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Mathematics, computers, and umbilical cords.

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This report describes an investigation of the attitudes, achievement and behaviour of students in a technology-enriched first-year Australian tertiary Algebra and Calculus course. The study indicated that the technology choices and competencies that students demonstrated under test conditions and in a computer workshop were not always consistent with their general technology attitudes and behaviour over the semester. Mathematics confidence showed consistently positive relationships with achievement on a range of coursework while computer confidence and technology attitudes did not, despite the technology intervention. Of particular interest were students whose computer confidence and enthusiasm did not translate into achievement. Factors that failed to explain students' technology choices and demonstrated levels of competency were computer confidence, prior use of technology for mathematics, attitudes towards such use, completion of weekly exercises, and tutorial/laboratory attendance. The study offered further compelling evidence of the low relationship between mathematics confidence and computer confidence. Students' views indicated clearly that they valued hand exercises. Curriculum development and assessment profiles need to accommodate their learning needs and preferences, and the rates at which these evolve. Questions arise about the reasons for students' technology choices and behaviour: beliefs and preferences developed through prior experiences may be like umbilical cords when students assimilate new cultures of learning and practice.

Classification: C25 U75