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Páraic Treacy and Fiona Faulkner: Trends in Basic Mathematical Competencies of Beginning Undergraduates in Ireland, 2003-2013

Deficiencies in beginning undergraduate students' basic mathematical skills has been an issue of concern in higher education, particularly in the past 15 years. This issue has been tracked and analysed in a number of universities in Ireland and internationally through student scores recorded in mathematics diagnostic tests. Students beginning their Science based and Technology based undergraduate courses in the University of Limerick have had their basic mathematics skills tested without any prior warning through a 40 question diagnostic test during their initial service mathematics lecture since 1998. Data gathered through this diagnostic test have been recorded in a database kept at the university and explored to track trends in mathematical competency of these beginning undergraduates. This paper details findings surrounding an analysis of the database between 2003 and 2014, outlining changes in mathematical competencies of these beginning undergraduates in an attempt to determine reasons for such changes. The analysis found that the proportion of students tested through this diagnostic test that are predicted to be at risk of failing their service mathematics end-of-semester examinations has increased significantly between 2003 and 2014. Furthermore, when students' performance in secondary level mathematics was controlled, it was determined that the performance of beginning undergraduates in 2014 was statistically significantly below that of the performance of the beginning undergraduates recorded 10 years previously.