



Mindfulness & 21st Century Learning

Annamarie Koett

SKILLS FOR SUCCESS

“Students will have to continue learning new things throughout their life. Because ... content (is) virtually infinite, skills that allow one to continue learning and to make judgments about the meaning, adequacy, and accuracy of content are more important than ever.” (1)

There is no doubt that with the age of technology, the world has become more complex. Vast amounts of information are available at our fingertips. In order to equip our students with skills that will allow them to be successful later in life, education in the 21st Century will require a shift from learning content to learning the skills to learn. This shift in education will require teachers to provide their students with the skills necessary to analyse and connect large amounts of information in a collaborative manner.

According to Diamond and Lee (2), analysing information and drawing creative connections requires a student’s working memory to hold multiple bits of information while searching for relationships and problem solving. Another key skill necessary to carry out these tasks is inhibitory control or self-regulation. One of the functions of inhibitory control is to allow students to self-monitor their progress. Self-regulation is also a key element in working together in a group. All of these skill are considered to be cognitive processes called executive functions (2). Research by Richland and Burchinal (3) demonstrated that student’s levels of executive function can impact their ability to use reason, which in turn could affect school achievement. Interestingly, new information about how to teach executive function skills like self-regulation, and its impact on reasoning, is coming from the field of Social Emotional Developmental Psychology. For instance, subjects like “mindfulness” are being studied for their impact on students’ ability to apply self-regulation to learning tasks (4).

EXECUTIVE FUNCTION & REASONING

“Early Executive Function Predicts Reasoning Development”

STUDY OVERVIEW

Research by Richland and Burchinal (3) studied the long-term impact of executive functions such as inhibitory control and working memory on students’ development of analogical reasoning. 1,364 students of diverse backgrounds were involved in a longitudinal study. Analogical reasoning, executive function skills, inhibitory control, short-term memory, vocabulary, and sustained attention were measured using a variety of instruments including the WJ 4, the Continuous Performance Task, and the Tower of Hanoi.

FINDINGS

Results of Richland and Burchinal’s study demonstrated that verbal analogy scores at age 15 were moderately to highly correlated with attention, memory, vocabulary, and executive function measures. Richland and Burchinal’s findings also showed that language and knowledge alone did not explain children’s long term gains in reasoning skills, and that inhibitory control and composite executive function skills contributed to the children’s development of analytical reasoning. These findings demonstrate the important role executive functions have on students’ ability to reason and therefore make the creative connections required to become a successful learner in the 21st Century.

So, if good executive function skills are required for students to develop 21st Century reasoning skills, what does research tell us about how to teach these skills?

What is Executive function?

Executive function is the ability to control cognitive actions such as inhibiting impulsive task responding and manipulating and organizing complex information while holding it in working memory.

Executive function thus allows planning, monitoring, task switching, and controlling attention.

(Richland and Burchinal 2013)

EXECUTIVE FUNCTION & MINDFULNESS

“Mindfulness and Inhibitory Control in Early Adolescence”

STUDY OVERVIEW

A study of 97 students in grades four and five conducted by Oberle, Schonert-Reichl, Lawlor, and Thomson (5), looked at the impact that teaching mindfulness had on executive functions such as inhibitory control. Using a survey based on the Mindful Attention Awareness Scale (MAAS) to measure mindfulness, a computerized Dots task to assess inhibition control, and salivary cortisol collection to measure cortisol levels, the authors demonstrated that self-reported mindfulness is a significant predictor of students’ inhibitory control.

FINDINGS

As inhibitory control is an executive function required to reason and make connections, Oberle et al were able to show the positive contribution that teaching practices of mindfulness can have on cognitive functioning.

What is Mindfulness?

“Mindfulness, as measured by the MAAS, is defined as enhanced attention to awareness that facilitates conscious self-regulatory processes”.

(Brown & Ryan in Oberle et al 2012)

School programs teaching mindfulness often include awareness of the external environment, the self in the environment, the body, and finally mindfulness exercises that attend to cognitive processes.

(Hooker & Fodor 2008)



MINDFULNESS = SUCCESS

The practice of mindfulness can positively influence executive functions necessary to reason and therefore to learn in the 21st Century. However the practice of mindfulness has many other benefits that may contribute to student's emotional and social well-being. The same executive functions that control self-regulation are also required for emotional control, problem solving, and collaborative learning (6). Programs like MindUP™ which teach mindfulness, can also contribute to a positive classroom community in which students are able to flourish both academically and emotionally.

(For information on the MindUP™ program, visit the Hawn Foundation website at www.thehawnfoundation.org).

REFERENCES

1. Premier's Technology Council (2010). *A Vision for 21st Century Education*. BC Retrieved from http://www.gov.bc.ca/premier/attachments/PTC_vision_for_education.pdf
2. Diamond, A., & Lee, K., (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*. 333, 959-064
3. Richland, L. & Burchinal, M. (2013). Early Executive Function Predicts Reasoning Development in Psychological Science. 24(1) 87-92, DOI: 10.1177/0956797612450883
4. Wickelgren, I. (2012). The Education of Character. *Scientific American*. Retrieved from <http://www.ScientificAmerican.com/Mind>
5. Oberle, E., Schonert-Reichl, K. A., Lawlor, M., & Thomson, K.C. (2011). Mindfulness and Inhibitory Control Early Adolescence. *The Journal of Early Adolescence*. DOI: 10.1177/0272431611403741
6. Durlack, J.A. Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., & Schellinger, K.B. (2011). The impact of enhancing students' social and emotional development promotes success in school: Results of a meta-analysis.. *Child Development*. 89, 474-501.
7. Hawn Foundation, (2011) *The MindUP Curriculum: Grades PreK-2: Brain-Focused Strategies for Learning-and Living*. Retrieved from www.thehawnfoundation.org
8. Hooker, K., & Fodor, I. (2008). Teaching Mindfulness to Children. *Gestalt Review*. 12(1) 75-91. Retrieved from <http://www.mindfuleducation.org/mindfulnessforchildren.pdf>