

Emotional Intelligence

Self-motivation and low impulsivity predict progress in GCSE science

This study sought to explore the relationship between trait emotional intelligence in secondary school students and performance in GCSE science specifications. Results of the study showed that some aspects of emotional intelligence significantly predicted attainment in GCSE sciences over and above the contribution made by prior attainment. In particular, self-motivation and low impulsivity were significant predictors in five out of six science specifications.

In this study, questionnaire data on trait emotional intelligence (EI) was collected from students due to be assessed in the following OCR science specifications available at GCSE: Applied Science Double Award, Biology, Physics, Chemistry, Twenty First Century Science, and Gateway Science. Emotional intelligence was measured using a Trait Emotional Intelligence Questionnaire¹ that yielded a global trait EI score as well as scores for 15 subscales organised into four factors. Trait EI covers a wide range of skills and personality dispositions such as motivation, confidence, optimism and peer relations.

Emotional Intelligence subscales and factors significantly affecting, positively (+), students' progress from Key Stage 3 to GCSE in each science specification

Emotional Intelligence Subscales and Factors	Applied Science Double Award	Biology	Chemistry	Physics	Twenty First Century Science	Gateway Science
Self-esteem	+	+	+			
Emotion expression						
Self-motivation	+	+	+	+	+	
Emotion regulation	+					
Happiness	+	+	+			
Empathy	+	+			+	
Social awareness	+					
Impulsivity (low)	+	+	+	+	+	
Emotion perception	+					
Stress management	+					
Emotion management						
Optimism	+		+			
Relationships	+	+				
Adaptability	+	+	+			
Assertiveness						
Wellbeing	+	+	+			
Self-control	+	+	+		+	
Emotionality	+					
Sociability						
trait EI	+	+	+			

Key findings

- Students taking any of the separate sciences (Biology, Chemistry, Physics) had, on average, significantly higher trait EI scores than students taking any other science.
- For all subscales, with the exception of emotion expression and optimism, the mean scores for the Applied Science Double Award entry were significantly lower than those of students taking the separate sciences.
- Self-motivation and low impulsivity were significant predictors of GCSE attainment in almost all of the science specifications after controlling for Key Stage 3 (KS3) scores, the exception being Gateway Science. There were no significant relationships between the EI subscales and attainment in this specification.
- The majority of the trait EI subscales significantly predicted attainment in the Applied Science Double Award after controlling for KS3 scores. However, the emotion expression, emotion management and assertiveness subscales were not significant predictors of progress in any of the sciences.
- Global trait EI scores were found to significantly predict progress from KS3 to GCSE in the Applied Science Double Award and in Biology and Chemistry. They were not a significant predictor in Physics, Twenty First Century Science or Gateway Science.

It is worth noting that the KS3 performance of students taking a GCSE in the separate sciences was significantly higher than the performance of students taking the other three science specifications. Students taking the Applied Science Double Award had, on average, the lowest KS3 scores.

Although the results provide support for the role of emotional and social factors in students' school performance and progress, only some of the EI subscales and factors were significantly related to attainment in GCSE sciences over and above the contribution made by prior ability. The greatest effect was in the Applied Science Double Award and the least was in Physics. This could suggest that trait EI may have a larger effect where prior attainment is lower.

¹ Petrides, K.V. (2001). *A psychometric investigation into the construct of emotional intelligence*. Doctoral dissertation. University College London, London, England.

Context of research

“Can trait Emotional Intelligence predict differences in attainment and progress in secondary school?”

Cambridge Assessment undertook this large-scale questionnaire survey of British students aged 14-16 to determine whether performance in different GCSE subjects is associated with candidates' levels of emotional intelligence, after taking into account prior attainment at age 14. Responses to a Trait Emotional Intelligence Questionnaire from almost 2000 OCR science candidates from 31 schools were analysed. The questionnaires were completed prior to the June 2007 examination session and questionnaire scores were later matched to participants' Key Stage 3 results and GCSE grades. The first phase of the research investigated the relationship between trait EI and performance in six different science specifications. A second phase of the study looked at the relationship in a wider range of GCSE subjects taken by the students in the sample. In particular, it addressed subjects such as English, Drama and Art and Design, which might be expected to be more affected by EI.

Further information

Full details of the emotional intelligence work can be found in the full report available at: www.cambridgeassessment.org.uk

Contact: Dr Carmen Vidal Rodeiro, Research Division
Cambridge Assessment, 1 Regent Street, Cambridge, CB2 1GG
Email: Vidal.C@cambridgeassessment.org.uk **Tel:** 01223 552597