



From Neuroscience to the Classroom

Symposium at the Swedish Collegium for Advanced Study (SCAS), Uppsala
5-6 April, 2017

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Insights from Genetic Research Into the Association Between Reading and Mathematics

Abstract:

Findings from quantitative genetic research on reading and mathematics suggest that variation in both abilities is driven by environments and by many genes of small effect. Genetic effects on reading and mathematics are moderate to strong, are relatively stable over development and are responsible for most of the observed co-variation between the two abilities. Environments mainly contribute to developmental changes and discrepancies in both abilities. The aetiology of normal, low and high ability in reading and mathematics is largely the same, suggesting mainly the same genetic and/or environmental factors operating in the whole range of ability. Recent research suggests that the observed association of reading and mathematics with measures of environments and non cognitive traits, such as motivation, subject interest and personality are also influenced by common genetic factors. Molecular genetic studies including polygenic scoring, support what reported by quantitative genetics. More importantly they are facilitating the discovery of genetic variances associated with those traits. Understanding genes function will help to understand the path from genes, to brain function, to patterns of behaviour. Ultimately, this research will bringing us closer to understanding the origins of individual differences and to apply this knowledge to new studies as well as in educational practice.

About:

I have been lecturing in psychology across different branches of the University of London, in the United Kingdom. I am currently lecturing at the School of Oriental and African Studies, University of London (SOAS) and I am an associate professor at Tomsk State University where I lecture in psychology. I am also course convenor for the MSc programme in developmental disorders. My research focuses mainly on mathematics, reading, cognitive and non-cognitive abilities associated with learning.