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The role of prior mathematical experience in predicting mathematics performance in higher education.

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Summary: Evidence of deficiencies in basic mathematical skills of beginning undergraduates has been documented worldwide. Many different theories have been set out as to why these declines in mathematical competency levels have occurred over time. One such theory is the widening access to higher education which has resulted in a less mathematically prepared profile of beginning undergraduates than ever before. In response to this situation, the present study details the examination of a range of methods through which a student's mathematical performance in higher education could be predicted at the beginning of their third-level studies. Several statistical prediction methods were examined and the most effective method in predicting students' mathematical performance was discriminant analysis. The discriminant analysis correctly classified 71.3% of students in terms of mathematics performance. An ability to carry out such a prediction in turn allows for appropriate mathematics remediation to be offered to students predicted to fail third-level mathematics. The results of the prediction of mathematical performance, which was carried out using a database consisting of over 1000 beginning undergraduates over a 3-year period, are detailed in this article along with the implications of such findings to educational policy and practice.

Classification: C35 D30

Keywords: predicting performance; mathematics problem; declining standards; changing profile; widening access; remediation

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