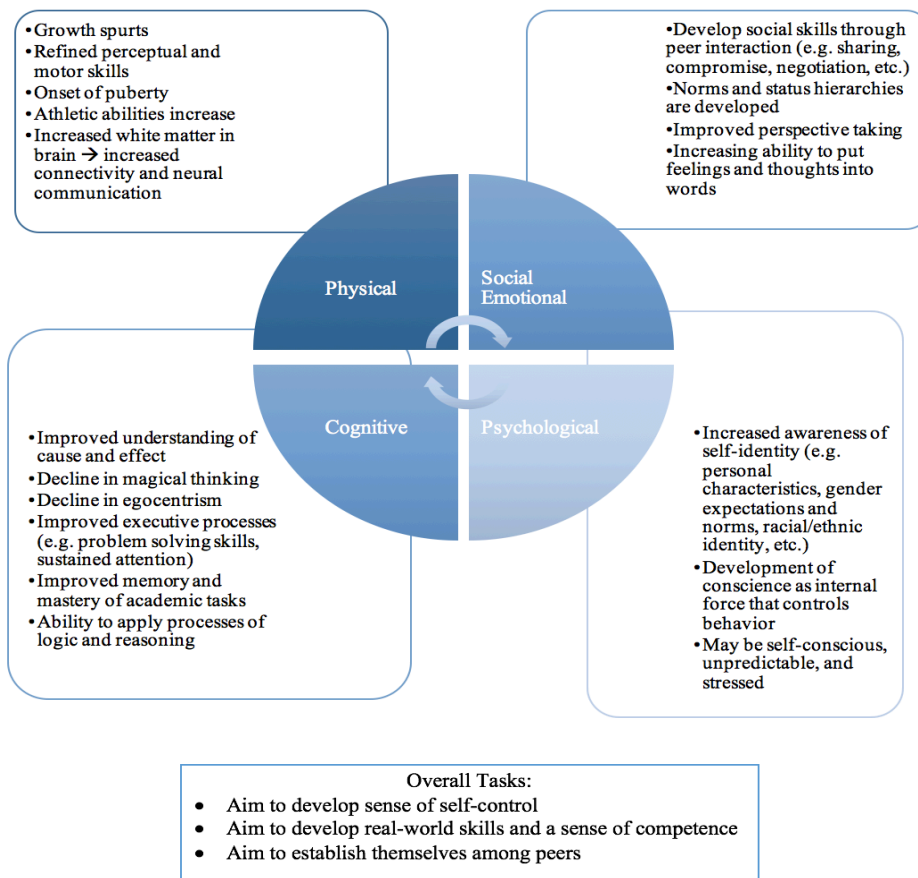


The following schematic depicts the expected growth in each of the developmental domains.

Elementary School Expected Development



Middle School

Early adolescence is a period marked by significant growth – physical, psychological, social-emotional and intellectual. Youth experience social growth and development, such as continued identity development and increased peer socialization during the transitional period of middle childhood. Other social changes include seeking increased independence, yet a strong need to fit in and belong to a peer group, while rebelling against and challenging adults (e.g. parents or teachers). Middle School youth experience many physical changes including shifting their sleep pattern to falling asleep later and waking later. “Research suggests that adolescence brings with it brain-based changes in the regulation of sleep that may contribute to teens’ tendency to stay up late at night. Along with the obvious effects of sleep deprivation, such as fatigue and difficulty maintaining attention, inadequate sleep is a powerful contributor to irritability and depression. Studies of children and adolescents have found that sleep deprivation can increase impulsive behavior; some researchers report finding that it is a factor in delinquency. Adequate sleep is central to physical and emotional health.” (NIMH) (Note: Please see ‘Healthy Adolescent Sleep’ on page 6 of this Toolkit)

As youth mature, their brains develop and transform. The brain does not begin to resemble the adult brain until the early 20s. The cortex (i.e., grey matter) is where thought and memory are based. Different parts of the cortex mature at different rates. Areas processing information from the senses and those in control of movement mature first. Areas responsible for controlling impulses and planning ahead - hallmarks of adult behavior - mature last. Connections between different parts of the brain increase well into adulthood. Brain circuitry involved in emotional responses is also changing during the teen years. These brain changes have an impact on behavior. In addition, both reproductive and stress hormone systems are changing during the teens. Hormonal changes have complex effects on the brain which in turn affect behaviors.

“In terms of sheer intellectual power, the brain of an adolescent is a match for an adult’s.” (NIMH) However, when reacting to emotionally charged information, adolescents and adults engage different parts of the brain to different extents. “In teens, the parts of the brain involved in emotional responses are fully online, or even more active than in adults, while the parts of the brain involved in keeping emotional, impulsive responses in check are still reaching maturity.” (NIMH) Teens tend to make decisions with the areas of their brains that are more developed - the sensory and emotional areas. They receive strong rewards from decisions made based on impulse and emotion. This decision process has little supervision from the still-developing executive area which weighs the risks and benefits of a decision.

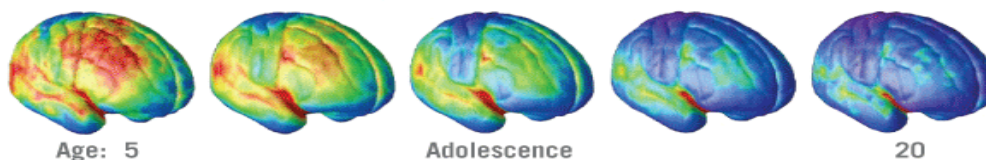
This means that when a risky choice has a strong emotional or sensory incentive, such as winning the acceptance of peers, the emotional system can win over the immature impulse control area, and a risky choice may be made. It is not yet possible to know to what extent a particular behavior or ability is the result of a feature of brain structure. Also “changes in the brain take place in the context of many other factors, among them, inborn traits, personal history, family, friends, community, and culture.” (NIMH) There is now evidence that the decision making process can be influenced by SEL. The following image indicates the many changes that occur in the human brain from early childhood to late adolescence.

Growing a Grown-up Brain

Scientists have long thought that the human brain was formed in early childhood. But by scanning children’s brains with an MRI year after year, they discovered that the brain undergoes radical changes in adolescence. Excess gray matter is pruned out, making brain connections more specialized and efficient. The parts of the brain that control physical movement, vision, and the senses mature first, while the regions in the front that control higher thinking don’t finish the pruning process until the early 20s.

Gray matter density
 Gray matter becomes less dense as the brain matures.
 More dense (red) to Less dense (blue)

Gray matter: Nerve cell bodies and fibers that make up the bulk of the brain’s computing power.
Parietal lobe: Spatial perception
Occipital lobe: Vision
Temporal lobe: Memory, hearing, language
Frontal lobe: Planning, emotional control, problem solving



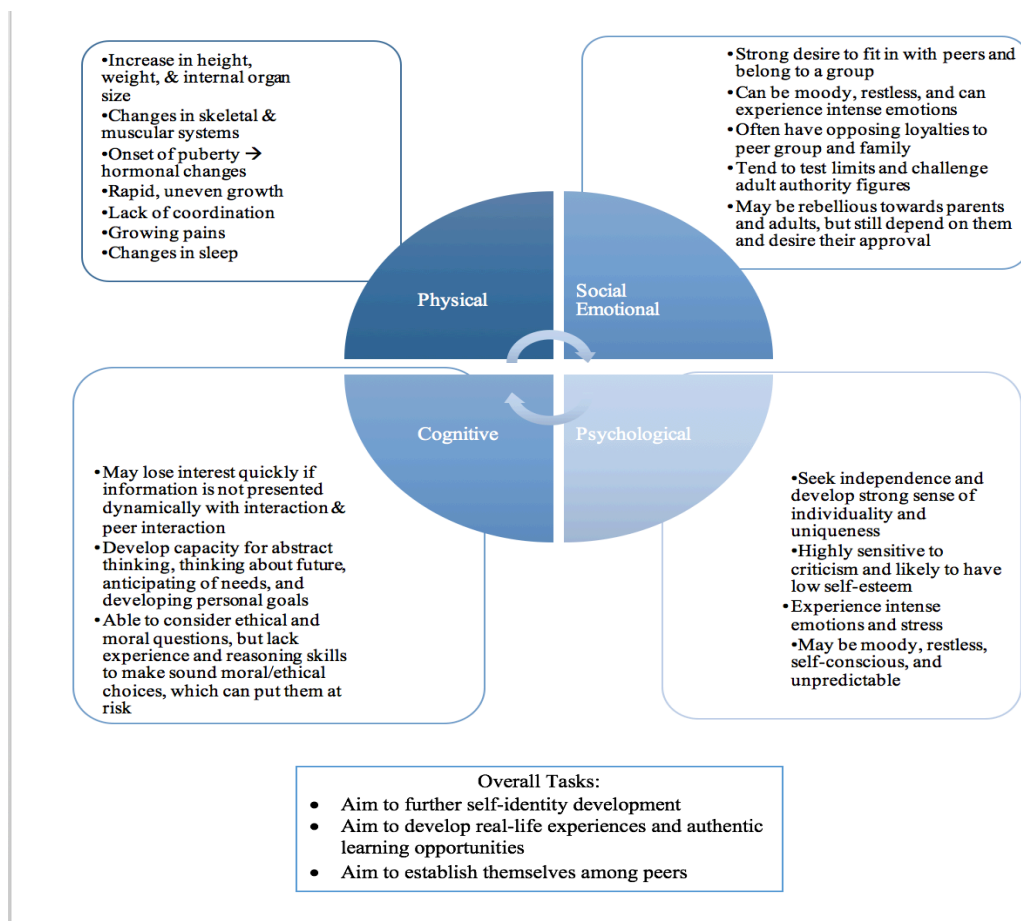
Source: “Dynamic mapping of human cortical development during childhood through early adulthood,” Nitin Gogtay et al., *Proceedings of the National Academy of Sciences*, May 25, 2004; California Institute of Technology

For more information see: LeWinn, K., Timofiyeva, O., Blom E. H. (2015). UCSF, *Adolescent Depression: What We All Should Know*. Retrieved from <http://www.slideshare.net/UCSFPsychiatry/adolescent-depression-what-we-all-should-know>

It has been shown that adolescence is a period marked by the highest rates of attempted suicides, where each attempt further increases risk of additional attempts or completion (Gould et al., 2003). This is a serious issue of extreme importance, especially during the middle school period. Social-emotional learning is designed to address this issue early-on through upstream teaching focused on improving self-regulation skills, reducing risk, and increasing protective factors associated with adolescent suicide.

Research shows that SEL programs provide psychological and social benefits, in addition to academic benefits. Students with effective mastery of these social-emotional skills have shown a greater sense of well-being and better academic performance (Durlak et al., 2011). Failure to achieve these social-emotional skills can potentially lead to personal, social, and academic difficulties (Durlak et al., 2011).

Middle School Expected Development



High School

High school is a time of continued growth and development within all domains. Through the transition to high school, adolescents may experience an increase in responsibilities, usually an increase in independence, as well as a decrease in free time. Adolescence is a period of continued physical development, where pubertal maturation continues to influence bodily growth, changes in hormones, and shifts in behaviors, attitudes, and conduct. Increasing awareness regarding their own development, particularly bodily changes, is accompanied by a change in their behaviors towards adults, members of their own sex, and especially members of the opposite sex. Similar to middle school, adolescence and high school is marked by continued social growth and identity formation, as well. The onset and maturation of puberty may be a potential contributing factor in child-parent conflict. “A pubescent tends to display more or less suddenly acquired but definite attitudes and modes of behavior that are different from habitual childhood reaction patterns. Furthermore, an adolescent’s behavior is likely to change from year to year.” (Crow & Crow, 1956, p. 69). Adolescence is a stage where youth are beginning the transition to adulthood. SEL during high school addresses the developmental tasks of independence and interdependence, identity formation, and the shift from strong family relationships to more peer and romantic relationships.

High School Expected Development

