

Educational Impacts of the Social and Emotional Brain



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KEYWORDS

• Neuroscience • Cognitive • Emotional • Education • Students

KEY POINTS

- The way the brain is “wired” links cognitive and emotional processes so that one cannot function without the other.
- Emotion regulation skills develop as the prefrontal cortex matures, and can be promoted through direct instruction, behavior modeling, and provision of a stable, predictable environment.
- Adolescence is marked by a shift in the brain’s emotion/cognition balance; emotion has greater influence during this developmental phase.
- These insights about brain development suggest educational strategies that can promote greater academic achievement.

INTRODUCTION

Recent developments in neuroscience related to social and emotional development have significant implications for educational practice. Social and emotional development are closely linked with cognitive processes, thus significantly influencing overall student development and academic progress. Emotions affect how humans interpret experiences and adapt to changes in internal and external environments. This article asserts that integrating social-emotional learning (SEL) into classrooms is essential for academic achievement because of the way the brain is organized and the process through which brain development occurs. The understanding of these aspects of brain development suggests several strategies for the classroom setting that can influence student achievement ([Table 1](#)).

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Abbreviations

| | |
|-----|------------------------------|
| CBT | Cognitive behavioral therapy |
| SEL | Social-emotional learning |

The importance of SEL is even greater for students affected by psychiatric illness. Up to 20% of students¹ will experience symptoms of anxiety, depression, poor attention, and impulsivity that frequently manifest as difficulties in learning. For students with these symptoms, incorporating SEL may be even more crucial to achieving academic targets. Understanding brain development related to social and emotional aspects of learning can serve as a bridge between the work of educators and that of child and adolescent psychiatrists and other mental health specialists engaged in school-based practice.²

OVERVIEW OF SOCIAL-EMOTIONAL LEARNING

SEL describes the features of education that attend to the social and emotional needs of youth that are necessary for supporting academic achievement. Meta-analytic reviews of SEL programming have demonstrated positive gains in academic achievement, improved behavior, and prevention of risk-taking.³ Contemporary SEL programs promote these gains by mitigating the effects of negative emotion on learning through strengthening students' ability to regulate their responses, and by strengthening positive emotions that motivate students to set and achieve long-term goals. SEL programming accomplishes these goals through 2 related strategies: (1) direct instruction of skills in self-awareness, self-management, social awareness, relationship skills, and responsible decision making, and (2) cultivating a school environment that simultaneously encourages social, emotional, and academic development (<http://www.casel.org/social-and-emotional-learning>).

EMOTION AND COGNITION ARE ESSENTIALLY LINKED

The brain's wiring ensures that cognitions and emotions influence each other in the apperception of all experiences. Because emotion and cognition are so tightly linked, school classrooms that integrate the social and emotional aspects of learning enhance academic achievement. The appreciation of the tight link between emotion and cognition is relatively new. Until the mid-1990s, the field of neuroscience generally viewed emotion and cognition as distinct neurologic processes. Furthermore, "higher order" rational thought was often held as privileged over emotional processes, with a goal of supplanting emotional reactions with increasingly critical and analytical thinking.⁴ What has become clear in the past 2 decades is that emotion and cognition markedly influence one another, and both must be addressed in the learning process.

This link is likely partly because emotions have evolved to help monitor and respond to the environment to promote survival.⁵ Emotion serves the important function of coordinating diverse body functions in response to specific contextual demands through directing attention, limiting sensory input, attributing salience to stimuli, and directing the selection of behavioral output.⁵ Through these processes, emotion influences what one sees, and as a result, how one behaves.^{6,7} The environment holds far more information than humans can process. Therefore, the brain must prioritize sensory input and act on what is most important in the moment. In contexts of high emotional arousal, extraneous stimuli are ignored and attention is focused on information that is critical to survival.⁸ When students feel threatened, their focus shifts from

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