

BUILDING THE DEFENSE INDUSTRY'S WORKFORCE OF THE FUTURE Through High-Quality Early Learning

The ability of the nation's defense industry to keep our country secure rests on the caliber of its workforce – especially workers who:

- Are well-prepared in terms of their core academic knowledge and executive functioning skills such as persistence, problem-solving, collaboration and creativity.
- Specialize in science, technology, engineering, and math (STEM) disciplines - at all levels, from entry-level lab technicians to Ph.D. scientists.
- Can obtain security clearances, which generally require a U.S. birthplace. This latter requirement means that, unlike many other sectors, the defense industry cannot rely on meeting its needs through importing skilled workers from other countries.

Yet our nation is not on track to deliver the skilled workforce that this – and other – industries need. More than 70 percent of young adults do not qualify to serve in the U.S. military – for reasons such as lack of a high school degree, or a criminal background that would often disqualify them from defense industry careers as well. The lack of STEM-qualified workers is especially acute. Even though 94 percent of STEM jobs will require post secondary education by 2020, only 60 percent of working age adults currently have that level of education. In a survey of corporate recruiters, only about half said they can find enough qualified job candidates with STEM degrees in a timely manner (55 percent for two-year and 50 percent for four-year degrees).

“Through strategic investments of time and resources, the goal is to inspire and prepare children with the skills necessary to be successful in the 21st century – that starts with quality early learning opportunities.”

- Shelley Lavender, President, Boeing Military Aircraft

Boeing Military Aircraft employs more than 21,000 people throughout the United States and around the world. The business includes tactical, tanker and airlift aircraft, weapons, surveillance and engagement programs, and unmanned airborne systems programs.



While most industry efforts to build a skilled workforce, including STEM careers, address older students, a comprehensive solution requires starting much earlier in life. **High-quality early childhood education lays the foundation for a future workforce that has the STEM skills and other qualities the defense industry needs.** For this reason, companies need to support efforts to help children start on the path to success well before they enter kindergarten.

The first five years of life are a unique period of brain growth, when it develops 700 synapses – the neural connections that support later learning and behaviors – every second. This pace of development is never replicated. Because this early stage is so critical, the learning gap between advantaged and disadvantaged children shows up as early as nine months old. Children can be

18 months behind by the time they enter kindergarten, with significant gaps for both math and reading. Children who are not kindergarten-ready are less likely to read well by grade three, and those children are less likely to graduate, making it almost impossible to have a fully productive career.

Preschool children are natural born scientists and engineers.



Research demonstrates that high-quality early childhood education – which by definition contains early math and science instruction – can address all of the workforce characteristics described above. It specifically addresses math achievement – as *Science* magazine concludes, “Preschool children’s knowledge of mathematics predicts their later school success into elementary and even high school. Further, it predicts later reading achievement even better than early reading skills.” It also builds behavior traits – perseverance, problem-solving, patience – that help children make good choices and become productive employees, including in STEM fields. Because of these impacts, Nobel Laureate James Heckman has

Corporate Leadership

Many companies support quality early childhood education. Their future workforce depends on it. For example, Wolf Trap’s Early Childhood STEM Learning Through the Arts helps early childhood educators to engage children in active, arts-based learning experiences that support STEM. Partners in the program include **Northrop Grumman, The Boeing Company, The PNC Foundation** and **Wells Fargo Foundation**. Further information about the program can be found at <http://www.readynation.org/ready2go/Wolf-Trap-STEM>.

estimated a 10:1 return on investment for quality early education for disadvantaged students.

Math and science instruction for young children is play – but play with a purpose. Children can have fun learning early math concepts of more and less; geometric shapes; and basic scientific processes such as gathering data, hypothesis testing and reporting results in bar graphs and pie charts. Young children are naturally curious – and reaching them at this stage teaches them they can be scientists before they might incorporate any message that math is hard or science is not for them.

The bottom line is that the future of the defense industry and our nation’s national security depend on our success at ensuring our children are prepared for the rigors of college and the workforce. We must start early to put our nation’s children on the right path and lay the foundation for a highly-skilled future workforce.



Take Action

- **Join ReadyNation! There are no costs or meetings, only a willingness to consider invitations to speak out, with our support.**
- **Speak to policymakers and/or the media. We prepare remarks.**
- **Support local early education programs in your community. Visit www.ReadyNation.org/Ready2Go for ideas.**

WHO WE ARE

ReadyNation is the nation’s preeminent business leader organization working to strengthen business through better policies for children and youth. It operates under the umbrella of the non-profit Council for A Strong America. Our more than 1,100 members educate policymakers and the public about effective investments that will help business compete in today’s global marketplace by helping children get on the right track to succeed in school and in life. Our members have contributed to victories for children at the federal level and in dozens of states.

We invite anyone from a business or business organization to join. There are no membership fees, financial obligations, or formal meetings. Our staff support our members to take action, making the best use of their time. **Go to www.ReadyNation.org/join-us**

For full research references, visit our website.

Add your voice.

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