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Varsavsky, Cristina

Use of CAS in secondary school: a factor influencing the transition to university-level mathematics?

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Summary: Australian secondary school systems offer three levels of senior (year 12) mathematics studies, none of them compulsory: elementary, intermediate and advanced. The intermediate and advanced studies prepare students for further mathematics studies at university level. In the state of Victoria, there are two versions of intermediate mathematics: one where students learn and are examined with a computer algebra system (CAS) and another where students can only use scientific calculators. This study compares the performance of 1240 students as they transitioned to traditional university-level mathematics and according to whether they learned intermediate mathematics with or without the assistance of a CAS. This study concludes that students without CAS show a slight advantage, but the most important factor affecting student performance is the uptake of advanced-level mathematics studies in secondary school.

Classification: C74 C75 R24 R25 U74 U75

Keywords: CAS; scientific calculators; university mathematics; transition secondary - tertiary education; comparative studies; educational studies

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