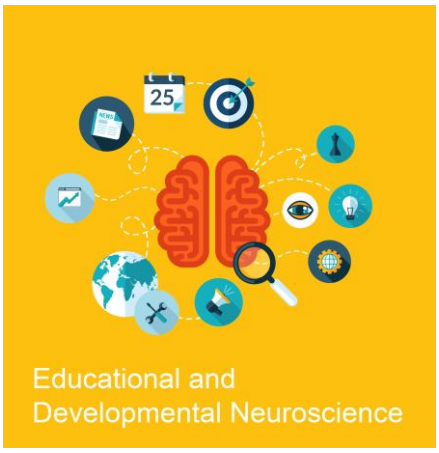
EDNU NEWSLETTER

ISSUE 2, March 2015

MARCH 2015 EVENTS

- 16 Mar: Research Seminar – Can the neural-cortisol association be moderated by training-induced mindful experience?
- 23 Mar: Technical Workshop on fMRI data analysis with FSL

→ Click here to register for the events



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DECISION MAKING OF ADOLESCENT STUDENTS

Adolescence is often regarded as a period of "storm and stress" characterized by poor decision making and risky, impulsive behavior. Some of these poor decisions (e.g. joining gangs) and risky behaviors (e.g. taking drugs) may have severe consequences on their overall well-being and future prospects. Researchers and educators have been developing evidence-based approaches, which are guided by the research on the neural mechanism of decision making, to minimize the undesired impulsive and risky behavior of adolescents. Recent findings suggest that the impulsive and risk-seeking behavior of adolescents can be understood as a result of an imbalance between the developments of two neural systems involved in decision making. The impulsive system consists of an amygdala-striatum network which drives behaviors based on obtaining immediate rewards. It is fully developed in adolescents and is excited by the surge of gonadal hormone during puberty. Meanwhile, the reflective system which is located in the prefrontal cortex and is involved in considering long-term consequences and regulating behaviors accordingly does not become fully developed until early adulthood. Because of the immature reflective system, adolescents lack the ability to suppress their urge to obtain immediate rewards mediated by the fully matured impulsive system.

Dr. Savio Wong, leader of the EDNU, is currently running a research project to examine the modulation effect of emotion (i.e. affective state) on the impulsive and reflective system and compare it between adolescents and adults. To learn more about this project, please click here.

FEATURED NEUROSCIENCE RESEARCH ARTICLE

In this Nature Neuroscience article (2012; 15(9):1184-91), the authors provided a concise review on the development of the different processes involved in decision-making cognition in adolescnece. These include the representation of value, response selection, learning, and socio-emotional factors. Evidence from neuroscience and behavioral studies suggested that the risky decisions made by adolescents might be partly due to the asymmetrical functional development of the of the impulsive system and the prefrontal, reflective system. Moreover, decisions of adolescents are more readily influenced by emotional contexts, such that they are more likely to make risky decisions in "hot" contexts, where emotions are involved. Neuroscientific and behavioral evidence also suggested that the ability to mentalize, i.e. to attribute mental states to predict others' behavior, is still developing in adolescents and could further modulate their decision-making in social contexts.