

# Role of Emotional Intelligence in Predicting Academic Achievement in Children with Attention-Deficit/Hyperactivity Disorder

Tasmia Hai, M.Ed & Emma A. Climie, PhD, R.Psych  
Werklund School of Education, University of Calgary



## Abstract

Social and emotional competency is important for academic success (Saklofske, Austin, & Minski, 2003). However, the literature is scarce in regards to emotional intelligence (EI) as predictors of academic achievement in children with ADHD. The current study examined the influence of trait and ability-based EI on academic achievement. Results found that EI predicted between 11.4% to 48.8% of the differences in academic performance, thus emphasizes the importance of socio-emotional support for children with ADHD.

## Background

- ADHD is a common neurodevelopmental disorder in children, with an estimated prevalence of 5% (Brault & Lacourse, 2012)
- Children with ADHD along with their core symptoms of inattention, hyperactivity and impulsivity, also face challenges with academics (Wolraich, 2005) and emotion regulation (Sinzig, Morsch, & Lehmkuhl, 2008)
- While previous studies have investigated many factors affecting academic performance in children with ADHD, much less focus has been given to understand the relations between social-emotional ability and academic achievement

## Emotional Intelligence

- Emotional intelligence (EI) is defined as the ability or skill that allows one to recognize, assess, and manage emotions (Serrat, 2009)
- Trait based EI and Ability based-EI are two primary frameworks
  - Trait EI- Focuses on the individual's ability to respond to a situation (Doing; Bar-On, 1997)
  - Ability-based EI: Focuses on the what the individual knows (Knowledge; Mayer, Salovey, & Caruso 2002 )
- Parker et al. (2004) found academic success to be significantly associated with most EI dimensions in typically developing (TD) children

## Research Question

How does trait-based and ability-based emotional intelligence predict academic achievement in children with ADHD?

- What are the relations between trait and ability based EI with academic achievement
- What is the predictive power of the models?

## Methods

- Participants:**
  - 52 children with ADHD
  - Age 9-12 years old ( $M = 9.99$  years,  $SD = 1.15$ )
- Self-Report Questionnaires**
  - Mayer-Salovey-Caruso Emotional Intelligence Test, Youth Research Version (MSCEIT-YRV; Mayer, Salovey & Caruso, 2014)
  - Bar-On Emotional Quotient Inventory: Youth Version - short (EQ: I-YV(S); Bar-On & Parker, 2000)
  - Brief Academic battery from Woodcock Johnson III-Test of achievement
- Data Analysis**
  - Pearson Correlation was conducted separately with the four measures of academic achievement (WJ Ach) with measures of EI (Bar-On and MSCEIT)
  - Multiple Linear Regressions were conducted

## Research Question 1

Table 1

Pearson Correlation between subscales of MSCEIT and Academic Achievement

Measures	Math (applied problems)	Spelling	Reading	Brief Achievement
Perceiving Emotions	.65**	.26	.19	.37*
Facilitating thoughts	.16	.22	.36*	.24
Understanding Emotions	.50**	.34*	.49**	.47**
Managing Emotions	.30	.07	.18	.14
Experiential EI	.46**	.30	.39*	.38*
Strategic EI	.46**	.21	.37*	.34*
Total EI	.52**	.28	.42**	.40*

Table 2

Pearson Correlation between subscales of Bar-On and Academic Achievement

Measures	Math (applied problems)	Spelling	Reading	Brief Achievement
Intrapersonal Scale	-.15	.32*	.17	.12
Interpersonal Scale	-.24	.19	.19	.05
Management Scale	.26	.01	-.05	-.01
Adaptability Scale	-.28	-.12	.07	-.18
Emotional Quotient	-.25	.12	.12	-.05

## Research Question 2

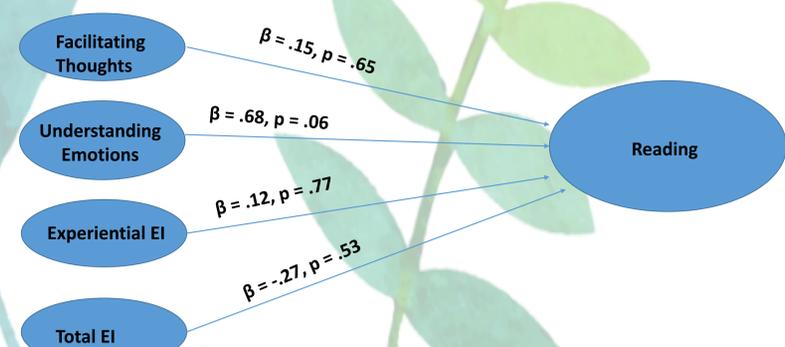


Figure 1

Predictive power of EI subscales with Reading Achievement

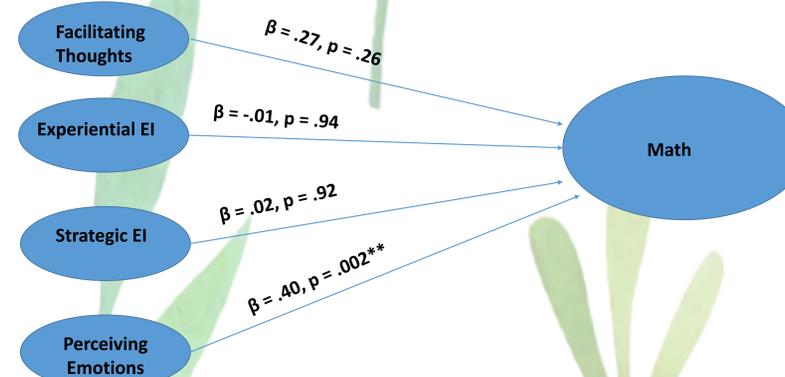


Figure 2

Predictive power of EI subscales with Math Achievement

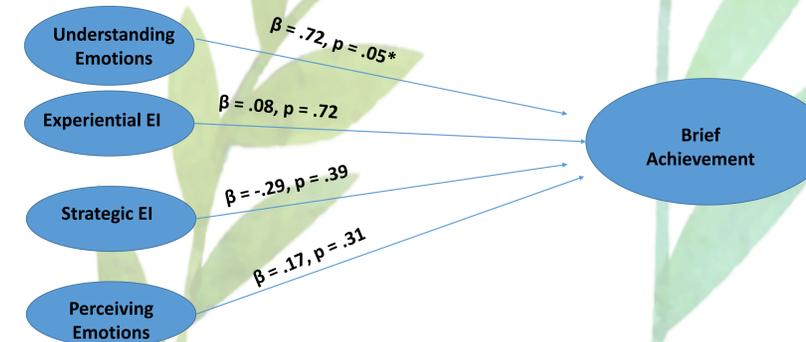


Figure 3

Predictive power of EI subscales with Brief Achievement

## Results

- No significant correlations were found with the EQ: I-YV(S) measure (trait-based EI) and were not included in the multiple regression analysis (Table 2)
- Significant proportion of the total variation of reading scores was predicted by ability-based EI,  $F(4, 37) = 3.028, p < 0.05, r^2 = 0.268$  (Figure 1)
- 48.8 % of the variance in math scores was accounted for by ability-based EI,  $F(4, 36) = 7.630, p < 0.01, r^2 = 0.488$ , (Figure 2)
- 11.4% of total variation in spelling scores was predicted by ability based EI,  $F(1,37) = 4.623, p < 0.05, r^2 = 0.114$ .
- 28.9% of the total variation in overall achievement scores was predicted by ability-based EI,  $F(4, 36) = 3.244, p < 0.05, r^2 = 0.289$  (Figure 3)

## Discussion

- Ability-based EI had stronger relations with academic achievement than trait-based EI in children with ADHD
- Ability-based EI had the strongest predictive power for math related achievement
  - Weakest predictive power for writing related achievement
- These results expand our current understanding of the EI abilities in children with ADHD
- Provides evidence to support that children who are able to apply their emotional knowledge are able to do better academically, especially in math related tasks.

## Implication/Future Direction

- This is first study to investigate the predictability of EI in academic achievement in children with ADHD
- Emphasizes the importance of socio-emotional interventions in schools.
- School psychologists involved in EI related interventions need to focus more on the application of EI knowledge and not just rote teaching of knowledge.
- Future research can incorporate school grades such as grade point averages (GPA) to supplement standardized scores in understanding the predictive role of EI.

## Reference

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. American Psychiatric Pub.  
 Bar-On, R., & Quisenberry, F. J. B. O. E. (2008). Inventory: Youth Version (EQ: I-YV); technical manual. Toronto: Multi-Health Systems.  
 Climie, E. A., Saklofske, D. H., Mastoras, S. W., & Schwann, V. L. (2017). Trait and Ability Emotional Intelligence in Children With ADHD. *Journal of Attention Disorders*, Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5724711/>.  
 Langberg, J. M., Dvorsky, M. R., & Evans, S. W. (2013). What specific facets of executive function are associated with academic functioning in youth with attention-deficit/hyperactivity disorder? *Journal of Abnormal Child Psychology*, 41(7), 1145-1159.  
 Mayer, J. D., Salovey, P., Caruso, D. (2014). Mayer-Salovey-Caruso Emotional Intelligence Test: Youth Version (MSCEIT-YRV). Toronto, Ontario, Canada: Multi-Health Systems.  
 Saklofske, D. H., Austin, E. J., & Minski, P. S. (2003). Factor structure and validity of a trait emotional intelligence measure. *Personality and Individual Differences*, 34(4), 707-721.  
 Serrat, O. (2009). *Understanding and developing emotional intelligence*. Washington, DC: Asian Development Bank.  
 Sinzig, J., Morsch, D., & Lehmkuhl, G. (2008). Do hyperactivity, impulsivity and inattention have an impact on the ability of facial affect recognition in children with autism and ADHD? *European Child and Adolescent Psychiatry*, 17(2), 63-72.  
 Spöwall, D., & Thorell, L. B. (2014). Functional impairments in attention deficit hyperactivity disorder: the mediating role of neuropsychological functioning. *Developmental Neuropsychology*, 39(3), 187-204.  
 Wolraich, M. L., Wilhelmsen, C. J., Brown, T. E., Evans, S. W., Gotlib, E. M., Knight, J. R., ... & Wilens, T. (2005). Attention-deficit/hyperactivity disorder among adolescents: a review of the diagnosis, treatment, and clinical implications. *Pediatrics*, 116(6), 1734-1746.