

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

Toward a Multiple Life Cycles Education Policy: Investing in the Education of Adults to Improve the Educability of Children

Tom Sticht
International consultant in Adult Education

Policymakers and philanthropists sometimes opt to fund childhood education to “stop illiteracy at the source” at the expense of funding for adult literacy education. The New York Times for January 20, 2000 published an article by Kevin Sack about a gift of \$100 million being given to schools in Mississippi to promote the teaching of reading to children. The article says that the philanthropist giving the money and "many experts are less than bullish on the prospects for attacking adult illiteracy." The philanthropist is then quoted as saying, "What this program says is that we can't solve the adult literacy problem but we can work with the children."

In Canada in 2006 the new Tory (conservative) government announced cuts of CAN\$17.7 million in what was already a skimpy federal budget for adult literacy education. The Headline News web page of the National Adult Literacy Database (NALD) of October 4, 2006 carried a statement from a Tory government official (www.nald.ca Oct 4 06) saying "they want to focus instead on better teaching children how to read and write." Adult literacy education was characterized as "repair work after the fact" and the government needs to "get it right from the get-go...rather than doing it after the fact."

The NALD Headline News web page for November 28, 2006 presented a statement from the Canadian Paediatric Society which stated that "Nine million working-age Canadians do not have the minimum literacy skills for coping with everyday life, ...The process for learning to read begins at birth, making low literacy a critical child health issue. And it's one that costs Canada up to 10 billion dollars per year."

This type of thinking is based largely on a mistaken understanding of “the source of illiteracy” and leads to largely ineffective strategies for improving both children's and adult's literacy. It focuses upon each new child as the beginning of a new life cycle and then thinks in terms of doing whatever can be done to help the person acquire literacy skills as a child. If this does not turn out well, then a small amount of remedial help may be given in adulthood to help the person acquire higher levels of literacy in a "cradle to grave" "lifelong education" policy of education.

However, this focus upon a single life cycle fails to recognize the key role that the education of adults plays in the transfer of literacy from one generation (adults) to the next generation (children). That is, adult literacy education may promote the development of literacy not only in one life cycle, but in multiple life cycles, depending upon how many children the adults have. From this point of view, the "process for learning to read" does not begin at birth, as suggested above by the Canadian Paediatric Society, but actually before birth in the dispositions, skills, knowledge, language, and literacy of children's parents.

This paper reviews nine lines of thinking and research that establish the value of adult literacy education in providing multiple returns to investments in adult literacy education, including the improvement of educational achievement of children. Following is a brief overview of the topics addressed in each of the nine sections into which this paper is divided. The first two sections deal with mistaken ideas that are widely held and which

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

hinder the development of adequate resources for adult literacy education. The remaining sections present evidence arguing for a greater investment in adult literacy education.

1. Brain Development, IQ, and Early Childhood Education. Arguments for early childhood education and against adult education are often based on the growth of the brain and the development of intelligence in the early years following birth. As suggested above, it has been commonly argued that adult literacy education is too late and that we need to focus our efforts on early childhood education when the brain is undergoing major developmental changes. Brain science (neuroscience) is often cited to support this position. In this section I review evidence suggesting that this is not a sound argument.

2. Born to Lose: Low Aptitude, Genes, Low Intelligence, and Adult Illiteracy. Claims have been made that poorly literate adults are genetically inferior to others and are unable to succeed in life. Here I cite statements in the popular press arguing that adults with low literacy skills are likely to be of low IQ and hence unable to achieve much benefit from investments in their education. I then present evidence to counter these types of claims.

3. Statistical Data: Thirty+ Year Reading Trend Data. These data show that there has been little or no improvement in reading scores for 9, 13, and 17 year olds since 1971. The schools continue to turn out tens of thousands of functionally illiterate young adults each year. This suggests the need for a new approach to improving children's learning in K-12. The new approach suggested here focuses upon the education of undereducated adults to improve their children's school achievement.

4. Statistical Data: Parent's Education and Children's Literacy Skills: Thirty year trend data for the United States and additional data from international adult literacy assessments show that as parent's education level increases their children's literacy achievement increases and this relationship persists into adulthood.

5. Statistical Data: Parent's Literacy and Children's Literacy: Not only are parent's education levels related to their children's literacy levels, but additionally data from the United Kingdom's Institute of Education show that as parent's measured literacy, not just their years of education, goes up so does the literacy of their children.

6. Parent Education and the Efficacy of Preschool Education: New research evidence indicates that adult education is a key factor in the success of preschool education and that arguments for expanding early childhood education are to a large extent actually arguments for increasing investments in early adulthood education.

7. The Intergenerational Transfer of Literacy in Adult Literacy Education: Data from workplace literacy studies, family literacy studies, and general literacy studies reveal the transfer of motivation, self-efficacy, language, and literacy from parents to children and indicate that adult literacy education can affect the literacy education of the adult's children or grandchildren.

8. The Intergenerational Transfer of Literacy From Parents to Their Children: Research is presented on the oracy-to-literacy transfer effect which provides one explicit mechanism for how parents transfer literacy intergenerationally.

9. Multiple Returns to Education in Adult Literacy Education. Studies are cited showing multiplier effects of adult literacy education on health, community activities, and

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

productivity at work. Such studies indicate that we can get “double duty dollars” for investments in adult literacy education.

1. Brain Development, IQ, and Early Childhood Education

There are cultural beliefs about cognitive development and when it is possible and/or desirable to develop it that appear to contribute to the marginalization of adult education and literacy students and the system that serves them. One of the beliefs in our culture is that the brain and its intellectual capacity is developed in early childhood and if children's early childhood development is not properly stimulated, then there is likely to be intellectual underdevelopment leading to academic failures, low aptitude, and social problems such as 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. So why invest much in adult education?

This sentiment appeared on October 14, 1990 when the San Diego Union-Tribune published an article in which an adult literacy educator was quoted as saying, "Between the ages of zero to 4 we have learned half of everything we'll ever learn in our lives. Most of that has to do with language, imagination, and inquisitiveness."

That these beliefs about the consequence of early childhood development are widespread is revealed by articles written by prominent journalists in major newspapers. For instance, on Sunday, October 13, 1991 the *San Diego Union* newspaper reprinted an article by Joan Beck, a 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 opportunity to influence [a child's] basic intelligence - considered to be a stable characteristic by age 17 - is greatest in early life." Two years later on Wednesday, April 21, 1993 the San Diego Union-Tribune published another article written by Beck in which she said the earliest years of life can make a permanent difference in the lifelong level of a person's intelligence, and "It's not just that the child will learn more. It's that his brain actually will have more neurons and interconnections so it will become more intelligent and more capable of learning and thinking for the rest of life."

But both the adult educator and Joan Beck were wrong about both early stimulation for intellectual development and for the development of the brain. Regarding intellectual development, both Joan Beck and the adult literacy educator based their statements about half of intellectual capacity or learning on research by Benjamin Bloom in the 1960s. But Bloom did not show that half of one's intellect was achieved by age 4. Rather, he argued that IQ at age 4 was correlated .7 with IQ at age 17. Since the square of .7 is .49, Bloom stated that half of the variance among a group of adults' IQ scores at age 17 could be predicted from their group of scores at age 4. But half of the variability among a group of people's IQ scores is a long way from the idea that half of a given person's IQ is developed by age 4. This is not even conceptually possible because for one thing there is no universally agreed to understanding of what "intelligence" is. Further, even if we could agree on what "intelligence" is, there is no such thing as "half of one's intellect" because no one knows what 0 or 100 percent intelligence is. Without knowing the beginning and end of something we can't know when we have half of it.

Regarding the unique importance of early childhood brain stimulation for intellectual development, for over a decade the James S. McDonnell Foundation in St. Louis has supported extensive research in neuroscience. In 1999, John Bruer, President of the Foundation wrote a book entitled "The Myth of the First Three Years" in which he

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

explains that the findings of neuroscience do not support the claims made about early stimulation of infants and children under three years of age and their brain development. Elsewhere, Bruer (1998) discussed major misconceptions that educators have of brain science. For instance:

(a). 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"(pp. 13-14).

(b). 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." (pp. 14-15).

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"¹⁶ (p. 17). In his new book (1999) he references work in adult literacy education 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)

Supporting Bruer's comments, writing in Scientific American (May 1999), Kempermann & Gage (1999) state that "Contrary to dogma, the human brain does produce new nerve cells in adulthood....Birth of nerve cells, or neurons, in the adult brain has been documented in the hippocampus, a region important in memory."

Importantly, for adult education and literacy educators, in his 1999 book 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)

2. Born to Lose: Low Aptitude, Genes, Low Intelligence, and Adult Illiteracy

A report by the Department of Defense shows how beliefs about the possibility of doing much for poorly educated adults after early childhood can affect government policy. After studying the job performance and post-service lives of "lower aptitude," less literate personnel, the report claimed that they had been failures both in and out of the military. Then, on February 24, 1990, in an article by Bill McAllister in the Washington Post, the Director of Accession Policy of the Department of Defense was quoted as saying "The lesson is that low-aptitude people, whether in the military or not, are always going to be at a disadvantage. That's a sad conclusion." A similar report of the Department of Defense study was carried in the New York Times of March 12, 1990. Then on April 8, 1990 Jack Anderson's column in the Washington Post quoted one of the Department of Defense researchers saying, "...by the age of 18 or 19, it's too late. The school system in

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

early childhood is the only place to really help, and that involves heavy participation by the parents." But apparently not the participation of "low aptitude" parents.

Another widespread belief about intellectual development and learning in adulthood is that because of their inferior genetic endowment, many adults are unable to benefit much from childhood education and they cannot benefit much from adult education and training either.

The Herrnstein & Murray (1994) book, "The Bell Curve: Intelligence and Class Structure in American Life" created considerable controversy because it promoted the foregoing belief. It strongly implied that intelligence is largely genetically determined, not subject to much modifiability, and a strong influence on many of the social problems that our nation faces, including school dropouts, crime, poverty and welfare.

In a January 7, 1997 article in the Washington Times , a prominent newspaper published in Washington DC and read by many members of Congress, columnist Ken Adelman wrote:

The age-old nature vs. nurture debate assumes immediacy as the new Congress and new administration gin up to address such issues as poverty, crime, drugs, etc.

This, the most intellectually intriguing debate around, is moving far toward nature (and far from nurture) with new evidence presented by an odd pair - gay activist Chandler Burr and conservative scholar Charles Murray.

In brief, their new findings show that 1) homosexuality and 2) educational-economic achievement are each largely a matter of genes - not of upbringing.

If true, as appears so, the scope of effective government programs narrows. Fate, working through chromosomes, bestows both sexual orientation and brainpower, which shape one's life and success.

Little can be altered - besides fostering tolerance and helping in any narrow window left open - through even an ideally designed public program. (page B-6)

The juxtaposition of homosexuals and those of lower educational and economic achievement is an obvious rhetorical device meant to stir negative emotions about both groups.

In Forbes Magazine for October 2, 2000, Dan Seligman commented about the National Adult Literacy Survey and argued that the test was not about literacy and said, "The cluster of abilities being examined is obviously a proxy for plain old "intelligence." Commenting then about the "familiar old bell curve" Seligman says, "...do not tell us that government or any other institution is going to transform this situation." This clearly reflects the belief that the literacy test was actually a test of intelligence, that the latter is genetically based, and was not going to be changed by adult literacy programs.

Dispelling These Harmful Cultural Beliefs. While there is insufficient room here to completely dispel the beliefs about human intellectual development outlined above in the

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

news media, a partial rebuttal can be given. At the outset it should be noted that none of the assertions in the news articles were true.

In the news articles about the Department of Defense studies of "low aptitude" troops, the conclusions were based on analyses of the job performance of hundreds of thousands of personnel in both the 1960s and 1980s with Armed Forces Qualification Test (AFQT) scores between the 10th and the 30th percentiles, the range of scores which the Department of Defense studies called "low aptitude."

But contrary to what the Department of Defense researchers and accession policy maker were reported to have stated in the newspaper articles, the actual data in their reports show that in both time periods, while the low aptitude personnel did not perform quite as well as those personnel with aptitudes above the 30th percentile, over 80 percent of the low aptitude personnel did, in fact, perform satisfactorily and many performed in an outstanding manner (Sticht, et al., 1987). Furthermore, as veterans they had employment rates and earnings far exceeding their rates and earnings at the beginning of their military service (Sticht, 1992). Further investigation by the media would have revealed these discrepancies between what the Department of Defense's representatives said and what the actual findings were.

Regarding the genetic basis of intelligence, although The Bell Curve book cited by Adelman presents detailed analyses of social problems and IQ, what is not generally understood is that almost all of the analyses relating IQ with social problems were made using the Armed Forces Qualification Test (AFQT) as the measure of IQ. What should be of interest to policymakers, however, is that the AFQT does not measure IQ. This was made clear in the early 1980s when official Department of Defense spokespersons testified to Congress that the Armed Forces Qualification Tests (AFQT) are not tests of intelligence or IQ.

Richard Danzig (1980) Principal Deputy Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics spoke before a congressional committee. "The testing specialists note that we ought not to confuse these aptitude tests with intelligence tests as such" Danzig said. "Naturally there is some correlation between the two types of tests but to speak of somebody as being in category IV or category V is not per se to make a judgment about his intelligence. ... In fact, we don't want to test IQ which is traditionally the aptitude of school children to perform well in school. We want to test their ability to learn to perform military jobs. That is somewhat related to intelligence, not alone intelligence however. I want to avoid that implication."

Instead of measuring IQ, the AFQT actually measures the basic skills of reading and mathematics. The AFQT is made up of four sub tests: word knowledge (vocabulary), paragraph comprehension, arithmetic word problems, and mathematics knowledge (facts of geometry, algebra). Therefore, the arguments in The Bell Curve about IQ and its immutability, are actually arguments about the basic skills of reading and mathematics. If reading and mathematics skills contribute to or actually constitute "IQ," as The Bell Curve books suggests, then there is evidence to argue that, contrary to the conclusions of the journalists in the Chicago Tribune, Washington Post and Washington Star, "IQ" can be improved in adult education and literacy development programs. A large body of evidence in published literature indicates that the basic skills are teachable and learnable across the life span (see the numerous studies in Sticht, T. & Armstrong, W. (1994). showing improved basic skills by adults in adult education and literacy programs across the nation.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

The types of negative beliefs about human abilities discussed above contribute to the marginalization of the adult education and literacy development system and the students it serves. They denigrate as apparently futile the work of those involved in the language and literacy education of youth and adults in any setting, including the military, job training, corrections, adult basic education, workplace literacy, and family literacy programs. Most sorrowfully, these types of beliefs defame the educational capacity of millions of adults who seek educational assistance in adult education and literacy programs throughout the nation. Many adults may sense these cultural beliefs and incorporate them into their own self-images and come to believe that they are not smart enough to learn much. So they may avoid adult education programs to their own detriment and the detriment of their families.

3. Statistical Data: Thirty+ Year Reading Trend Data.

The National Center for Education Statistics (NCES) has released reading trend data for the National Assessment of Educational Progress (NAEP) presenting reading scale scores for students in the schools of age 9, 13 and 17. Data are presented for the period 1971 through 2004, more than three decades. Unfortunately, the data indicate that after having spent hundreds of billions of dollars over the last three decades to improve reading skills, students nearing the end of their schooling were no more literate in 2004 than they were in earlier years.

For 9 year olds, in 1971 students at the 90th percentile scored 260, then rose gradually to 266 in 1990 and then fell to 264 in 2004. Students at the 50th percentile scored 209 in 1971, then rose to 215 in 1994, '96 and '99 and then to 221 in 2004. This modest improvement in 9 year olds does not appear to persist into 13 or 17 years of age, as indicated below. Students at the 10th percentile scored 152 in 1971, then rose to 165 in 1980 and then rose again to 169 in 2004, though the latter was not statistically greater than 25 years ago in 1980.

At age 13, in 1971 children at the 90th percentile scored 300, then increased to 309 in 1992, and then fell to 305 in 2004. Those at the 50th percentile in 1971 scored 257, then rose to 262 in 1992, and then fell to 260 in 2004. The children at the 10th percentile scored 208 in 1971, rose to 213 in 1988, and then fell to 210 in 2004.

For the older in-school teens (or young adults) aged 17 years old, in 1971 those at the 90th percentile scored 342, then rose to 343 in 1990, '92, and '94, and then dropped to 338 in 2004. Those at the 50th percentile scored 288 in 1971, rose to 293 in 1992, and then fell to 287 in 2004. The least able readers, those at the 10th percentile, scored 225 in 1971, rose to 241 in 1988, and then fell to 227 in 2004.

What this shows, then, is that as children go up through primary, elementary, and secondary school, they get better at reading across the percentile spectrum. But the bottom ten percent of 17 year olds scored below the median for 13 year olds, and were just 6 scale score points above the median for 9 year olds. These poorly scoring students will no doubt be those who will later discover the real life importance of literacy and will enter into adult basic education to try to gain skills needed to support themselves and their families.

The data for some three decades do not show great increases in reading achievement for 9, 13, or 17 year olds at various percentile ranks. For the most part, whether at the 90th percentile, the middle 50th percentile, or the bottom, the 10th percentile, student achievement has fluctuated a bit from assessment to assessment, but on balance does not

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

seem to have made much, if any improvement, and certainly not improvement that would have any significant practical consequences.

Today, as in the past, tens of billions of dollars are being spent in special programs to raise the literacy skills of children, while at the same time expenditures for adult literacy education have been and still are trivial – in fiscal year 2005 less than \$220 federal dollars per adult enrollee in the federal adult education and literacy program. This goes on despite the fact that for the last 30 years the K-12 system has been graduating millions of young adults below the 20th and 10th percentiles of reading as measured by the NAEP, and there is little evidence that by continuing with the present approaches this can or will be turned around anytime soon. A new approach seems to be called for.

4. Statistical Data: Parent's Education and Children's Literacy Skills

The National Center for Education Statistics (NCES) reading trend data described above also presented reading scores for students aged 13 and 17 as a function of their parent's education levels. The data show that as parent's education level increases their children's literacy achievement increases. For instance, for 13 year olds in 1980, as their parent's education levels increased from less than high school, to graduated from high school, to some education after high school, to graduated from college, reading scores of the children increased as 239, 253, 268, and 273, respectively. Twenty-four years later in 2004, reading scores for these same groups were 240, 251, 264, 270. In the years in between 1980 and 2004, in 1984, 1988, 1990, 1992, 1994, 1996, and 1999, there was also a consistent increase in children's reading scores as their parent's education increased. Findings for 17 year olds were similar, though scores for the 17 year olds were higher than those for 13 year olds.

Data reported by the National Assessment of Educational Progress (NAEP) in 1972 showed relationships between parent's education and the reading skills of their children aged 9, 13, and 17 years old as well as young adults 25-35 years old. In the NAEP survey, children and adults were tested on 8 different reading "themes" or skill areas, ranging from word meanings (vocabulary knowledge), finding the main idea, to critical reading. Results showed that regardless of the type of reading skill assessed, and at all ages, as parent's education increased, reading proficiency increased (see data on page 128 in Sticht & Armstrong 1994).

Sticht & Armstrong (1994) present data for the foregoing NAEP survey as well as data showing relationships of mother's education level and their adult children's performance on the young adult literacy survey of 1985 (p. 131) and the Armed Forces Qualification Test (AFQT) (p. 130). Data for both the NAEP and AFQT tests are also presented for Whites, Hispanics, and African-Americans. In all cases, the greater the mother's education the better their adult children performed on these different tests.

Data showing relationships among parent's education level and the performance of young (16-25) adults in seven nations on the International Adult Literacy Survey (IALS) are presented by Statistics Canada in a report by Willms (1999). In all of the nations, as parent's education level increased, so did the scores of their adult children (p. 35). Apparently, the intergenerational effects of parent's education on the literacy achievement of their children is a global effect.

5. Statistical Data: Parent's Literacy and Children's Literacy

Not only are parent's education levels related to their children's literacy levels, as indicated above, additional data from the United Kingdom's Institute of Education show that as parent's measured literacy goes up, not just their years of education, so does the literacy of their children. Bynner & Parsons (2006) summarize data in which adult's literacy skills were assessed using items from the United Kingdom's Skills for Life functional literacy test. This test grades adult's literacy from very low using three Entry Levels (EL 1 (lowest), EL 2, and EL3) and moderately high (Level 2 and above). The adult's preschool and primary school children's literacy skills were also assessed using age-appropriate assessments of vocabulary, spelling, and word reading.

The results showed that for adults whose literacy skills were low, Entry Level 2 or below, their preschool children were 3.5 times as likely to be in the bottom 20 percent of children on a vocabulary test as were children of parents at Level 2 literacy. Their primary school children were 3.0 times as likely to be in the bottom 20 percent of children as were the children of parent's with Level 2 literacy. The children of parents with the lowest literacy skills were over 1.5 times as likely to be in the bottom 20 percent of children on the word reading test as were the children of parents with level 2 literacy skills.

Taking cognizance of these intergenerational relationships among the literacy achievements of adults and their children, Bynner & Parson note that the United Kingdom's adult literacy initiative faces "the challenge of not only benefiting adults in their own lives, but also the lives of their children."

6. Parent Education and the Efficacy of Preschool Education

New research evidence indicates that adult education is a key factor in the success of preschool education and that arguments for expanding early childhood education are to a large extent actually arguments for increasing investments in early adulthood education. For instance, in a report for the Economic Policy Institute of Washington, DC, Lynch (2004) provides an analysis of several early childhood development (ECD) programs and concludes that they produce a considerable benefit to cost ratio. He states, "Investments in high-quality ECD programs consistently generate benefit-cost ratios exceeding 3-to-1—or more than a \$3 return for every \$1 invested—well above the 1-to-1 ratio needed to justify such investments. (p. vii).

Importantly, on this same page Lynch states that many of these ECD programs "also provide adult education and parenting classes for the parents of young children." (p vii). This suggests that perhaps a significant percentage of the benefits that ECD programs produce might result from the effects of what might be called early adulthood development (EAD) activities. Following are some extracts taken directly from Lynch's report that suggest how adult education of the children's parents, even if this is only indirect education through participation with the program operators, may be important in influencing the long term benefit-cost ratios that Lynch describes.

Perry Preschool Project (Ypsilanti, Michigan, 1962-1967): "Description: One hundred and twenty-three African American children with low IQs (in the 70 to 85 range) and from families with low socioeconomic status were randomly assigned to one of two groups: one enrolled in a pre-school program and one not. Those enrolled in preschool attended for two school years at ages three and four. Services included daily 2.5-hour classes and weekly 1.5-hour home visits with mother and child. Evaluations of the

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

children were performed annually until the children reached age 11, and then again at ages 14, 15, 19, and 27. A forthcoming analysis will follow the children through age 41." (p. 24)

"The economic benefits of the Perry Preschool Project were probably under-estimated. For example, given that the preschool program was a form of childcare, some of the mothers of program participants were probably able to increase their employment and earnings relative to what they would have been without the program, and thus they probably also increased their tax contributions and decreased their welfare consumption." (p. 26)

The Prenatal/Early Infancy Project (Elmira, New York, 1978-1982): "Four hundred first-time mothers were enrolled in the program before their 30th week of pregnancy. The women enrolled in the program were overwhelmingly at high risk of poor child and family outcomes: 85% were under age 19 and/or unmarried and/or of low socioeconomic status. The women were randomly assigned to one of two intervention groups or one of two control groups." (p. 26)

"Intervention group mothers in the high-risk sample spent fewer months on welfare (60.4 versus 90.3) and received food stamps for less time (46.7 months versus 83.5 months) than did the high-risk control group mothers. By the time the children were 15, intervention group mothers in the high-risk sample were much less subject to arrest (18% versus 58%), conviction (6% versus 28%), and incarceration than were the mothers in the high-risk control group. Intervention group mothers in the high-risk sample experienced fewer subsequent pregnancies (1.5 versus 2.2) and went a longer time between the first and second birth (68.8 months versus 37.3 months) than did the mothers in the high-risk control group. The intervention group mothers in the high-risk sample also reported many fewer episodes of impairment due to alcohol or drugs than did the high-risk control group mothers." (p. 27)

The Abecedarian Early Childhood Intervention (North Carolina, 1972-1985): "At age five all the children were reassigned to either a special intervention program through age eight or a control group. The intervention program involved having parents engage in specific supplemental education activities for the children in their homes. The parents were provided with educational material and training, with which to engage their children, roughly every two weeks. Data were collected at ages three, five, eight, 12, 15, and 21." (p. 28)

"When the preschoolers were approximately four and a half years old, data were collected on the mothers who were under age 18 at the time they gave birth. These young mothers were more likely to have graduated from high school, attained post high school education, been employed, and been self-supporting than were the young mothers in the control group. On average, these young mothers had more education (11.9 years versus 10.3 years) than did the control group's mothers. Moreover, only 23% of these young mothers had an additional birth compared to 40% of control group mothers." (p. 30)

The Chicago Child-Parent Center Program (Chicago, Illinois, 1967 to present): "Parental involvement with the schools was much higher among the parents of center children than it was for the parents of non-center children. By ages 20 and 22, the high school graduation rates for center children were 50% and 65% compared to just 39% and 54% for non-center children." (pp. 31-32)

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

Early Head Start: "Early Head Start is an extension of the Head Start program that targets low-income pregnant women and families with infants and toddlers. It serves over 60,000 children from birth to age three in some 700 programs nationwide." (p.32)

"A carefully controlled, randomized assessment of the Early Head Start program is in progress but has not yet been completed. However, preliminary results have been reported. By age three, children in Early Head Start performed significantly better than control groups on cognitive, language, and social-emotional development indicators. Their parents were more emotionally supportive, used less punitive parenting, provided more stimulating home environments, and read more to their children. The parents were also more likely to participate in education and job training and less likely to have another child during the two years after enrollment in Early Head Start than were control group parents." (p.34)

Additional research reported by Morrison, Bachman, & Connor (2005) supports the idea that the major factor of importance in early childhood education may be adult education. Following their examination of a wide range of research on early childhood education, they questioned the effectiveness of both childcare and preschool programs that do not focus on improving parenting skills. Concerning childcare, they say, "Overall, parenting appears to be a more important source of influence on children's development than is childcare. ... the contribution of parenting was about three to four times greater than that of early childcare. ... high-quality childcare will not offset the negative effect of poor parenting, and poor-quality childcare will not prevent success for children with effective parents." (pp. 48,49).

The effects of high quality parenting on children's socio-emotional development has received additional affirmation in an interview with Nobel Prize economist James J. Heckman in June of 2005 by the Minneapolis branch of the Federal Reserve Bank. He was asked about making the case for early childhood education as an economic development strategy.

In his response, Heckman downplayed the effects of early childhood education on cognitive skills, and instead stated, "Enriched early intervention programs targeted to disadvantaged children have had their biggest effect on noncognitive skills: motivation, self-control and time preference. We know that there's a scientific basis for this finding. The prefrontal cortex, which is a center of these noncognitive skills, matures late. The executive function, the very definition of ourselves as people, the way we motivate ourselves, these things are malleable until quite late stages—into the 20s, according to research by neuroscientists. This means that in principle we can modify these behaviors. Noncognitive skills are powerfully predictive of a number of socioeconomic measures (crime, teenage pregnancy, education and the like..."

The fact that Heckman points to the importance of noncognitive skills as important outcomes of early childhood education, such as increasing children's motivation for and interest in education, is also suggestive of the importance of adult education in contributing to the cost-benefits of early childhood education. Numerous studies of adult basic education have found that noncognitive factors are among the major outcomes of adult basic education. Almost universally, studies of adult basic education outcomes report that adults feel better about themselves, they overcome learned helplessness, they feel more motivated to succeed in life, and, importantly, these positive noncognitive skills often modify adults' behaviors with their children.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

In summary, it now seems likely that much of what is attributed to early childhood education programs in producing high benefit-to-cost results for children, might actually be resulting in some significant part from the educational or motivational effects that such programs have on the adult parents or parents-to-be of the children who are enrolled in the programs. If that is so, then these studies of early childhood education may also be taken as studies of early adulthood education, and suggest the need for a much greater investment in the education of disadvantaged young adults who are of child conceiving, bearing, and rearing ages.

7. The Intergenerational Transfer of Literacy in Adult Literacy Education Programs

In this section research is presented on the transfer of motivation, self-efficacy, and literacy from parents to children. Data from vocational literacy, family literacy and workplace literacy studies reveal that adult literacy education can affect the literacy education of the adult's children or grandchildren, even when no parenting education is presented.

Correlations of parent's education or literacy levels with their children's literacy skills do not necessarily mean that if adults are provided with literacy education, that will have an effect on the literacy skills of their children. Further, while the long term effects of preschool education may, as indicated above, reflect the effects of the new learning by the participating children's parents, that is not the same as indicating that adult literacy education per se may have effects on the adult's children.

Vocational Literacy: In research by the Wider Opportunities for Women (WOW) in Washington, DC the researchers (Van Fossen & Sticht, 1991) studied the effects of women's participation in basic skills training on (1) their behavior toward their children, (2) their interactions with teachers and participation in school activities, and (3) their children's behavior in school. In the programs in the WOW research, there was no parenting education, just basic skills education, in some cases embedded in vocational education.

In the WOW research, mothers reported that, as a result of their participation in the basic skills programs they spent more time with their children talking about school, helping with homework, reading with their children and other activities. They also reported that they spent more time going to and helping with school activities and they talked more with teachers about their children's education (all improvements were statistically reliable). The WOW mothers also reported that their children liked and attended school more, and they had showed improvements in their school grades, test scores, and reading.

Following are examples of observations by WOW interviewers who went to the mothers' homes to find out if there were indicators beyond the self-reports of the women that participating in the program had some effects on the women's children. As indicated, the home observers found that children reported changed attitudes about the value of education, and that their mothers helped them with their homework and read to them more:

Talk to child about school: "The kids say they had definitely seen a big change in their mother...she is happier and likes learning and studying with them. She "constantly" tells them how important it is to stay in school and get a good education, so they won't live like she had to." (WOW Case C) (transfer of motivation for education)

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

Read with child: LD's son was glad his mother was going to school because "...she read him and his sisters stories and showed him words in the books." (MCA Case A) (Transfer of literacy).

Help child with homework: "The second-grader said, "I do my homework just like mommy" ...and thrust his homework into the interviewer's hand." (NEW Case C) (Transfer of motivation and self-efficacy).

Take child to library: The mother states she "frequently goes to the Goodwill to purchase used books. I saw a nice collection of nursery rhymes, CAREBEARS, and other primary books in the small apartment." (WOW Case B) (Transfer of literacy).

Notice that these changes in mothers' behaviors with their children are similar to the changes that occur in preschool programs which provide parenting education. Only in this case there was no preschool involved and no parenting education was presented. Simply participating in the adult basic skills program served to change the parents' behaviors which are clearly transferring motivation for education from the mothers to their children, stimulating children's self-efficacy by showing them they can do their homework and they can engage in emergent reading practices,

Family Literacy: In research from the National Center for Family Literacy (1994) an instrument for having adults in family literacy programs was used to rate the same changes in behaviors toward their children as used in the WOW research. As with the WOW project, Family Literacy parents reported statistically significant gains in their parenting behaviors such as talking more with their children's teachers, reading more with their children, etc., and in this case the gains were somewhat larger than in the WOW research. This is consistent with the fact that the family literacy programs taught these kinds of parenting behaviors while the WOW programs did not.

Workplace Literacy Studies: In the last two decades a body of research has emerged on workplace literacy programs in which English, reading and mathematics skills have been taught integrated with job knowledge. The general results of this body of research is that such programs may contribute not only to improving adult's job-related literacy and numeracy skills, but also to improved productivity on the job, increased reading to children at home, thereby better preparing them for and helping them in school, increased use of language and literacy skills in the community, and the decision to pursue further education.

In one study (Sticht,1994) ten manufacturing companies in the area of Chicago, making products ranging from hydraulic valves to bubble gum, provided basic English language, reading and mathematics education for over 700 employees. In evaluation studies conducted in six of the companies, many supervisors reported that the programs had a variety of positive effects on organizational effectiveness, including increased productivity, employees became easier to train, their job performance, safety, and communication improved, many became more promotable, and a third of them said their companies would continue the programs.

Responses to interviews from 22 employees in four companies clearly indicated that the workplace literacy programs were not viewed as entirely restricted to helping the employees at work. Summed over the four companies, more than half thought that the programs not only helped them at work, but also at home. Some 40% thought the programs had helped them in their communities. Importantly, while 12 of the 22 respondents had no children or grandchildren to whom to read, of the remaining 10

employees, 40% said that due to the workplace literacy program they now read more to their children or grandchildren. Again, though the numbers are small, we see that an adult literacy program with no parenting component nonetheless had effects leading to activities conducive to the intergenerational transfer of literacy from parents or grandparents to their children or grandchildren. This is an outcome generally sought in preschool education programs that include education of parents.

8. The Intergenerational Transfer of Literacy From Parents to Their Children

One of the major factors in the development of children's higher levels of literacy is the "oracy-to-literacy transfer effect." In this effect, parents transfer their knowledge of and use of oral language (oracy) to their children. Then, in the typical case, when children learn to read and write they learn to recognize (read) and express (write) in the written language (literacy) what they could previously recognize (listening comprehension) and express (speech) in the oral language. In this scheme, better educated, more highly literate parents will possess higher levels of oral language. They then transfer their oral language skills to their children, and then the children transfer their oral language ability (oracy) to their written language ability (literacy).

What this means is that more highly literate adults will have children with higher levels of oracy who will in turn tend to become children with high levels of literacy once they get beyond the initial stages of learning to decode the written language. An extensive review of research on the relationships of oracy to literacy (Sticht & James, 1984) indicates that as children entered the K-12 system, the correlation between listening comprehension and reading was small, because few children knew how to decode the written language very well so there was not much variability among children's reading. But as the school years passed, the correlations between listening and reading increased, indicating that children with higher levels of listening comprehension were becoming those with higher levels of reading comprehension and those low in listening were becoming those low in reading.

But how do children acquire high levels of oracy before they enter the K-12 system? The most extensive research in this area was reported by Hart & Risley (1995). They tracked the acquisition of oral vocabulary of 42 children in the homes of welfare, working class, and professional families for two and a half years. What they found was that there were extraordinary differences in the amount of oral language spoken to the children by their parents in these three categories of families. Based on their in-home observations, Hart & Risley estimated that from birth to 4 years of age welfare children would experience some 15 million words, working class children around 30 million words, and children of professional parents would experience some 45 million words!

On tests of vocabulary growth at age three, the professional, working class, and welfare children ranked highest, middle, and lowest on vocabulary knowledge, respectively. For 29 children from the three types of families, follow-up data showed that measures of oral language skills at age 3 years were highly correlated with measures of vocabulary and reading comprehension six years later when the children were in the third grade of school. This supports the validity of the oracy-to-literacy transfer effect as a major mechanism for the intergenerational transfer of literacy via oracy from parents to their children. That is, as stated above, parents transfer their oracy to their children, and the children then transfer their acquired oracy to their literacy.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

9. Multiple Returns to Education in Adult Literacy Education

Studies cited above show the kinds of "multiplier effects" that adult literacy education can often have on health, community activities, and productivity at work (Sticht, 1994) and on children's attitudes toward education and their achievement in school (Van Fossen & Sticht, 1991). Such studies indicate that we can get "double duty dollars" for investments in adult literacy education. This means that, while we pay for just the literacy education, we actually get returns on our investment in other aspects of adult learner's lives.

The "multiplier effects" of adult literacy education were formally stated by Adiseshiah (1975) at an International Symposium for Literacy in Persepolis, Iran where he delivered a paper entitled "Functionalities of Literacy". As an economist, Adiseshiah argued that the "functionality of literacy" is a relationship between an independent variable, in this case literacy, and various dependent variables. In general, and stated as an equation, which is in the tradition of economists' reasoning, some important Outcome = a function of Literacy; that is, $O=f(L)$.

In his paper Adiseshiah went on to discuss at length literacy's functionality to work, gender, age, individual and social values, and the fight for social justice. Later, as President of UNESCO's International Jury for Literacy Prizes he exerted influence on the work of the Jury, on which I served for some 25 years. It became a common practice from 1979 for the Jury in reviewing candidatures for literacy prizes to look for evidence that literacy was not taught in some abstract sense but rather in the functional contexts that adults could relate to and use. Attention was taken to notice if application documents referred to some of the multiplier effects that were achieved in the programs. In this regard, it was considered especially important to look for examples of how the programs had approached the functionality of gender, specifically the inclusion of women and their concerns.

My examination of over 600 hundred applications for UNESCO literacy prizes awarded over 25 years revealed that, consistent with Adiseshiah's concept of the functionalities of literacy, governments can expect multiple returns on investments in adult literacy education in at least five areas:

1. Improved productivity at work, at home, and in the community leading to higher tax bases for communities, decreased violence at home and in the community, and greater participation in citizenship activities by a larger segment of the adult population.
2. Improved self confidence and other psychological and physiological aspects of health of adults, including activities that will help the brain grow throughout adulthood and contribute to reduced medical costs for adults as they age.
3. Improved health of adult's children due to learning in adult education programs leading to better prenatal and postnatal care, reductions in low birth rate infants, and better home medical care, thereby contributing to lowered medical costs for children and fewer learning problems in school.
4. Improved social justice from providing literacy education for marginalized populations to permit them to acquire skills and knowledge needed to take political action that allows them to achieve their civil rights and to overcome social exclusion and join in the mainstream of society.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

5. Improved productivity in the schools by providing adults with the knowledge they need to better prepare their children to enter school, help them achieve in school, encourage them to stay in school and increase their opportunities to enroll in higher education.

Toward a Multiple Life Cycles Education Policy

Item number 5, above, leads us back to the major thesis of this paper: investments in adult literacy education can lead to intergenerational effects on the educational achievement of children. Recently, Feinstein, Duckworth, & Sabates (2004) of the London-based Center for Research on the Wider Benefits of Learning published a research study which supports the Multiple Life Cycles policy. In their report they state that: "The intergenerational transmission of educational success is a key driver of the persistence of social class differences and a barrier to equality of opportunity. ...Parenting skills in terms of warmth, discipline and educational behaviours are all major factors in the formation of school success. ...We conclude that the intergenerational transmission of educational success is a key element in equality of opportunity."

This intergenerational "Multiple Life Cycles" policy perspective has been expressed by a former UNESCO International Literacy Prize Jurist, Rosa Maria Torres (2003), in an online internet article. In this article she maintains, "Adult Basic Education and Learning (ABLE) cannot continue to be viewed in isolation, as a separate educational goal ... but rather as part of the overall education, training and learning system and policy at national and international level. ...To educate children, it is essential to educate adults, not only (illiterate, poor) parents and caregivers (including teachers) but adults in general. ...it is adults and the adult society who make the critical decisions that affect children's well-being and development, at home, at school.... This is the importance of educating adults, for their own sake and for the sake of children, for the present and for future generations. ...In fact, as we have argued elsewhere... the children's right to education should include the right to educated parents."

The idea that parents need to be literate and that through the intergenerational transfer of skills and attitudes the parent's education can influence the subsequent educational achievement of their children, is a foundational belief of contemporary family literacy programs. It is also consistent with the views of those, like Torres, above, who are calling for a Multiple Life Cycles policy for education that argues for equal educational opportunities for children and adults.

Multiple Life Cycles Education and Sustainable Development

At the present time we are in the United Nation's Decade for Sustainable Development, which the World Commission on Environment and Development (1987) defines as "Development that meets the needs of the present without comprising the ability of future generations to meet their own needs."

However, illiterate or poorly literate adults generally cannot meet their own needs for literacy and, because they cannot engage to a significant degree in the intergenerational transfer of literacy, they compromise the ability of future generations to meet their own needs for literacy. For this reason, sustainable development in literacy education should include adult literacy education within a policy and practice framework that recognizes and promotes the intergenerational transfer of literacy from adults to children, i.e., a Multiple Life Cycles education policy.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

References

Adishesiah, M. S. (1976). Functionalities of Literacy. In: Leon Bataille (Ed.), A turning point for literacy: Adult education for development: The spirit and declaration of Persepolis. Proceedings of the International Symposium for Literacy, Persepolis, Iran 3 to 8 September 1975. New York: Pergamon Press.

Bruer, J. (1998, November). Let's put brain science on the back burner. NASSP Bulletin, 82, 9-19.

Bruer, J. (1999). The myth of the first three years. New York: The Free Press.

John Bynner & Samantha Parsons (2006). From generation to generation. In REFLECT Magazine for October 2006 p. 22, online at www.nrdc.org.uk.

Danzig, R. (1980). U. S. Senate testimony. Washington, DC: Congressional Record (p. 1298).

Feinstein, Duckworth, & Sabates (2004, May). A model of the inter-generational transmission of educational success. London: Center for Research on the Wider Benefits of Learning

Hart, B. & Risley, T. (1995). Meaningful differences in the everyday experience of young American children. London: Paul H. Brookes.

Heckman, J.(2005, June). Interview by the Minneapolis branch of the Federal Reserve Bank (available online by searching Google).

Herrnstein, R. & Murray, C. (1994). The bell curve: intelligence and class structure in American life. New York: The Free Press.

Lynch, R. G. (2004). Exceptional returns: economic, fiscal, and social benefits of investment in early childhood development. Washington, DC: Economic Policy Institute (<http://www.epinet.org>).

Morrison, F., Bachman, H, & Connor, C. (2005). Improving literacy in America. New Haven, CT: Yale University Press.

National Center for Family Literacy (1994). The power of family literacy. Louisville, KY.

Sticht, T. (1994, May). Workplace literacy programs for ten manufacturing companies near Chicago, Illinois. El Cajon, CA: Applied Behavioral & Cognitive Sciences, Inc.

Sticht, T., Armstrong, W., Hickey, D., & Caylor, J. (1987). Cast-off youth: policy and training methods from the military experience. New York: Praeger.

Sticht, T. (1992, January). How military service helped low-aptitude, economically disadvantaged young men of the mid-1960s escape poverty. San Diego: Applied Behavioral & Cognitive Sciences, Inc.

This is a paper prepared for presentation at the National Center for Family Literacy Annual Conference March 4th, 2007 in Orlando, Florida.

Sticht, T. & James, J. (1984). Listening and reading. In P. Pearson (Ed.) Handbook of research on reading. New York: Longmans.

Sticht, T. & Armstrong, W. (1994, February). Adult literacy in the United States: A compendium of quantitative data and interpretive comments. Washington, DC: National Institute for Education. Available online at www.nald.ca in the NALD electronic library.

Torres, R. M. (2003). The fundamental linkages between child, youth and adult learning and education. http://www.iiz.dvv.de/englisch/Publikationen/Supplements/60_2003/eng_someconclusionsandelements.htm

Van Fossen, S. & Sticht, T. (1991, July). Teach the mother and reach the child: results of the intergenerational literacy action research project of Wider Opportunities for Women. Washington, DC: Wider Opportunities for Women.

Wilms, J. (1999, September). Inequalities in literacy skills among youth in Canada and the United States. Statistics Canada

World Commission on Environment and Development (1987). Our Common Future. Oxford: Oxford University Press.
<http://www.worldbank.org/depweb/english/sd.html>

Thomas G. Sticht
International Consultant in Adult Education
2062 Valley View Blvd.
El Cajon, CA 92019-2059
Tel/fax: (619) 444-9133
Email: tsticht@aznet.net