Reasoning skills in post-16 mathematics students
ESRC DTP Collaborative Studentship

Loughborough University and Mathematics in Education and Industry

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 Mathematics in Education and Industry (MEI) to commence in October 2019.

The background to this Studentship is the drive to increase the numbers of students studying mathematics post-16. Specifically, Core Maths qualifications were introduced in 2014 for students who scored A*-C in GCSE but chose not to study mathematics at AS/A level, providing opportunities to apply mathematics to other fields and develop quantitative reasoning skills. One reason for their introduction is that studying mathematics is thought to improve general reasoning skills, which are valued in many careers and degrees. There is evidence that A level mathematics improves these skills, but we do not yet know whether this is the case for Core Maths.

The proposed project will ask:

- To what extent are general and quantitative reasoning developed in Core Maths and AS/A level mathematics?
- What mechanisms link mathematical learning to general and quantitative reasoning?
- How can we improve general and quantitative reasoning skills?

It will answer by collaborating with MEI, an independent charity committed to improving mathematics education. MEI creates innovative resources for thousands of students/teachers and offers a range of professional development. It has developed two Core Maths and mathematics AS/A level specifications that are examined through OCR. The research findings will both contribute to theoretical development and enable MEI to better support students and teachers.

The successful candidate will be based in the Mathematics Education Centre (MEC) at Loughborough University, an internationally renowned research centre with strengths in mathematical cognition and pedagogy. They will be supervised by Dr Lara Alcock and Dr Nina Attridge. The student will work with key leaders at MEI to influence the design and refinement of resources for teaching Core Maths qualifications and to develop their understanding of 16-18 mathematics education in England.

Candidates should have a degree in education, psychology, mathematics or a related subject, a strong interest in mathematics education, and we welcome applicants with strong quantitative analysis skills. Candidates without a research methods master's 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 email the application, a cover letter, CV, copies of degree transcripts, and two references to Denise Wade at D.J.Wade@lboro.ac.uk.

Application deadline: Friday 29th March

Midlands Graduate School ESRC DTP

Our ESRC studentships cover fees and a 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 Nina Attridge (n.f.attridge@lboro.ac.uk).