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Investigating students' levels of engagement with mathematics: critical events, motivations, and influences on behaviour.

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Summary: Universities invest significant resources in the provision of mathematics tuition to first year students, through both traditional and non-traditional means. Research has shown that a significant minority of students do not engage with these resources appropriately. This paper presents findings from a study of two groups of students at Maynooth University. Both groups had similar mathematical backgrounds on entry to university. The first group consisted of seven students who had failed first year mathematics and had very low levels of engagement with available supports. The second group consisted of nine students who had passed first year mathematics and had engaged with the supports to a significant extent. It emerged that while both groups initially displayed similar tactics and encountered similar difficulties, their levels of reaction to a number of critical events in their mathematical education were key to their engagement levels and their subsequent progression. Further analysis revealed aspects of the students' behaviour which caused them to approach or avoid difficulties. The reasons behind the different student behaviours were investigated, and the main categories of influence on student behaviour which emerged from the interview data were fear, social factors, and motivation.

Classification: C25 C35 C95 C65

Keywords: mathematics support; engagement; critical event; fear; motivation; social factors

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