



Optimising Learning of Multiplication and Division Facts in Schoolchildren ESRC DTP Collaborative Studentship

Loughborough University and Times Tables Rock Stars

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 Times Tables Rock Stars to commence in October 2019.

An important characteristic of individuals with good mathematics achievement is fluent access to stored number facts. However, many children struggle to learn the number facts they need to make progress in mathematics. Current models of number fact learning propose that facts are stored in an associative network and the process of learning involves strengthening the association with the correct answer. However, these models make few predictions about the most effective way to achieve this. Therefore researchers are unable to make strong recommendations to teachers and parents regarding how to best support number fact learning.

The goal of this project is to test and extend models of number fact learning and identify how they can be applied to maximise children's learning. This research will be undertaken in collaboration with Times Tables Rock Stars, a very popular online resource used by 12,500 schools, 9,000 families and 2.3M children. The Times Tables Rock Stars platform incorporates game-play features to support children's learning of multiplication and division facts. The project will involve analysing anonymized data from the existing platform as well as running novel learning studies with a modified version of the platform.

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 Camilla Gilmore (Loughborough) and Lucy Cragg (School of Psychology, University of Nottingham). Each year the successful candidate will have a placement at Times Tables Rock Stars, where they will receive mentoring from mathematics education expert Bruno Reddy.

Candidates should have a degree in education, psychology, mathematics or a related subject, and strong interest in supporting children's mathematics education. We would welcome applicants with quantitative skills appropriate for the analysis of large datasets. 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 at Loughborough University.

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: Thursday 28th February 2019

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 Camilla Gilmore (c.gilmore@lboro.ac.uk).