

BRAIN HEALTH AND BRAIN FITNESS: A NATIONAL CALL FOR ACTION

The Race to Inner Space

An Issue Brief Released by The Kennedy Forum



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EXECUTIVE SUMMARY

The Race to Inner Space

In March 2015, during the global Brain Awareness Week, the Kennedy Forum convened experts at the historic Kennedy compound in Hyannis Port, MA to explore perspectives on brain research and to discuss and debate key research findings. Representatives from the fields of neuroscience, pediatrics, psychology, mindfulness, neurocognitive behavior, education, healthcare, research, and technology gathered to explore how to effectively maximize brain health and fitness knowledge as tools towards improving the well-being of our nation. Experts agreed that focusing on early childhood human development through neuro-supportive school-based intervention models would best leverage an investment in national brain health and fitness. Considered to be the most accessible and direct route to improving academic achievement and optimal mental health in our nation's youth, evidence-based, brain-building activities, including executive function training and social and emotional learning (SEL), reinforced throughout childhood and adolescence, are positioned to play a key role in revitalizing grade school learning and American society.

In the 1960s, President Kennedy initiated the "Race to Outer Space." Today, the Kennedy Forum launches the "Race to Inner Space." Recent scientific findings show that by implementing interventions that develop children's brains in the areas of cognition, mental and emotional states, and pro-social behavior, children can increase executive function (higher order processing), inner-resilience, and overall well-being. Focusing on brain health and fitness will differentiate America and restore our nation as a global frontrunner in education outcomes, thus ensuring economic fortitude for our citizens and our country alike.

The Current Education Model is Failing

America's education system has always responded to meet the needs of its society, changing overtime to accommodate the agrarian, industrial, and now information ages. Yet, despite significant investments in updating standards, curriculum, and content delivery, in many sectors of American society the current education paradigm is failing to adequately prepare children for college and career success.

Early brain fitness interventions are critical. The Kennedy Forum believes that the US' recent poor academic performance when compared to other countries is largely due to a lack of early and optimal

childhood interventions. A report in 2013 from the Council on Foreign Relations (CFR) concurs. Rebecca Strauss, associate director for CFR's *Renewing America* publications stated, "The real scourge of the US education system, and its greatest competitive weakness, is the deep and growing achievement gap between socioeconomic groups that begins early and lasts through a student's academic career." In fact, the US currently ranks below the global OECD average on reading and science scores, and is close to last in mathematics. Asia and some European countries are far outpacing American academic achievement in a trend that has been developing for decades.

Neuroscience explains why without addressing a child's cognitive and emotional readiness to learn, even the best teaching and curricula can have surprisingly little effect. "Traditional education has been about transferring educational content, not optimizing these fundamental underlying information processing systems," states cognitive neuroscientist, Adam Gazzaley, MD, founding director of the Neuroscience Imaging Center at UC San Francisco. Brain health and fitness interventions significantly boost students' abilities to learn and engage socially by addressing the habits of mind through the neuroanatomical and neurochemical states that promote learning and self-regulation.

The Roots of Academic Underperformance

There exists an interdependent relationship between multiple causes for educational weakness in America. On the academic level, teachers and schools are underfunded, overburdened, and seeking efficient ways to move large classes through required learning and pass standardized tests to retain funding, often at the cost of reaching minimum guidelines but failing to effectively educate students. In terms of environmental factors, as Strauss stated, our current education system has not adequately addressed America's income-related achievement gap. Currently, 44 percent of American children live in low-income families, 22 percent in poverty, and 69 percent of children living with single parents are low-income. Additionally, almost half of America's children have been exposed to Adverse Childhood Experiences (ACEs) – including divorce, substance abuse by an adult, violence, economic hardship and ethnic discrimination – which significantly impact the neurology of children, affect their ability to learn, ability to integrate into social environment, and ability to self-regulate and respond appropriately to varied conditions in the school environment. These children lack the neuro skills to maintain focused attention, manage interpersonal relationships and conflict effectively, engage with authority properly, have low intrinsic motivation for learning, and are often missing other skills required for academic and social success. The fact is that despite No Child Left Behind and other standards designed to equalize

educational opportunity across America, almost half of our children are predisposed by environmental conditions (poverty and ACEs) to not benefit from federal education requirements as they currently manifest in public school curricula.

Brain Fitness is the Key

What neuroscience has shown is that brain fitness interventions have the power to interrupt and ameliorate some of the underlying neurological conditions in children caused by environmental stressors that thwart learning. We have always responded to the needs of our children and our country with our best wisdom and to the best of our ability. We know today that without interventions that directly address a child's ability to learn and function in society, our current academic paradigm and process will continue to be ineffective. In fact, it's plausible to consider that many of the current adverse and economic conditions that almost half of our children are exposed to are, in part, a result of the limitations that our education system had in preparing their parents to succeed.

Brain health and fitness interventions implemented across American education and throughout all socioeconomic classes will benefit all children and help close the achievement gap.

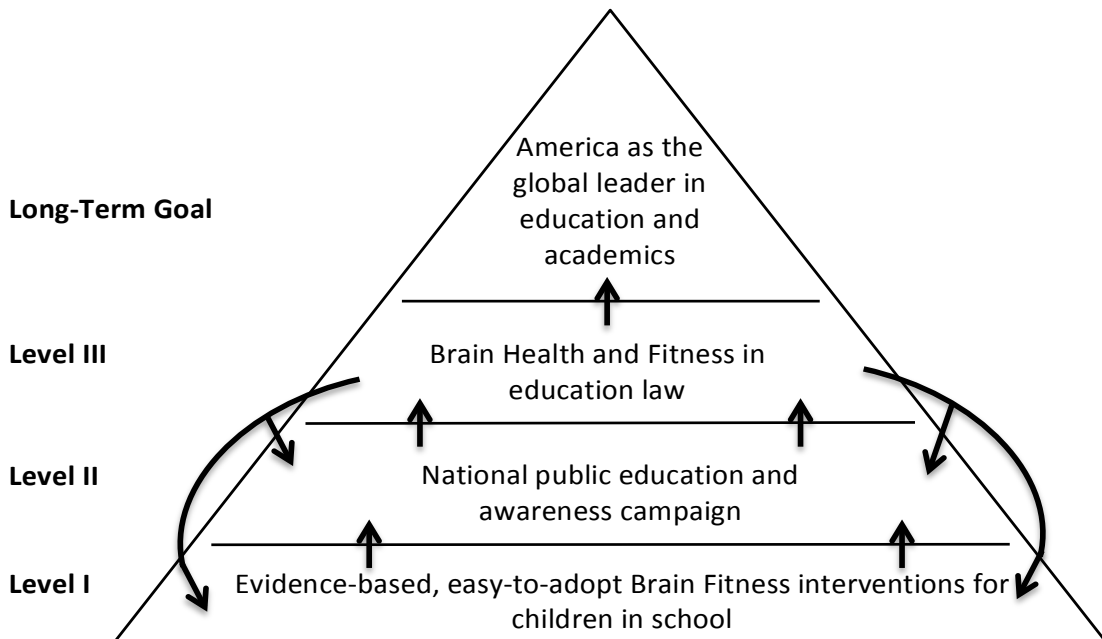
Investing in our Children's and America's Future

Now is the time for America to reinvest in education by catalyzing comprehensive brain fitness into early education, to complement and enhance existing curricula, and to provide our children with powerful tools for school and lifelong success.

However, wide-scale adoption of a brain fitness movement will have barriers and challenges. In schools today, cash-strapped districts are understandably resistant to anything that sounds like the next well-intended fix. Faculty and administration are hesitant to consider programming that might be perceived as an add-on to an already overscheduled curriculum, especially with Race To The Top dollars incentivizing standardized test outcomes that prioritize syllabi focus. Further, teachers and administrators themselves typically have little or no experience with brain fitness or brain literacy.

To address these barriers, The Kennedy Forum recommends a 3-level approach:

- I. Federal leadership in the development and dissemination of evidence-based, brain fitness interventions that address executive function and integrate SE and brain literacy through easy-to-adopt programs, tools, and resources for schools and communities.
- II. A national, brain health and fitness public awareness campaign that extends into schools, communities, research and politics.
- III. Public education policy initiatives that add brain health and fitness standards as requirements for federal education funding, as well as special funding to high-need districts for implementation and assessment.



In order to be successful in this approach, we need to be clear and strategic. We're aware of the problem of underperformance in the global arena and in the US, and we've identified co-factors of this underperformance in the areas of education, economics, society and home life. Our solutions must be effective, accessible, and on a national scale in order to affect the change we seek.

Effective Influence

Level I: Interventions

Research over the past two decades has illuminated the powerful opportunities that simple, targeted, effective brain fitness interventions offer: on a neuro-cognitive level, they shift the intrinsic dispositions, abilities and capacities of children to help them cultivate the cognitive capacity, attention and self-

regulation needed to succeed academically and in life. While still nascent, neuroscience and brain fitness interventions have enough research and pilot success to command validity and to prove impact. We know brain fitness is the most viable solution because these interventions do not discriminate. Regardless of economic status, race or background, brain fitness interventions can improve a child's academic performance and overall well-being. The Kennedy Forum proposes the following executive function and social and emotional competencies-building interventions on the basis of research and efficacy:

- **Executive Function Training** – increases and improves higher order processing; engages the prefrontal cortex in learning and decision-making.
- **Social and Emotional Learning Activities** – increases and improves self-regulation, the ability to understand and manage emotions, set goals, feel compassion and empathy, maintain attention, and create social harmony.
- **Neurofeedback** – self-reflective feedback loops that allow individuals to witness brain activity and increase and improve executive function, attention, focus and other cognitive abilities.
- **Mindfulness Training** – Allows for purposeful brain regulation that increases and improves ability to be present, maintain attention, downregulate disruptive emotions, and direct learning and social input to higher- order processing.
- **Brain Literacy** – Descriptive education about how the brain works and learns; introduces brain anatomy and physiology and empowers students and teachers with a better understanding of brain function and the opportunities brain fitness offers.

Level II: Public Awareness

Knowing the problem and understanding the solution is not enough. We also need to communicate the risks and the scope of the benefits in a clear and urgent message to all influential groups including educators, parents, industry leaders, and politicians. The Kennedy Forum proposes the launch of a public awareness and education campaign that stimulates discussion about the benefits of brain fitness and the looming risks of inaction. The risks of inaction are immense. The Kennedy Forum believes we must act now to interrupt the downtrend in global education rankings and poverty's role in the US achievement gap; the resulting economic impact from lower productivity yields in all areas of business, innovation, and academics; all-time high national incarceration rates; continued increase in mental health issues such as ADHD, depression, and anxiety along with more prescribed medication, related

dependencies and medical costs; a continued trend in teacher attrition due to overburdened curricula and proven ineffective testing system; the impact of ACEs on behavior in youth including substance abuse and bullying. The national conversation about brain fitness, as an educational imperative, should extend beyond research and higher academia, and find its way into the mainstream. From scientists to school superintendents to parents to friends to future employers, the idea that brain fitness is the missing link in American education needs to be debated and discussed in order to stimulate education and awareness about its leading role in the learning process.

Level III: Policy Change

In addition to educating the public and key influencers, the Kennedy Forum is committed to identifying and partnering with champions among our lawmakers who understand the pressing need for change in childhood education, and to giving them the tools and talking points they need to propose legislation to ensure that brain fitness becomes a part of every child's early education. To really make an impact, we suggest that brain fitness be part of federal funding guidelines, not as an added hoop for states and districts to jump through, but as a well-positioned solution to some of the current shortcomings and stressors in education. Key areas of legislation that could be amended to include brain health and fitness interventions and measures are:

- Elementary and Secondary Education Act (ESEA)
 - Title I, Part A, as amended provides financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards.
 - Title II – Preparing, Training, and Recruiting High Quality Teachers and Principals - Part A; 20 U.S.C. 6601–6641
 - Empowering Local Educational Decision-making Act of 2011 -SEC. 4105. Local Educational Agency Authorized Activities
- The Individuals with Disabilities Education Act (IDEA)
- Child Nutrition and WIC Reauthorization Act of 2004 - Section 204 of Public Law 108-265, Local Wellness Policy

Influencing policy to allocate federal dollars and require brain fitness measures and interventions is likely the strongest lever in implementing broad changes in education, and supporting our nation to

continue to thrive academically, economically, and socially.

The underlying opportunity is to stimulate a shift in the American education paradigm by adding the needed and previously missing pieces of brain health and fitness to existing academic curricula. Bringing the brain front and center in the nation's educational pedagogy holds the promise of cultivating a new generation of Americans who have the intrinsic skills and abilities needed to succeed academically, in their careers, relationships, communities and lives. The implementation of brain fitness in education will be a force multiplier to the national education investments made to date. In a grander context, the opportunity exists to meet a generational responsibility to prepare our children to succeed and flourish in the modern, diverse, changing, fast-paced, tech-dominated world we have created for them.