can Learn and Their Brains Can Grow Thomas G. Sticht, Applied Behavioral & Cognitive Sciences

On Sunday, October 13, 1991 The San Diego Union newspaper reprinted an article by Joan Beck, columnist for the Chicago Tribune that argued for early childhood education because, "Half of adult intellectual capacity is already present by age 4 and 80 percent by age 8, the great education researcher Dr. Benjamin Bloom reported in scholarly studies in the 1960s that helped establish the importance of early learning. No matter how good schools are, how capable and caring the teachers, they will not have as much effect on a child's permanent level of intelligence as has the environment in which he has lived before he started to first grade."

Behind this widespread belief is another belief based on (faulty) understandings of neuroscience that the brain and its intellectual capacity is developed in early childhood and this has important implications for cognitive development over the lifespan. Even the First Lady of the United States has weighed in with the pronouncement that, "The first three years of life are crucial in establishing the brain cell connections. ...By the end of three or four years, however, the pace of learning slows... The process continues to slow as we mature, and as we age our brain cells and synapses begin to whither away. ..With proper stimulation, brain synapses will form at a rapid pace, reaching adult levels by the age of two and far surpassing them in the next several years." (H. R. Clinton, 1996, pp. 57-58).

It has been argued that if children's early childhood development is not properly stimulated, then there is likely to be underdevelopment of the brain and that can lead to lower intellectual ability, poor school learning and to a life characterized by social problems such as unemployment, criminal activity, teenage pregnancy and welfare. It will be difficult if not impossible to overcome the disadvantages of deficiencies in early childhood stimulation later in adulthood. And so, some might argue, "Why should we invest in adult literacy education? Let's put our money into early childhood programs. An ounce of prevention is worth a pound of cure!"

But now trends in both brain science and cognitive science have converged to bring about revisions to these ideas from the conventional wisdom. For over a decade, the James S. McDonnell Foundation in St. Louis has supported extensive research in neuroscience. Recently, John Bruer, President of the Foundation has written a new book entitled "The Myth of the First Three Years" (The Free Press, 1999) in which he explains that the findings of neuroscience do not support the claims made above by Mrs. Clinton or Joan Beck or other claims for early stimulation of infants and children under three years of age. He further argues that most neuroscience is irrelevant for early childhood and in-school education (1997, 1998). Following is a brief summary from earlier articles of what Bruer regards as major misconceptions that educators have of brain science (see my paper *Beyond 2000: Future Directions for Adult Education* in the Full Text Documents page at <http://www.nald.ca> for references to articles by Bruer):

1). Claim: Enriched early childhood environments causes synapses to multiply rapidly. Bruer states, "What little direct evidence we have – all based on studies of monkeys - indicates these claims are inaccurate....The rate of synaptic formation and synaptic density seems to be impervious to quantity of stimulation. ...Early experience does not cause synapses to form rapidly. Early enriched environments will not put our children on synaptic fast tracks" (1998, pp. 13-14).

(2). Claim: More synapses mean more brainpower. Bruer states, "The neuroscientific evidence does not support this claim, either. ..Synaptic densities at birth and in early adulthood are approximately the same, yet by any measure adults are more intelligent, have more highly flexible behavior, and learn more rapidly than infants" (1998, pp. 14-15).

(3). Claim: The plateau period of high synaptic density and high brain metabolism is the optimal period for learning. Bruer states, "The neuroscientific evidence for this claim is extremely weak. The neuroscientists who count synapses in humans and monkeys merely point out that during the plateau period, monkeys and humans develop a variety of skills and behaviors. ...We do not know what relationship exists between high resting brain metabolism and learning, any more than we know what relation exists between high synaptic numbers and ability to learn." (1998, pp. 15-17)

Bruer goes on to say that, "Truly new results in neuroscience, rarely mentioned in the brain and education literature, point to the brain's lifelong capacity to reshape itself in response to experience" (1998, p. 17). In his new book (1999) he references work in adult literacy to make the point that, "Adult literacy programs provide additional evidence that acquiring and improving literacy skills is not time-limited or subject to critical period limitations." (p. 112). He says, "The limiting factor in vocabulary growth, and presumably for some of the other things Verbal IQ measures, is exposure to new words, facts, and experiences. The brain can benefit from this exposure at almost any time-early childhood, childhood, adolescence, adulthood, and senescence." (p. 177)

For adult literacy educators, Bruer makes the important policy argument that with a better understanding of the limitations of present day neuroscience for understanding education, "We might question the prudence of decreasing expenditures for adult education or special education on the grounds that a person's intellectual and emotional course is firmly set during the early years." (p. 26, This is a myth he rejects and it is an important point in light of the current budget activities in Congress which place tens of billions of dollars in early childhood and in-school compensatory programs and less than \$400 million in programs for educating adults.