

171

Evaluating the use of peer mentoring in developing mathematical skills

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Research Domains

Student Access and Experience (SAE)

Abstract

This paper evaluates a scheme called Maths Coach which uses students to mentor school pupils in preparing for examinations. The programme, which has been adopted from an initiative developed in Sweden, aims to ensure that pupils are well prepared for their assessments, but also for university studies. In addition, it develops the skills of the university students who run the sessions, both in terms of reinforcing their knowledge of the fundamentals of mathematics, but also some key confidence and communication competences. The paper outlines an evaluation of the Maths Coach scheme operated at a UK university to see whether it meets its objectives. In doing this, the paper refers to the coaching literature, and draws on the underpinning research which led to the original scheme in Sweden. Both our evaluation and the literature suggest such a technique helps learners take responsibility for their own learning, and this maximises their performance.

Full paper

This paper evaluates a scheme called Maths Coach which uses university students to help mentor school pupils in preparing for their examinations. The programme, which has been adopted from an initiative developed in Sweden, aims to ensure that pupils are well prepared for their assessments, but also subsequently for

university studies. In addition, it develops the skills of the university students who run the sessions, both in terms of reinforcing their knowledge of the fundamentals of mathematics, but also some key confidence and communication competences.

In 2018 Aston University launched the UK's first pilot of Sweden's successful maths tutoring platform, Maths Coach Online, enabling GCSE and A-Level students to access free online maths support. The sessions are led by a team of final year mathematics undergraduate coaches, who give support three evenings per week between 5pm and 8pm.

The platform operates as a secure text-based messaging system, allowing students to communicate with coaches anonymously. All coaches are DBS checked and have received theoretical and practical training in online teaching. They also sit two examinations throughout their time as a coach. All sessions are stored and checked by members of staff regularly for safe-guarding purposes.

The maths coaching platform is supported by Aston University's outreach programme and is advertised to schools in the West Midlands.

With this free platform, access to one-to-one mathematics coaching is no longer reserved for those that can afford private tuition, but is instead, available for all pupils. This paper presents our evaluation of the Aston scheme to find out whether the Swedish proposition that Maths Coach Online helps many to achieve their full mathematical potential, is replicated in the UK. It will also support research into online learning and results will be fed back into schools and teacher training programmes. The research supports the proposition that Maths Coach is a cost-effective intervention that has the potential to support thousands of students.

The coaching system was first launched in Sweden by KTH Royal Institute of Technology (Stockholm), and now involves multiple universities across a number of cities, with the backing of the Swedish government and local councils. The Swedish platform received 45,000 calls since it began in 2009 until 2018, and has grown further during the pandemic.

Coaching unlocks people's potential to maximise their own

performance (Whitmore, 1992). It invests in learners in a way which stimulates their motivation (Rogers, 1959) and addresses what is holding them back from performing at their maximum.

There has been much evaluation of the Swedish approach, particularly by Stefan Stenbom. He identified that such methods of learning are a very effective method of conveying knowledge to pupils. This is particularly efficacious where the student coaches are trained to understand the context and background of those they are teaching (Stenbom et al, 2012, Harstinski and Stenbom, 2013).

In this paper we look at the take up of the scheme at Aston and we evaluate its effectiveness via data analysis of progression to further study, satisfaction from participants, and interviews with students acting as Maths coaches. We will present the key findings of this evaluation and learnings to which are being fed into recommendations for the future. Perhaps this will inspire other UK universities to set up a Maths Coach scheme.

References

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