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The Scientific Basis for Whole Child Design

Millions of kids returned to school last fall after not having been in a classroom for well over a year. Some are very happy to be back, but others have checked out, are not engaged in learning, and don't see the purpose of school. Their world and their future feel uncertain. They report distress, sadness, anxiety, and even hopelessness. The evidence of this is in news reports every day.

The pandemic has created disruption and in disruption there are often opportunities. Today we have knowledge about how children learn and develop that we didn't have when our education system was created. What we know now could not only address the acute needs of children affected by the pandemic, but it could also unlock the talent, skills, and potential that exists in all our young people, providing what each and every student needs to thrive. Our kids cannot do what we are asking of them this year or any year without fuel - the kind of fuel that ignites engagement, motivation, and learning. Now is the time to provide the fuel young people need to reveal all that they are capable of.

Think about who is in our classrooms today and the variation that exists. We have young people who are happy, some who are anxious and disconnected, and others who are eager and ready to engage. We also have children who have experienced trauma, and who have lost loved ones to COVID-19. There are students who had not been inside a school building for a year and

a half but have learned how to cook, repair the family car, tutor their younger brother or sister, or play a jazz riff on the guitar.

So how can schools be designed to welcome the good, the great, and the challenges they see each day? And how can we ensure that they are seeing each of our young people as individuals, each with their own stories and experiences of lockdown and of the national reckoning on race? The approaches we have taken thus far to learning and schools have not fully challenged our assumptions about learning—whether it is highly variable or falls into a bell curve of intelligence – is it defined by our genes, or by the context that drives their expression, or skills – are they malleable or are they fixed, or talent – is it plentiful or is it scarce, or even human potential – what would any child be capable of under the right conditions?

If we know this to be true, should we continue to offer menus of labels and interventions or conceive of a response that supports the learning and thriving of each student? What would it mean if all the places where children are growing and learning were designed to meet each child, the whole child, where they are and help each and every one develop to their fullest potential? What might that look like?

With the knowledge we have today about human development, learning science, and the development of the brain, we have the opportunity for all children to acquire the 21st Century skills, habits, mindsets, and competencies for success in academics, preparation for competitive jobs, economic mobility, and ultimately to have the life they choose.

Education: A Different Purpose, A Different Time

Education has long been central to the promise of the United States of America. But our current education system was never designed to promote the equitable opportunities, 21st Century skills and competencies, or outcomes that our children and families deserve and that our

democracy, society, and economy now need. Our education system was designed for a different purpose at a different time.

When the U.S. education system was built early in the 20th Century, we didn't know what we know today about how the brain develops and becomes wired for learning. The system was not designed to develop most learners, not designed for every young person to thrive, nor to unlock the potential in each and every child. It was built to select and sort, to support mass education preparing students for the kinds of industrial jobs that no longer exist. Based on a factory model, education assumed students' learning could be assembled through standardized transmission of information at different stops along the assembly line (grade levels and separate class periods), and that, by creating different tracks along the assembly line for students with different "potential," students could be efficiently prepared for their very different roles in life.

Not only was the model rooted in the eugenics of the time, the idea that race and ethnicity-based differences in intelligence should guide tracking decisions, but it also minimized the importance of relationships among people and a child's capacity to develop and demonstrate their potential. The 21st Century economy demands more. The educational model we inherited doesn't serve us well economically, ethically, individually, or collectively. The harms caused by outdated structures that sort and segregate learners and leave them without access to caring adults who know them well are exacerbated by policies that implicitly encourage teacher-centered, transmission pedagogy; curricula that neglect the cultures of most groups; and punitive discipline practices that exclude students.

The designs that have made it difficult for schools to consistently create space for positive connection and relationship-building with students and families have also made it difficult to create connections between and among practitioners to support their collaboration. Because these

designs are the way many school leaders, educators, and parents have experienced school themselves, it is easy to assume that this is the way schools need to be.

A century ago, we believed that genes were the drivers of who we become, including our intelligence, and that talent was scarce and was distributed like a bell curve with most in the middle, so we built the system to select and sort. *Today we know that talent is everywhere and there are many pathways to develop it.* We believed that an average score stood for an individual. *Today we know an average rarely represents an individual.* We also believed that a factory model requiring lots of memorization was a good and efficient way of educating kids. *Today we know that agency, motivation, and engagement matter far more to developing the higher-order skills that today's jobs require.* We believed that the potential of a young person was visible in advance. *Today we know that we can't see potential unless we design the experiences to reveal it.* If we standardize the approach to building talent and skill, it will surely work for some kids but not for everyone. If a Mozart, Martin Luther King, or Malala existed in a classroom designed the way many classrooms are designed today, it is more than likely that we wouldn't know they were there.

We know we have reached the limit of what is achievable through standardized approaches to learning. So, we must conceive a response that reflects a new, bold, equitable purpose and design for education and learning settings, one that is encompassing, relationship-rich, holistic, rigorous, and profoundly engaging of students' interests and abilities. Today, we have a wonderful opportunity: we can use what we know from the science of learning and development to unlock learning pathways for every child, no matter where their journeys begin.

A Primer on Learning and Developmental Science:

One lecture in medical school forever changed the way I looked at human beings, especially children. I was taught that there are 20,000 genes in the human genome yet in our lifetimes

fewer than 10% will ever be expressed. What determines what is in that 10%? It is context. Genes are chemical followers that are triggered into expression by context: the environments, experiences, and relationships in our lives. Context determines who we become, how and what we learn, and the expression of our genes. The risks and opportunities in development and learning sit inside this one profoundly important point, that there is no separation of nature and nurture, biology and environment, or brain and behavior, only a collaboration between them.

Developmental and learning science tell a very optimistic story about what is possible. Children's brains and bodies and abilities are malleable to experience because the human brain is a dynamic living structure made up of tissue that is the most susceptible to change from experience of any tissue in the human body. The brain is also malleable over time. Most of its growth happens after we are born, so there are multiple opportunities to catch up along the way. Three important things to know about brain development: 1. The astounding malleability of the human brain; 2. Experience-dependent growth; and 3. The role of context.

Take adolescents, for example, a group that is struggling mightily today. Tremendous biological changes occur in the adolescent brain, and their ways of thinking, being, reasoning, relating, focusing, and making decisions can't happen at any other time in a child's life. These are crucial capacities that depend on this period, and they very much become the shapers of who each young person is going to become. So, if experiences are unusually confining, as they have been during the pandemic, as opposed to expansive; if they are blaming and shaming as opposed to affirming, they will have very different influences on the development, learning, and health of the emerging adolescent brain. This knowledge about brain development should spur us to put in place very different designs for learning settings and practices, together with policies that could deliver a more healthy and effective educational experience to this age group and do so at scale.

If we optimize the design of the learning setting and context, we optimize the possibility that our young people will not only catch up and recover from the effects of the past two years, but we will have made a big down payment on the learning settings we need to build for all kids to thrive. This is the opportunity we have now.

The Case for Whole Child Design

In recent years, teams of educators, youth development practitioners, and researchers have been striving to improve our outdated system. Today, there is a new vision for learning and development emerging for all children across the United States: *A world where every child's life is a succession of opportunities in which they come to know who they are and discover who they could become; a world where educators could find how best to identify each child's specific abilities, interests, and aspirations and then align these attributes with the specific contexts that best promoted the child's talents, achievements, and successes in life; a world that removed the constraints of racism, poverty, disparities, and injustices and provided children with the specific relationships and supports needed for thriving.*

Intuitively, we know that each of our journeys through life is unique. They take place through an open-ended set of experiences that happen all the time and in every space in which we grow and learn across the lifespan. A comprehensive understanding of whole-child development, learning, and thriving requires a dynamic and integrated view of the journey each young person takes. Current scientific understanding and measurement of these dynamic, individualized journeys must become the foundation for the beliefs, knowledge, and decisions of all practitioners, administrators, and policymakers working with and on behalf of children. Specifically, they must understand the learning processes, potentialities, and capabilities that can

and will emerge in students across time and across settings, especially when such settings are intentionally designed to promote whole-child development, learning, and thriving.

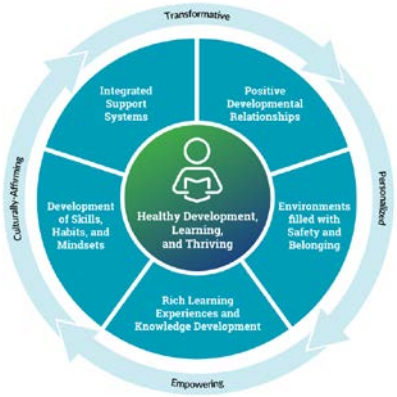
These views are based on research and were crafted to challenge the status quo of learning and education in the United States. Still, these viewpoints do not offer a complete picture of the multiple dimensions of human development, including and importantly, how children become successful learners. For example, there is no reason to choose between rigorous content knowledge in reading and math, the acquisition of crucial 21st Century skills like growth mindset, perseverance and self-direction, and student wellness. What would you leave out? Growth, development, learning, and thriving require all three.

Developmental range is the fullest expression of what each child is capable of, the child's inner potential under highly favorable conditions. Highly favorable conditions are the doorway to the development of increasingly complex skills and competencies in every student. This is the concept that has the greatest implications for the design of all learning settings and the training and preparation of adults within them. If educators just teach a math or literacy skill, for example, some children will "*learn it*." But if educators teach to the whole child, they can support all students to understand it, become curious to learn more, and be able to apply it to other problems. Students will build analytic skills and even discover parts of themselves they did not know about, such as, "*maybe I am a math person after all*."

Over the last several decades, large-scale efforts to improve opportunities to learn have focused on interventions and programs that generate only incremental change, and only for some children. And while none of us would have chosen a global pandemic, it has upended systems and assumptions in a way that could facilitate a *transformational paradigm shift.* This is what it means to teach to the whole child.

Essential Guiding Principles for Equitable Whole-Child Design

The Guiding Principles for Equitable Whole-Child Design, shown below, is a framework that aims to guide the design of effective learning settings for children and adolescents: **Positive Developmental Relationships** engage children in ways that help them define who they are, what they can become, and how and why they are important to other people. **Environments Filled with Safety and Belonging** promote engagement and learning because children feel physically, emotionally, and identify safe and their cultures culture are represented and valued in their learning community. **Rich Learning Experiences and Knowledge Development** provide the kinds of intentional, nourishing, personalized instructional experiences that fully engage and challenge students, helping them discover what they are capable of. **Development of Skills, Habits, and Mindsets** recognizes that learning is integrated (there is not a math part of the brain separate from a creative part of the brain); developing skills such as self-regulation, executive functions, growth mindset, and perseverance are an important part of mastering challenging content. Skills and content work together to produce problem-solving, collaboration, and metacognitive and analytic skills, as well as mastery-level academic competencies; and **Integrated Support Systems** have many protective factors in place, including physical and mental health, social service supports, and opportunities to extend learning beyond the school day and build on interests and passions.



Redesign around these core principles has implications for all levels of the ecosystem, from the classroom to the school, district, and larger macrosystems that must join together to produce an intentionally integrated, comprehensive developmental enterprise committed to equity of development, opportunity, and experience for all students, not just some. *Although each component is important, the critical application of these principles is to use them in reinforcing and integrated ways to truly support learners' needs, interests, talents, voices, and agency. The aim is a context for development that is greater than the sum of its parts and is transformative, personalized, empowering, and culturally affirming for each student.*

We know today that we can build many more environments that help protect children from developmental harm, including racist policies and behaviors, and promote their healthy development and success as learners. The non-negotiable elements of whole-child design will accelerate recovery from the traumas, losses, and disruptions of the COVID-19 pandemic *and* ignite brain development and learning, promote wellness, support positive identity formation, enable the acquisition of crucial knowledge, skills, and mindsets that are critical for success in learning, work, and life, and build resilience to future stresses. *We can create a system that recognizes children as whole people, values their assets, and supports them to master critical knowledge and skills and excel in myriad ways.*

Policy Pillars of Whole Child Design

Findings from the science of learning and development point the way toward a fundamentally new policy agenda, with broader pillars that go well beyond standards-based reforms to be more equitable, impactful, and unifying. We are at a critical inflection point in our national education agenda, and the COVID-19 crisis and its profound, inequitable impact create additional need and demand for a bigger change. In this next-generation agenda, we must focus on a broader set of policy pillars that can help transform our education systems to maximize the great potential in each and every child by enabling the design laid out above. This includes, for example: **1**. Setting system goals on whole-child outcomes, across an array of knowledge, skills, and dispositions critical to success in college, work, and life; **2**. Serving children seamlessly across the full age range, including early childhood, K-12, and higher education and workforce training; **3**. Aligning and integrating the learning and development "ecosystem" – in and out of school – to best serve every young person; **4**. Prioritizing efforts to build equitable learning environments with all of the elements I described above – in both school and community settings; **5**. Ensuring equitable access to education resources, to maximize the potential of each and every child; **6**. Personalizing our education systems and approaches to best serve the talents, needs, interests, and pathways of each child; **7**. Building and supporting new, continually improving adult capacity, diversity, roles, and well-being – for teachers, leaders, and other adults inside and outside of schools; **8**. Transforming systems of measurement to maximize progress and advance rich, whole child outcomes for each and every child; and **9**. Making our education system function like a learning system that uses data, evidence, stakeholder engagement, and professional judgment to support continuous improvement

In sum, the message in this testimony and in the science is so optimistic: Context shapes the expression of our genetic attributes. This is the biological truth. Schools designed using the levers of human development can become our new learning system: A system designed to see and unleash talent and potential and ensure that all young people can thrive. This vision constitutes a transformational shift in the purpose and potential of our learning systems, and a shift in the systems and laws that constrain this vision.

References

Cantor, P. (Fall, 2021). All children thriving: A new purpose for education. *The American Educator*, pp. 1-24. https://www.aft.org/ae/fall2021/cantor

Cantor, P., Lerner, R. M., Pittman, K., Chase, P. A., & Gomperts, N. (2021). *Whole-Child Development, Learning, and Thriving: A dynamic systems approach*. New York: Cambridge University Press.

Cantor, P., & Osher, D. (2021). *The Science of Learning and Development: Enhancing the lives of all young people*. New York: Routledge.

Cantor, P., Osher, D., Berg, J., Steyer, L. & Rose, T. (2019). Malleability, plasticity, and individuality: How children learn and develop in context. *Applied Developmental Science*, 23(4), 307-337.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher D. (2019) Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97-140.

Darling-Hammond, L., Hernandez, L. E., Schachner, A., Plasencia, S., Cantor, P., Theokas, C., & Tijerina, E. (2021). *Design principles for schools: Putting the Science of Learning and Development into Action*. Learning Policy Institute and Turnaround for Children.

Osher, D., Cantor, P., Berg, J., Steyer, L. & Rose, T. (2020). Drivers of human development: How relationships and context shape learning and development. *Applied Developmental Science, 24*(1), 6-36.

Osher, D., Pittman, K., Young, J., Smith, H., Moroney, D., & Irby, M. (2020). *Thriving, robust equity, and transformative learning & development: A more powerful conceptualization of the contributors to youth success*. Washington, DC: American Institutes for Research and Forum for Youth Investment.