

Using Technology to Support Mathematics Teaching

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ABSTRACT

New technologies aimed at improving the student learning experience have evolved in recent years. We have used technology to develop a wide range of web-based learning resources to help deliver mathematics teaching and support student learning. These range from mathematics workbooks to complete narrated lectures, podcasts to video tutorials and short online quizzes to full-blown computer aided assessments.

One of our main objectives is to investigate the use of emerging technologies for mathematics and statistics support and evaluate their effectiveness. Consequently our use of technology has significantly increased in recent years and this paper reviews some early developments before considering in detail how technology is currently interwoven into our teaching with reference to teaching a typical engineering mathematics module with web-based resources. Some of these resources, e.g. **mathcentre** (<http://www.mathcentre.ac.uk/>), are openly available online; these help students make the transition from school-level to university-level mathematics. We use others such as **HELM** (<http://helm.lboro.ac.uk/>) to specifically cater for teaching our own students and encourage student engagement; they are 'locally' available online via 'Learn' (<http://learn.lboro.ac.uk/>), the university's VLE (Virtual Learning Environment). We also use 'Learn' to deliver formative and summative CAA (computer aided assessments), to deliver 'narrated lectures' produced on a Tablet PC, and to deliver podcasts. Regular computer-based testing provides instant feedback and encourages students to learn and practice their mathematics, narrated lectures provide an alternative to the traditional lecture-tutorial approach and podcasts help reinforce key concepts and techniques. It is difficult to ascertain how beneficial a learning mechanism each is, but all are generally popular with students.

Keywords

Technology, Mathematics Support, Computer-Aided Assessment, VLE (Virtual Learning Environment)