

FACTORS INFLUENCING STUDENT DECISION ON SENIOR SECONDARY SCHOOL MATHEMATICS SUBJECTS AND SUBSEQUENT EFFECT ON UNIVERSITY STUDIES

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BACKGROUND

There are substantial and ongoing concerns in the Australian and international secondary and tertiary education sectors about students' transition from secondary to tertiary mathematics. Declining enrolments in university mathematics and increasing failure rates in first-year are often attributed to falling participation in advanced mathematics in secondary school and less stringent university entry requirements, which have adversely affected students' mathematical preparedness for university study.

AIMS

The aim of this study was to determine from students the reasons for students choosing/not choosing advanced mathematics in the last two years of secondary school.

DESIGN AND METHODS

In 2013 all schools teaching intermediate and advanced mathematics in Queensland were invited to participate in stage one of a two-year longitudinal project. Schools which agreed ($n=72$) were sent Likert style paper surveys for their students to complete. The questions were very similar to those asked of teachers and careers counselors in the *Maths? Why Not?* project. Thirty-seven schools sent back completed surveys, comprising 600 intermediate mathematics students and 350 intermediate and advanced mathematics students.

RESULTS

The results suggest that there are distinct differences in the reasons, depending on which mathematics students study in the last two years of secondary school. For students who did not choose advanced mathematics the decision was largely personal with no outside influence. However, those who chose both intermediate and advanced mathematics were influenced by outside parties. The data also sheds light on subject choice myths.

CONCLUSION

The results shed very interesting light on the current state of participation in advanced mathematics not only in Queensland but across the country. Whilst students do not require advanced mathematics to enter any university degree program in Queensland, students studying only intermediate mathematics at school who proceed to study a mathematics-based degree at university (e.g., engineering, mathematics, business) usually find themselves having to study the equivalent advanced mathematics course in a much shorter time frame. In addition, this may also mean that students will have one fewer elective to choose. A university diagnostic test will be presented to showcase how teaching staff can determine differences between the two groups of students.

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