

For the full paper on which this brief is based, see *Understanding Motivation: Building the Brain Architecture That Supports Learning, Health, and Community Participation: Working Paper 14.*

<https://developingchild.harvard.edu/resources/>

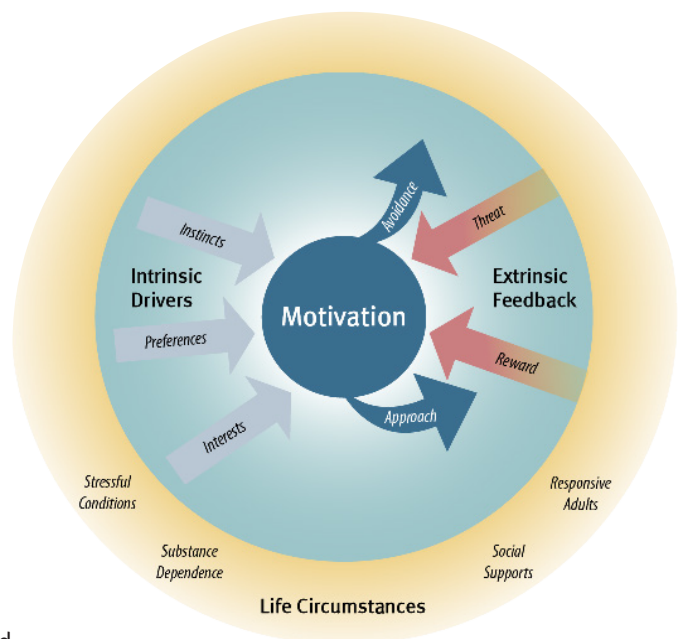
**A thriving society depends on people achieving to the best of their potential, contributing to the economy and public well-being.** Why are some people motivated to participate productively in their community and more likely to persevere in the face of setbacks? To unlock this puzzle, it is helpful to understand the underlying mechanisms in the brain that develop in childhood and build the foundation for later complex behavior.

The brain systems that govern motivation are built over time, starting in the earliest years of development. These intricate neural circuits and structures are shaped by interactions between the experiences we have and the genes that we are born with. Providing children with the kinds of early life experiences that support the development of healthy, balanced motivation systems is key to ensuring positive outcomes later—for school, work, health, and raising the next generation.

**1 A healthy motivation system is best built through the combination of internal (intrinsic) drivers supported by positive feedback.** There are two main types of motivation: approach motivation, which involves the release of a neurochemical that tells us something is about to happen that we should enjoy; and avoidance motivation, which directs us away from a threatening or unpleasant response by releasing hormones that trigger a “fight or flight” response. Both approach and avoidance motivation develop in childhood and are influenced by intrinsic (internal) drivers and extrinsic (external) feedback.

Once their basic needs are met, most young children are motivated intrinsically by exploration, active involvement in play, and achieving mastery or success in a task. This kind of approach motivation is important for learning and development because it leads to intense engagement in a task and eventual mastery, which is associated with pride and satisfaction. Intrinsic drivers are considered to be the strongest and most lasting motivators, especially in early childhood, but positive feedback can support and reinforce the inherent feelings of satisfaction or pleasure.

**2 The desire to have a rewarding experience can be more powerful than the pleasure of the reward that is actually experienced.** “Wanting” refers to the intense desire for experiencing pleasure. The circuits responsible for wanting connect the emotions that were felt with the reward itself—and the actions that led to it—so strongly that, even when the reward is less



or not received at all, the brain will still prompt us to repeat the action that initially led to it. This separation explains why some people engage in once-rewarding behaviors past the point where they are enjoyable, like eating too much dessert or drinking too much alcohol.

“Liking” refers to the actual sensation of pleasure. The circuits involved are much more fragile and difficult to activate, which may be one reason why intense pleasure is harder to experience than intense desire. For example, the smell of a bakery may trigger “wanting” based on past memories linking sweets to pleasure, but the actual experience of eating too many sweets may not be nearly as pleasurable in reality.

**3 Experiences at different stages of childhood may have different kinds of impacts on the developing motivation systems.** Infants learn best through interactions with parents and other adult caregivers who establish responsive, supportive relationships with them. First, babies learn simple preferences among pleasant and unpleasant experiences. Then, they begin to distinguish between threats that truly need to be avoided and those that are less dangerous—here, the supportive presence of a trusted adult can have a buffering effect. For example, a loud noise may startle young children, but if they are in the presence of someone they are attached to and feel secure with, and who responds supportively, they will be less likely to experience high levels of stress.

During adolescence, the motivation system is increasingly influenced by peers, exploration, and performance feedback. The pleasure of social acceptance is present early in life and remains important in adulthood, but is especially powerful in adolescence when the brain is particularly tuned into these rewards. This increased sensitivity to social rewards can lead to an inclination toward risk-taking and self-oriented acts, but also powers exploratory learning and the ability to adapt to different social contexts and cultures.

**4 The brain’s motivation systems can be disrupted by a lack of responsive relationships, feelings of helplessness, and addictive behaviors and drugs.**

**Lack of responsive relationships**—Children who experience a safe, supportive, and predictable environment develop healthy motivation systems that are driven by a balance of approach and avoidance and of wanting and liking. Children whose environment is chaotic and stressful may

develop motivation systems that are driven by avoidance and fear. Expressing fear is not always a bad thing: an urgent warning from a parent when a child is moving a finger toward an electrical socket will help the child learn to avoid the socket. But excessive or misdirected fear by a primary caregiver can lead a child to lose interest in healthy exploration.

**Feeling helpless**—The motivation to act requires some expectation of success. When children do not see any effects from their actions, they experience “learned helplessness.” If skills and talents are thought of as fixed—something people either have or don’t have—an initial failure is likely to be attributed to a lack of natural ability and, in turn, may decrease motivation. But if skills and talents are seen as capacities that can be developed through practice—a growth mindset—then a failure signals the need to develop the skill or talent through continued effort and practice.

**Addictive drugs and behaviors**—Pleasure-stimulating activities, such as alcohol, drugs, gambling, or casual sex, provide a short-cut to pleasure. These experiences can quickly ramp up good feelings and tamp down bad feelings—but only temporarily. This can create a spiral of dysregulation, in which the addictive experience triggers initial pleasure, followed by negative emotions and physical craving, which can only be suppressed by the addictive behavior. Addictive drugs also release more pleasure-seeking hormones than natural rewards. Over time, this overstimulation can change the neural pathways and chemistry in the motivation system. The repeated use of a short-cut to pleasure creates circuitry that is so strongly associated with memories of pleasure that the “wanting” system produces powerful urges to follow it, even when the pleasure itself fades.

## POLICY IMPLICATIONS

- Support and fund early childhood programs that **encourage playful exploration, build self-efficacy, and reduce caregiver stress** through high teacher-child ratios and professional development.
- In schools, **reduce emphasis on extrinsic rewards** (like grades, tests, and performance-based recognition programs) and **increase focus on constructive feedback and coaching**.
- Response to addiction should be focused on **treatment at the physiological or biological level rather than potential punishments**, because craving or wanting addictive substances happens below the conscious level.
- Include **motivation-building supports** in programs for **adults who care for young children**, which can **improve retention** in programs and also enable parents and caregivers to **model and support** these skills and mindsets in children.
- Replace punitive approaches to program retention with methods that **reduce stress, provide positive feedback and social/peer support, and demonstrate quick successes** because many factors can contribute to program engagement and retention, ranging from **inconvenience of timing, location, and transportation, to cost, child care needs, and competition** with the needs of other family members and friends.