

MathsLab: Developing the pedagogy and an environment for computer-based education in mathematics

DoS: Dr James Denholm-Price

Mathematics education research shows that people *learn* mathematics by *doing* mathematics, often with a pedagogic approach based around mathematical modelling or problem-based learning. Until recently the only practical way to “do” mathematics in education has been to hand-write mathematical content. New systems and pedagogy are needed to move beyond this in order to realise the full potential of eLearning in mathematics. Recent open mathematics eAssessment platforms like Numbas, STACK and DEWIS in the UK, together with widespread web browser support for mathematics online, mean that it is possible to create an integrated learning environment for mathematics similar to Kingston University’s “Nooblab”, which has demonstrated benefits for students learning to program. The effective pedagogic usage of such software needs to be researched and developed. There is a broad literature in computer-based learning in related STEM fields and a rich pedagogic history in mathematics education. The aim of this research project is to bring the two together and evaluate the best approaches for maths education alongside the development of a hybrid maths education and assessment environment, “MathsLab”.

(School of Mathematics – Maths & Computing Education research area.)