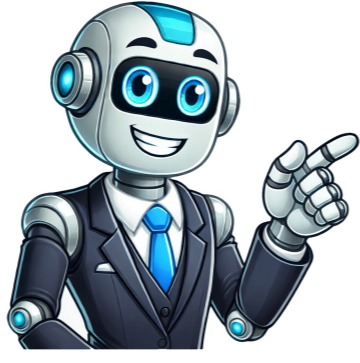


I'm not a robot

































control can also lower our sense of self-efficacy (the belief that we can do things to make change and improve our own lives), which is key to our ability to plan and engage in goal-oriented behaviors. For all of these reasons, a multi-generational approach to reducing external sources of stress on families has double benefits: It clears the way for adults to provide responsive relationships and stable environments for children, and it helps children to develop healthy stress response systems and sturdy brain architecture, to focus on learning, and to receive a lifetime of benefits from these early building blocks of resilience. Listed below are examples of opportunities to apply the reduce sources of stress design principle to policy: Create the conditions in which families can meet basic needs, such as affordable and nutritious food, safe shelter, medical care, and mental health services, as well as have opportunities to build financial assets to withstand unexpected losses or emergencies. Focus special attention on the needs of children during periods of severe hardship, such as homelessness. Establish simplified, streamlined rules to determine eligibility and re-certification for benefits and services, while minimizing punitive regulations that add stress to already challenging situations. Actively reduce community-level sources of stress in areas of concentrated disadvantage, such as recurrent violence, exposures to environmental toxicants, food deserts, and lack of services and economic opportunity. Provide consistent, adequate funding to prevent unexpected loss of services, which is a source of stress to both service providers and families, in order to offer stability that enables adults to focus on responsive caregiving. Finally, here are examples of ways to apply this principle to practice: Provide workers in service programs with the supports they need, such as reasonable caseload/class sizes, responsive supervision, and skill development, to manage their own stress so they can help their clients effectively. Help families achieve economic stability and strengthen the skills needed to create a supportive home environment with consistent and predictable routines. Routinely ask about and respond to the major stressors affecting families as part of the assessment process conducted in many types of service programs. Provide services in calm, organized, and welcoming environments. These three principles do not operate in isolation. In fact, they are highly interconnected and reinforce each other in multiple ways. First, progress on any of the three makes progress on the other two more likely. For example, reducing sources of stress makes it easier to access and use executive function and self-regulation skills; it also frees up time and energy to participate in responsive interactions. Likewise, helping parents and caregivers improve executive functioning supports their ability to engage in serve-and-return interactions with the children in their care and to create a more stable and predictable caregiving environment. Using these design principles to promote positive change on all three dimensions is our best chance to help adults provide safe and responsive caregiving, and to help children get (and stay) on track for healthy development. Second, each individual's functioning has important effects on every other member of the family. It creates a self-propelled cycle of benefits to all. For example, when an adult caregiver creates a calm, orderly, predictable environment, children are likely to experience less stress, which supports their healthy development. Children's improved behavior in turn reduces stress for caregivers, providing a greater opportunity for the adults to continue to build their own self-regulation and executive function skills. Unfortunately, the converse is also true: significant challenges in any one of these areas can lead to problems in the others. Using these design principles to promote positive change on all three dimensions is our best chance to help adults provide safe and responsive caregiving, and to help children get (and stay) on track for healthy development. Understanding major influences on child development and how adults develop and use core skills—as well as recognizing the effects of excessive stress on both—is critical for improving outcomes for individuals and all of society. Drawing on a common understanding of how healthy development can be either promoted or derailed, practitioners and policy-makers can think in new ways about how we can better support families raising young children and address the “upstream” sources of problems more effectively. Below are three suggestions for how policymakers, system leaders, and practitioners can apply these design principles in their own contexts. Question, assess, and improve current policies and operations. To what extent do current policies and operations promote (or hinder) responsive relationships and the development of core capabilities? To what extent do they diminish (or increase) sources of stress? What is preventing us from doing better? To find the answers to these questions, leaders might conduct a series of observations and conversations with front-line workers who are engaged personally with both children and adults. This is likely to produce important information about how things work now and suggestions for how they might work better in the future. Test proposed changes in policy or system operations. When changes to laws and/or regulations are proposed, they are commonly evaluated for their potential economic and budgetary impact. The three design principles in this paper provide an additional framework for analyzing such proposals. Compared to current operations, how might the proposed changes affect prospects for responsive relationships, for developing core capabilities in both adults and children, and for reducing sources of stress? Given those likely impacts, how strong is the case for (or against) the changes as currently envisioned? How might the proposals be modified in order to produce more positive effects and/or fewer negative consequences, particularly for families living in areas of concentrated poverty or dealing with systemic racism or other sources of intergenerational trauma? Use an organizing framework for developing new policies or program strategies. Sometimes assessments of and changes to current policies are not enough. Making use of what has been learned from observations and conversations with workers and clients, leaders might ask questions like: Suppose we want our system to do the best possible job of reducing the sources of significant stress experienced by caregivers, children and providers of early childhood services. How would we redesign the system to do that? What are the changes we might adopt soon to get started, and what are the larger and more complex changes that we might aim for over time? How might the system help the most overburdened and under-resourced families build their assets to stave off instability? Want to use the three design principles to reshape policy or practice? Read about our Science X Design workshops and technical assistance. A Note About the 2021 Update of This Document The process for updating this paper began well before the outbreak of the COVID-19 pandemic, the widespread social protest against systemic racism, and the massive economic collapse that has affected most those who already had the least. It was undertaken in response to many comments we've received since we first published the paper in 2017 and launched a series of Science X Design workshops to help policymakers and system leaders apply these scientific principles to their own contexts and sectors. With increased public attention to long-standing structural inequities, updating this paper became even more urgent. Many of the changes in this paper call out more explicitly the growing body of evidence that has been “hidden in plain sight”—evidence linking disparities in health and education outcomes to the ways in which public structures, systems, and services have been constructed (consciously or not) across many generations to systematically deny opportunity to people of color. In order to have the greatest impact, attempts by policymakers and system leaders to use the science of early childhood development to improve outcomes in our communities must include more attention to these “upstream” sources of stress. Other updates reflect our own journey of listening more carefully to the voices of people who are experiencing multiple forms of adversity personally. We have come to better understand that the “executive function and self-regulation skills” that continue to be the focus of extensive research are, in fact, “core skills” for a particular, culturally specific context that rewards goal-oriented planning, impulse control, and delayed gratification—while in other circumstances it may be more adaptive and effective in the short term to develop skills that enable a quick survival response. Biology tells us that human development is about adaptation, as our brains (and the rest of our bodies) adapt to the context in which we live. As we began to think more intentionally about the broad diversity of those contexts, it became increasingly clear that the skills we have been calling “core”—while still important—must be viewed as important only when they're matched to a particular purpose in a particular set of contexts. As we point toward a future that will require rebuilding systems and social infrastructures that crumbled during the COVID-19 pandemic and its associated economic disruptions, several lessons are emerging: Third, the often shaky and, in some cases, non-existent “systems” that were in place to support families before the pandemic (particularly in the U.S.) need to be not just restored, but rethought and rebuilt to be stronger and more effective going forward. Reconstructing a new early childhood ecosystem that connects social services, health care, and education, and is guided by the best available knowledge (scientific and on-the-ground), is essential if we are to thrive in the future. First, the need to base public policy on sound scientific concepts has never been more compelling. Science does not have all the answers, but science-informed insights combined with the lived experiences of families and communities, the expertise of service providers, and a diversity of perspectives among policymakers and civic leaders can catalyze fresh thinking and more effective action. Second, the science-informed design principles presented in this paper remain relevant in the midst of a pervasive crisis that affects everyone (albeit unequally) and will continue to be well-founded and much-needed in the future. The basic concepts of child development do not change. Responsive relationships still build sturdy brain architecture and support adult coping; core skills still comprise the building blocks of healthy decision-making and resilience in the face of adversity; and excessive activation of the stress response still disrupts both healthy development and the ability of parents and other caregivers to provide stable, supportive environments for young children. Third, the often shaky and, in some cases, non-existent “systems” that were in place to support families before the pandemic (particularly in the U.S.) need to be not just restored, but rethought and rebuilt to be stronger and more effective going forward. Reconstructing a new early childhood ecosystem that connects social services, health care, and education, and is guided by the best available knowledge (scientific and on-the-ground), is essential if we are to thrive in the future. Recent advances in the science of brain development offer us an unprecedented opportunity to solve some of society's most challenging problems, from widening disparities in school achievement and economic productivity to costly health problems across the lifespan. Understanding how the experiences children have starting at birth, even prenatally, affect lifelong outcomes — combined with new knowledge about the core capabilities adults need to thrive as parents and in the workplace — provides a strong foundation upon which policymakers and civic leaders can design a shared and more effective agenda. Early childhood development can influence lifelong learning, behavior, and both physical and mental health — for better or for worse. To be maximally effective, policies and services should: Support responsive relationships for children and adults. Strengthen core life skills. Reduce sources of stress in the lives of children and families. These three principles can guide decision-makers as they choose among policy alternatives, design new approaches, and shift existing practice in ways that will best support building healthy brains and bodies. They point to a set of key questions: What are current policies, systems, or practices doing to address each principle? What could be done to address them better? What barriers prevent addressing them more effectively? Moreover, these design principles, grounded in science, can lead policymakers to think at all levels about the forces that could lead to better outcomes for children. At the individual level, policies can focus on skill-building for both kids and adults; at the human services level, they might focus on the critical place of relationships in promoting healthy development, supportive parenting, and economic productivity; and at the systemic or societal level, policies can emphasize reducing sources of stress that create lifelong challenges for children and make it extraordinarily difficult for adults to thrive as parents and breadwinners. Read the full article on early childhood development at the Center on the Developing Child at Harvard University.