



UNIVERSITY OF
LINCOLN

School of Education

College of Social Science

Briefing Note

June 2018

Does paired mentoring of Year 11 students with STEM undergraduates in science work?



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Key Points

- How effective paired mentoring can be on improving science GCSEs results for Year 11 students from disadvantaged backgrounds.
- Impact on undergraduates to consider teaching as a career.
- Potential and future viability of a paid mentoring scheme delivered by undergraduates.
- To inform schools, funders and policy makers about the pilot with the aim of furthering the study.

This reports on a project delivered by the School of Education at the University of Lincoln that was designed to support Year 11 (aged 15-16) students from disadvantaged backgrounds by pairing them with undergraduate mentors during the last year of their science General Certificate of Secondary Education (GCSE) study.

Paired Mentoring Project

The study, set up as a randomised control trial, involved 86 disadvantaged Year 11 students from four secondary schools based in a rural county. Of the Year 11 students, half were randomly assigned, to the experimental group for the mentoring and the other half to a control group.

The schools were similar in terms of free school meals, GCSE 5A*-C measures and value-added performance to reduce the likelihood of any effect being attributable to factors other than mentoring.

The 40 undergraduates, in the second and third year of their Science, Technology, Engineering and Maths (STEM) related degree, were randomly assigned to a Year 11 pupil. The Year 11 pupils were mentored for one hour per week for 23 weeks and had an intensive six hour mentoring session at the University prior to their GCSE examinations.



Rationale

In England there is a growing focus on improving the lives of disadvantaged pupils whose schools receive additional funding in order ‘... to raise the attainment of disadvantaged pupils of all abilities and to close the gaps between them and their peers’ (DfE, 2016). There is a growing need to directly increase pupils’ attainment in both GCSE and A-level science examinations given that the latest report on GCSE results has shown the proportion of pupils achieving A*–C has dropped by 2.4% points in comparison to similar examination in 2014 (DfE, 2015). Statistics have also shown that pupils who are classed as disadvantaged are far less likely to obtain high marks in their GCSE examination (DfE, 2013).

Currently in England, there is no paired mentoring programme that has been designed, implemented or evaluated, that specifically pairs undergraduates studying science subjects with Year 11 pupils (aged 15–16) studying for their science GCSEs.

This project aimed to investigate the use of academically asymmetrical paired mentoring to raise attainment and improve attitudes towards science amongst disadvantaged Year 11 (age 15–16) pupils in the UK. Year 11 pupils, from disadvantaged backgrounds, were mentored by undergraduates studying STEM subjects, with the aim to improve pupils’ academic attainment in, and attitude towards, science.

Findings

The project found that mentored Year 11 pupils did statistically significantly better in terms of attainment in both mock and actual GCSEs examinations than those pupils in the control group. There was also a statistically significantly greater improvement in Year 11 pupils’ attitudes to science than pupils in the control group. Of the 21 undergraduate mentors who were in their 3rd year, 6 (who prior to being mentors had reported having had no inclination towards becoming science teachers) have, following the experiences that they gained on this programme, now completed science teacher training and are now working as secondary science teachers.

“ The paired mentoring project has demonstrated the significant and exciting impact it can have on Year 11 pupils in developing their academic performance and attitude to school science. This research demonstrates the positive benefits and opportunities that collaborations between universities and schools can have.”

Dr Rachael Sharpe

To read more about the project please find the full article here:

Does paired mentoring work?

Sharpe, R., Abrahams, I. and Fotou, N. (2018). A study of the effectiveness and affective value of academically asymmetrical peer mentoring in supporting disadvantaged students in school science. *Research in Science & Technological Education*.

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