

APPLYING COMPUTER GAMES CONCEPTS TO TEACH DATABASE ANALYSIS AND DESIGN

Thomas M Connolly, Evelyn McLellan, Mark Stansfield, Judith Ramsay,

School of Computing
University of Paisley
High St, Paisley, PA1 2BE
Scotland
E-mail: thomas.connolly@paisley.ac.uk

John Sutherland

School of Social Sciences, Moray House School of
University of Paisley Education
University of Edinburgh
Edinburgh, EH8 8AQ
Scotland

KEYWORDS

Computer simulation games, database analysis and design, constructivist learning environments, problem-based learning, motivation, engagement, neuroplasticity.

ABSTRACT

The study of database systems is typically core in undergraduate and postgraduate programmes related to computer science and information systems. However, one part of this curriculum that many learners have difficulty with is database analysis and design, an area that is critical to the development of modern information systems. This paper reflects on these difficulties and explores a range of pedagogical issues surrounding the development of a problem-based learning environment based on interactive visualisation and computer games to help overcome these difficulties and help the learner develop the skills necessary to understand and perform database analysis and design effectively. The paper proposes a set of guiding principles upon which the proposed learning environment is being developed.

BIOGRAPHY



Thomas Connolly is a Professor in the School of Computing at the University of Paisley, having managed the Department of Computing and Information Systems for several years. Thomas worked for over 15 years in industry as a Manager and Technical Director in international software houses before entering academia. His specialisms are online learning and database systems. He has developed three fully online MSc programmes and developed and leads the undergraduate BSc Computer Games Technology programme. He is co-author of the highly successful academic textbooks Database Systems (now in its 4th edition) and Database Solutions (in its 2nd edition). He is a reviewer for several international journals and has been on the committee for various international conferences. He is a member of CPHC (Council of Professors and Heads of Computing) and member of the Higher Education Academy.



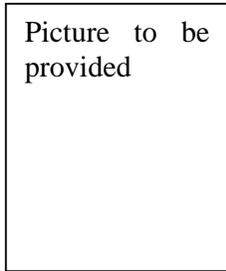
Mark Stansfield is a Senior Lecturer in the School of Computing at the University of Paisley. He has a PhD in Information Systems and has published papers on online learning, information systems and e-business in a number of international journals. He is a reviewer for several international journals and has been on the committee for various international conferences.



Evelyn McLellan is a Teaching Fellow in the School of Computing at the University of Paisley. Evelyn is a part-time Ph.D student and her specialisms are designing online programmes and interactive visualisation. She has published several papers in online learning in international conferences and journals.



Judith Ramsay is a Chartered Psychologist. Judith's undergraduate degree and PhD are from the University of Glasgow. Since 1993 she has been working as a research psychologist in the UK and abroad, mainly in industry. Judith was a Research Assistant for SCROLLA (Scottish Centre for Research into On-Line Learning and Assessment) at the University of Glasgow from 2001 – 2004 before joining the University of Paisley as a Lecturer in Psychology in the School of Social Sciences.



John Sutherland is a Reader in the Division of Computer Arts at the University of Abertay and is enrolled on a D.Ed at Moray House, School of Education in the University of Edinburgh. He was a visiting professor in virtual reality to Gifu University in Japan from 1996-97, and is an adviser to games and virtual reality companies and the author of the world's first computer games development degree. His specialism is video games design and production control.