Adolescent Brain Development and Peer Relationships

Adolescence is a critical period of development in brain growth and neural systems that influence physical, cognitive, social-emotional development. As adolescents mature cognitively and biologically, the environment and education culture changes, as they transition from a small, single classroom in the early preschool year to endless long hour classes in high school. Friendships and peer preferences also change throughout these years. It is also a time where there are high opinions and demands from peers and family, which often times can be overwhelming to adolescents. Understanding the biological and psychological changes in different parts of the brain can help determine how it affects adolescents transition to high school and peer relationships.

According to Albert Bandura's Social Learning Theory, this theory states that interactions with others involved in vicarious learning, which is based upon "modeling" or behaving similarly to others (Mcleod, 2016). The learning environment and peer influence in high school significantly impact the development of the brain. When performing complex mental tasks, adolescents cognitive, memory, and emotion-regulation skills strengthens (Somerville, 2013). Peers who convey positive behaviors and attitudes often convey positive behaviors toward others, have stronger close relationships, and engage more in learning. The maturation of adolescent learning behaviors correlates with changes in hormones, neurotransmitter receptors, frontal cortical and neurogenesis. These changes are related to the major parts of the brain, the prefrontal cortex and the limbic system, which contains the amygdala, frontals, hippocampus and hypothalamus that uniquely associates with adolescent behaviors. The prefrontal cortex is responsible for language development and production, and is associated with adolescent social sensitivity. A longitudinal research study yielded intriguing data that those adolescents who have

high social sensitivity are more likely to be “emotionally reactive to explicit cues indicative of social inclusion or exclusion” (Somerville, 2013).

Neurotransmitter, Dopamine and Serotonin, also plays a significant role in adolescent peer relationship. Dopamine is responsible for the reward and motivational component behavior., which Serotonin, regulates various bodily functions such as digestion, blood pressure, is responsible for adolescents’ happiness and well being. When Serotonin functions properly, it reduces stress and depression, allowing adolescents to feel more relaxed and eased around others. According to Westenberg’s research, studies have shown that these neurotransmitters affect adolescents’ neural responses to social and emotional cues (Somerville, 2013). Adolescents who have a high level of dopamine and serotonin tend to establish more social contact and interpersonal relationships and interact more with their peers.

In all, major brain structure and function can significantly influence individual behaviors. Albert Bandura’s Social Learning Theory, the prefrontal cortex, limbic system, and different neurotransmitters can also tremendously impact peer relationships.

References

Mcleod, Saul. “Social Learning Theory.” *Simply Psychology*, Simply Psychology, 5 Feb. 2016, www.simplypsychology.org/bandura.html.

Somerville, L. H. (2013). The Teenage Brain. *Current Directions in Psychological Science, 22*(2), 121-127. doi:10.1177/0963721413476512 https://journals.sagepub.com/doi/pdf/10.1177/0963721413476512