



Understanding the role of executive functions in secondary mathematics learning ESRC DTP Collaborative Studentship

Loughborough University and No More Marking Ltd

The Midlands Graduate School is an accredited Economic and Social Research Council (ESRC) Doctoral Training Partnership (DTP). One of 14 such partnerships in the UK, the Midlands Graduate School is a collaboration between the University of Warwick, Aston University, University of Birmingham, University of Leicester, Loughborough University and the University of Nottingham.

Loughborough University as part of Midlands Graduate School is now inviting applications for an ESRC Doctoral Studentship in association with our collaborative partner No More Marking Ltd to commence in October 2018.

Children's underachievement in mathematics is a significant economic and societal problem with costs to individuals in poorer life chances, and a societal cost estimated at £2.4 billion per year. Consequently, researchers have sought to understand why some individuals struggle with learning mathematics. A growing body of research has identified that executive functions (EFs), the set of processes that control and guide our thoughts and behaviour, play an important role in mathematics achievement. Three EF skills have received the most research attention: working memory, the ability to monitor and manipulate information in mind; inhibition, the ability to suppress distracting information and responses; and shifting, the capacity for flexible thinking and switching attention between tasks.

To date research has focused on how EFs predict mathematics achievement at a single time point. The goal of this project is to extend this work and look at the effect of EFs on progress in mathematics. In collaboration with [No More Marking](#) (NMM), an educational assessment company, the successful candidate will design studies to integrate with NMM's 'Proof of Progress' testing system that monitors the learning gains of students in Year 7 and 8.

The successful candidate will be based in the [Mathematics Education Centre](#) (MEC) at Loughborough University, an internationally renowned research centre with particular research strengths in mathematical cognition and pedagogy. They will be supervised by [Matthew Inglis](#) and [Camilla Gilmore](#). In 2017 Matthew Inglis was named the Times Higher Education's [Outstanding Research Supervisor of the Year](#). Camilla Gilmore has recently completed a [£300k project studying the role of EFs in mathematics performance](#). Each year the successful candidate will have a placement at NMM, where they will receive mentoring from assessment experts [Patrick Barmby](#), [Chris Wheadon](#), and [Daisy Christodoulou](#).

Candidates should have a degree in education, psychology, mathematics or a related subject, and a strong interest in the psychology of learning. Candidates without a research-methods Masters

degree will be eligible for a 1+3 award, the first year of which consists of a Masters in Social Science Research.

Application Process

To be considered for this PhD, please complete the Collaborative Studentship application form [available online here](#). Please include a cover letter, a CV, copies of degree transcripts, and along with two references email these to Denise Wade at D.J.Wade@lboro.ac.uk.

Application deadline: Friday 16th February

Midlands Graduate School ESRC DTP

Our ESRC studentships cover fees and maintenance stipend and extensive support for research training, as well as research activity support grants. Support is available only to successful applicants who fulfil eligibility criteria. To check your eligibility, visit:

www.mgsdtp.ac.uk/studentships/eligibility/

Informal enquiries about the research or the Mathematics Education Centre prior to application can be directed to Matthew Inglis (m.i.inglis@lboro.ac.uk).