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Mathematics resilience amongst undergraduate economics students: what should mathematics learning support practitioners know?

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Abstract

Some researchers have proposed that students can be coached to develop mathematics resilience which should enable them progress and succeed. Johnston-Wilder and Lee (2010) define mathematical resilience as a “positive adaptation that allows people to overcome any affective barriers presented when learning mathematics” (p.1). This definition suggests that faced with challenges when learning mathematics, some students may independently or otherwise develop skills and strategies that enable them to adapt positively in the face of those learning challenges. The research that has been carried out on mathematical resilience has focused mainly on the learning of either school mathematics or workplace numeracy learning. The work in this area has found that students with mathematical resilience are more likely to persevere and succeed in their learning of mathematics. It is plausible to suppose that the research findings on mathematics resilience of students at pre-tertiary level may be applicable to students in the higher education sector. It is therefore worthwhile for mathematics learning support practitioners to be aware of the strategies that mathematically resilient students draw upon to persist with their studies. Knowledge of these strategies should help mathematics learning support practitioners to coach first-year students to become independent learners and successful in their studies in subsequent years

This paper reports the preliminary findings on a study, approved by Education Ethics Committee at the University of York, that explores mathematical resilience amongst students studying economics and related studies. The study, which is still ongoing, is being carried out in two phases. The first phase of the study surveys first-year undergraduate students of economics and related studies using a mathematical resilience instrument to measure the extent to which these students are mathematically resilient. Additional data collected via the survey questionnaire are also explored to ascertain if there is any correlation between the level of students’ mathematical resilience and their level of attainment in their highest pre-tertiary mathematics qualification. The second phase of the study uses semi-structured interviews to explore the mathematics learning experiences of a small number of first-year and second-year undergraduate students of economics and related studies. The goal of these interviews is to explore the strategies they use to engage with difficult mathematics topics and persist with challenges that they face during their studies. Drawing on the findings of these interviews, a coaching programme and resources will be developed for future cohorts of students who embark on their study of economics and related studies.

Reference

Johnston-Wilder, S. and Lee, C. (2010). Developing mathematical resilience. In: BERA Annual Conference 2010, 1-4 Sep 2010, University of Warwick.