

# Edward Donley: Quality preschool education critical for U.S. to compete in world

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In my time with Air Products from the early 1940s until 1991, it grew from a small company with about 10 employees to today's worldwide corporation.

Success always depended on the educational level of the people in managerial, science, and technical roles. However, as we developed enterprises around the world, we saw other countries exceeding the United States in the number of people educated in science and technology.

Especially today, as the research and engineering demands of the workplace grow more complex, the American educational system needs to change. One of the most powerful tools for driving that change is high-quality early childhood education.

Before children enter kindergarten, science tells us, the brain grows rapidly and forms networks that build the foundation for learning and social skills. By age 5, children's brains reach 85 percent of adult weight, developing 700 neural synapses – the connections that facilitate learning -- every second. Differences in learning appear as early as age 3, when the children of parents receiving public assistance have vocabularies of about 500 words, compared to 700 words for children in working-class families and 1,100 words for children of college-educated parents.

Decades of research show that disadvantaged children who receive high-quality early childhood education are more likely to succeed in school, graduate from high school, go to college or pursue career training, obtain good jobs, and become productive, contributing members of society.

By comparison, disadvantaged children who don't receive quality early learning enter school 12 to 18 months developmentally behind their peers. Of 50 children who have trouble reading in first grade, 44 will still have trouble by fourth grade, and if they're well below grade level in reading by fourth grade, they might never graduate from high school. They are more likely to abuse alcohol and drugs, require public assistance, and get involved in the criminal justice system.

Economic hardship is a key measure of school-failure risk. Among children under age 5, 62 percent in Lehigh County and 40 percent in Northampton County live in economically at-risk families, according to the Pennsylvania Office of Child Development and Early Learning. We also know that 40 percent of Lehigh County children under 5, and 33 percent in Northampton County, are not participating in publicly funded quality early learning programs.

Today, one-third of U.S. students who enter ninth grade do not graduate with a regular diploma four years later, reports the Education Testing Service, limiting their prospects to master the higher-order analysis and application of information demanded in the 21<sup>st</sup>-century economy. Globally, we are 15<sup>th</sup> in reading, 17<sup>th</sup> in science, and 25<sup>th</sup> in math, according to the Organization for Economic Cooperation and Development.

[http://articles.mcall.com/2013-06-22/opinion/mc-stem-education-donley-yv--20130622\\_1\\_childhood-education-edward-donley-children](http://articles.mcall.com/2013-06-22/opinion/mc-stem-education-donley-yv--20130622_1_childhood-education-edward-donley-children)

Our nation must change to meet what the rest of the industrialized world is achieving. Emerging research shows that quality early childhood education cultivates young children's innate curiosity, and that early exposure to math concepts is a strong predictor of later abilities in math and other subjects. These are the very capabilities that employers in the STEM fields of science, technology, engineering, and mathematics demand. STEM jobs are expected to grow by 17 percent in the next 10 years, and yet, the U.S. Department of Commerce predicts a shortage of qualified people to fill those posts.

The gaps in STEM skills, learning capabilities, and access to quality early childhood education programs will create a drag on the economy for which there will be no easy solutions. We can avert these gaps with investments in developing the workforce from the earliest years, when our dollars yield the strongest return on investment. This issue has broad support from the business community not only in Pennsylvania but across the country. Nationally, the federal government is proposing a major investment to assure high-quality early learning for every at-risk 4-year-old – those living at or below 200 percent of the poverty level. I am also pleased to join more than 200 business leaders nationwide in signing an open letter from ReadyNation in support of public investments in early childhood.

At the state level, I applaud and support Gov. Corbett's proposed investment in early childhood education and agree that more children at risk of failing school should have the opportunity to be served through high-quality early learning programs.

By investing in high-quality early childhood education, we assure that our children will build the foundations for lifetimes of learning, contributing to our communities and leading our businesses to new heights in innovation and global competitiveness.

*Edward Donley, former chairman of Air Products & Chemicals, has been involved in many local, state and national efforts to promote education.*