Proceedings of the 3rd International Conference on e-Learning

University of Cape Town, South Africa 26-27 June 2008

Edited by

Dr Dan Remenyi
Trinity College Dublin, Ireland

Papers have been double-blind peer reviewed before final submission to the conference. Initially, paper abstracts were read and selected by the conference panel for submission as possible papers for the conference.

Many thanks to the reviewers who helped ensure the quality of the full papers.

Further copies of this book and previous year's proceedings can be purchased from http://academic-conferences.org/2-proceedings.htm

ICEL 2008

Contents

Preface

I am pleased to be able to introduce the Proceedings of the 3rd International Conference on e-Learning.

The Centre for Educational Technology at the University of Cape Town in South Africa is delighted to be hosting the conference this year. It is my pleasure to have the role of Conference Chair, with colleague Tony Carr as Programme Chair.
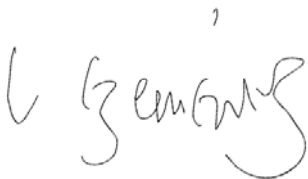
The opening keynote address is given by Dr. Max Price, Vice-Chancellor Designate, University of Cape Town, South Africa and on the second day of the conference a keynote on the topic *The Future is Closer than you Think* will be given by Martin Owen from Smalti in the United Kingdom.

This Conference aims to bring together a wide range of stakeholders involved in the challenges of e-Learning in a rapidly changing global society: researchers grappling with complex educational and technological debates and issues at their interface; those many innovators and practitioners interested in benefitting from, using and contributing to current research; civil society activists and thinkers; and professionals working in the private sector.

The conference provides a space for the rigorous and stimulating sharing of ideas about e-Learning today. It is an opportunity for the broader e-Learning community to meet, and for overlapping communities of practitioners to join the lively e-Learning conversations. The range of papers will ensure an interesting two days.

With an initial submission of 143 abstracts, after the double blind, peer review process there are 68 papers published in these Conference Proceedings. These papers represent research from Australia, Austria, Botswana, Canada, China, Denmark, Finland, Germany, Hong Kong, Japan, Malaysia, Namibia, New Zealand, South Africa, Sweden, Switzerland, Turkey, United Arab Emirates, United Kingdom and the United States of America.

I hope that you have a stimulating and enjoyable conference.

Associate Professor Laura Czerniewicz
Conference Chair
June 2008

Conference Executive:

Laura Czerniewicz, University of Cape Town, RSA
Antoinette van der Merwe, University of Stellenbosch, RSA
Johannes Cronje, Cape Peninsula University of Technology, RSA
David Guralnick, Kaleidoscope Learning, New York, USA
Mike Hart, University of Winchester, UK
Michel Plaisent, University of Quebec in Montreal, Canada
Phillip Jones, Hong Kong Institute of Education, China
Stella Lee, Athabasca University, Canada

Conference Committee:

The conference programme committee consists of key people in the e-Learning community around the world. The following people have confirmed their participation:

Rakesh Agarwal, (Accenture Private Limited, Bangalore, India), Neeti Agrawal, (Indira Gandhi National Open University, New Delhi, India), Ezendu Ariwa, (London Metropolitan University, London, UK), Zahra Al-Rawahi, (Sultan Qaboos University Oman), Abdallah Al-Zoubi, (Princess Sumaya University for Technology, Amman, Jordan), Berqia Amine, (University of Algarve, Faro, Portugal), William Ashraf, (University of Bradford, UK), Kallol Bagchi, (University of Texas at El Paso, USA), Azita Bahrami, (Armstong Atlantic State University, USA), Younes Benslimane, York University, Toronto, Canada, Prosper Bernard, (University of Quebec in Montreal, Canada), John Biggam, (Glasgow Caledonian University, UK) , John Black, (Teachers College, Columbia University, New York, USA), Patrick Blum, (Inside Business Group, Aachen, Germany), Luis Borges-Gouveia, (University Fernando Pessoa, Portugal), Sheryl Buckley, University of Johannesburg, South Africa, Daniele Chauvel, (Independent consultant in KM, France), Mohammad Chizari, (Tarbiat Modarres University, Iran), Hal Christensen, (Christensen/Roberts Solutions, USA), Sharon Cox, (University of Central England in Birmingham, UK), Johannes Cronje, Cape Peninsula University of Technology, South Africa, Laura Czerniewicz, University of Cape Town, South Africa, Jack Dempsey, (Univ. of South Alabama, USA), Charles Despres, (College Polytechnique, France), Laurent, Dukan, (PHD International, France), Samir El-Seoud, Princes Sumaya University for Technology, Jordan, Bulent Emiroglu, (Eskisehir Yolu 20.km. Baglica Mevkii, Turkey), Jean-Louis Ermine, (Institut National des Télécommunication, Paris, France), Stephen Farrier, (Northumbria University, Newcastle upon Tyne, UK), Omid Fatemi, (University of Tehran, Iran), Bekim Fetaji, South East European University, Tetovo, Macedonia, David Foster, (DeVry University, USA), Marga Franco-Casamitjana, (Open University of Catalonia, Spain), Pat, Gannon-Leary, (Northumbria University, UK), Andrew Goh, (International Management Journals, Singapore), Roz Graham, (University College, Winchester, UK), David Guralnick, (Teachers College, Columbia University, New York, USA), Richard Hackelbusch, Carl von Ossietzky University of Oldenburg, Germany), Mike Hart, (University of Winchester, UK), Gil Henrique, (Instituto Politécnico de Castelo Branco, Portugal), Alan Hilliard, (University of Hertfordshire, UK), Cathy Horrocks, (University of Waikato, Hamilton, New Zealand), Rozhan Idrus, (Universiti Sains Malaysia, Penang, Malaysia), Michael Ievers, (Stranmillis University College, N. Ireland), Sheila Jagannathan, (World Bank Institute, Washington, USA), Kanthi Jayasundera, (Centre for Online Distance Education, Canada), Amanda Jefferies, (University of Hertfordshire, UK), Runa Jesmin, (Kings College London, UK), Phillip Jones, (Hong Kong Institute of Education, Hong Kong), Michail Kalogiannakis, (ASPETE, Heraklion, Greece), Michail Kalogiannakis, (Uiniversity Paris 5 - Rene Descartes, France), Pankaj Kamthan, (Concordia University, Canada), Asha Kanwar, (Commonwealth of Learning, Canada), Saba Khalil Toor, (T.E.C.H Society, Pakistan), Yu-Ju Kuo, (Indiana University of Pennsylvania, USA), Maria Lambrou, (University of the Aegean, Greece), Mona Laroussi, (Institut National des Sciences et de la Technologie, Tunisia), Debora Larson, (Kaleidoscope Learning, New York, USA), Stella Lee, (Athabasca University, Canada), Kenneth Lee, Delaware Valley College, Pennsylvania, USA, Karin Levinsen, Danish University of Education, Denmark, Christine Levy, (Kaleidoscope Learning, New York, USA), Bruce Lindsay, (University of East Anglia, UK), Ying Liu, Cambridge University, UK, Jenny Lorimer, (University of Hertfordshire, UK), Pam Lowry, (Lawrence Technological University, USA), Sam Lubbe, University of South Africa, South Africa, Chitta Mandal, (School of IT,IIT Kharagpur, India), Phebe Mann, (Open University, Walton Hall, Milton Keynes, UK), Jeton McClinton, Jackson State University, USA, Bente Meyer, The Danish University of Education, Denmark, Ali Moeini, (University of Tehran, Iran), Markus Mostert, (Rhodes University, RSA), Minoru Nakayama, Tokoyo Institute of Technology, Japan), Grace O'Malley, (National College of Ireland, Ireland), Maria Osuna Alarcón, (Salamanca University, Spain), Mourad Ouziri, University of Paris 5, France, Ecaterina Pacurar Giacomini, (Louis Pasteur University, France), William Painter, (NCC Education Ltd, UK), Pascal Pecket, (University of Montpelier, France), Arna Peretz, (Ben Gurion University of the Negev, Omer, Israel), Mari Pete, (Durban University of Technology, RSA), Selwyn Piramuthu, (University of Florida, Gainesville, USA), Michel Plaisant, (University of Quebec in Montreal, Canada), Ronald Robberecht, (University of Idaho, Moscow, USA), Melissa Saadoun, (INEDIT Institute, Paris, France), Florin Salajan, (University of Toronto, Canada), Ranjit, Sidhu, (Institut Bahasa Melayu Malaysis (IBMM), Malaysia), Yeong-Tae Song, (Towson University, Maryland, USA), Elsebeth Sorensen, (AInstitute of Information and Media Studies, Aarhus, Denmark, Mark Stansfield, (University of Paisley, UK), Juliet Stoltenkamp, (University of the Western Cape, RSA), Roxana Taddei, Université Clermont Ferrand 2, Montpellier, France, Harry Temmink, (University of Westminster, UK), John Thompson, (Buffalo State College, USA), Shruti Trivedi, (Center for Innovation in Learning Technology, Ohio State University, USA), Christopher Turner, University of Winchester, UK, Peter Valbonesi, Simon Fraser University, BC, Canada, Duan Van der Westhuizen, (University of Johannesburg, RSA) , Steven Verjans, (Katholieke Universiteit Leuven, Belgium), Minhong Wang, (The University of Hong Kong, HK), Robert Wierzbicki, (University of Applied Sciences Mittweida, Germany), Roy Williams, (University of Portsmouth, UK), Shirley Williams, (University of Reading, UK).

Biographies of Conference Chairs, Programme Chair and Keynote Speakers

Conference Chair

Laura Czerniewicz is director of the Centre for Educational Technology (CET) at the University of Cape Town (UCT), previously the director of UCT's Multimedia Education Group. CET builds staff capacity, develops curriculum projects, offers small grants and develops and provides an open source learning environment, Vula (powered by Sakai). Laura has a particular interest in educational technology in developing countries, researching access to and use of ICTs in higher education. She is also interested in the formation and nature of educational technology as a new scholarly field, in multiple contexts.

Programme Chair

Tony Carr is the Staff Development Co-ordinator at the Centre for Educational Technology at the University of Cape Town. Together with colleagues in Cape Town and Oslo he has developed a communities of practice based model of staff development in teaching with technology. His research interests include communities of practice in staff development, the use of wikis in university courses, online collaboration in mixed mode courses and the analysis of online learning conversations. Tony is one of the founders and organisers of the e/merge online conferences (http://emerge2006.net) which focus on the use of educational technology in universities in Southern Africa. In a previous career he was an economics and business educator in South Africa and the UK. His qualifications include a Masters in Economics and Business Education from the Institute of Education, University of London and a Post Graduate Diploma in Continuing Education and Training from City University in the UK.

Keynote Speakers

Dr. Max Price has been appointed by the Council of the University of Cape Town as Vice Chancellor Designate. He will assume this position as of July 1st 2008. Max Price has a strong transformation record, built primarily during his deanship of the Faculty of Health Sciences at the University of the Witwatersrand between 1996 and 2006. A former Rhodes Scholar and Four Outstanding Young South Africans Award winner (1992), he is currently an independent consultant in the fields of public health, health policy, medical education, and human resources for health planning.

Martin Owen is at present developing unique playful, tangible devices for early learning with his own company Smalti. He is also working as an independent researcher in EU projects in technology enhanced learning with particular emphasis on games, mobility and augmented reality. Untill recently Martin held the position of Director of Learning and Head of Concept Development at Futurelab. At Futurelab he was responsible for the key concepts in the mobile game Savannah and the Physics game Racing Academy. Martin has been an academic researcher and teacher trainer at University of Wales, Bangor.

Biographies of contributing authors (in alphabetical order)

Nabeel Al-Qirim is the editor of three books in the area of eBusiness. He published more than 70 research articles in refereed international outlets. He participated in panels and administered workshops. His research interests included IT and e-commerce strategy in businesses and in SMEs, e-government, health information systems and telemedicine, mobile commerce, outsourcing, supply chain management, and e-commerce in developing countries and in NGOs. He is in the editorial board of several journals. He chaired a conference (IIT'05), several tracks and sessions in international conferences. Prior to joining Auckland University of Technology (Auckland, New Zealand) in 1999 and UAE University in 2004, he worked as an IT consultant since 1989 with multinational companies including IBM, Data General, Compaq and Siemens Nixdorf.

Cheryl Brown joined CET(MEG) in July 2003 as Researcher. Prior to that she worked at Griffith University in Brisbane as an Educational Designer and was leader of the Multimedia Development Team within Flexible Learning and Access Services. She is currently working on her PhD with the Department of Information Systems at UCT, and is interested in further researching issues around people's access to computers, their purpose/need for using computers and the relationship between the two.

Sonia Berman obtained her PhD in Computer Science from the University of Cape Town in 1991. She is an Associate Professor of Computer Science at UCT, having lectured there since 1982. Her research interests include database systems, conceptual modelling, e-learning and knowledge management systems. Sonia regularly presents and reviews international Computer Science conference papers. She has also served on a number of Assessment Panels for the National Research Foundation in South Africa.

Erika de Bruyn is a senior instructional designer from the Department for Education Innovation at the University of Pretoria, South Africa. Her main focus area is on e-learning, with special reference to computer-based assessment, web-based learning and multimedia design and development. She also assists the Faculty of Health Sciences with various IT related projects. She obtained her Master's degree in Information Technology in 1993.

Ines Casanovas was born in Buenos Aires in 1953. She is an Engineer in Information Systems and Master in Higher Education. At present she is professor and researcher at UTN (National Technological University) and at University ob Buenos Aires. Since 2003 she has been Guest Lecturer at Jönköping International Business School in Sweden, where she is currently performing her doctoral studies. She also develops as Special Projects and Researches Director in FUNDESCO (Foundation for Knowledge Developing) of Argentina, and auditor and senior consultant in IT projects for the Government and private companies. She has been Academic Coordinator of the career ´Licentiate in Educational Technology´ and Evaluator of Final Projects and Thesis in Information Systems Engineering at UTN. She has had intense participation in International Conferences and publishing on Information Technologies

Glenda Cox has been working on projects in the use of technology in teaching and online collaboration since June, 2000. She has been involved in Staff development initiatives since the end of 2003. Her work is focused on researching the take up and effect of these initiatives. She is also working in a mentor role with academics who have attended the workshops and started new technology interventions.

Anne Dickinson, Senior Lecturer in the Centre for the Study of Higher Education at Coventry University, UK. Anne helps tutors learn how to use the online learning system at Coventry University and other Information Technology (IT) tools, using prior experience in tutoring disabled people to give guidance in disability issues. She also investigates the use of new IT tools for education and has recently completed a secondment to a National Centre of Excellence in Teaching and Learning and a TechDis HEAT project.

Christian Eder: 2002 Trainer for Teaching-Learning-Accompaniment of New Media - University of Vienna. 2006 Final Academic Degree for School Teacher Accreditation Programme "Sport Science and Physical Education" and "History" . 2006 eLearning-Agent on the Center of Sport Science/ Section of Biomechanics, Kinesiology and Applied Computer Science/University of Vienna. Fields of Work: e-Learning; Computer Science in Sport

Janet Finlay is Professor of Interactive Systems at Leeds Metropolitan University, where she works in the Technology Enhanced Learning Team. She has worked in human-computer interaction for many years, with particular interests in design patterns, participatory design and usability evaluation techniques. She now focuses on technology enhanced learning. She has been a partner in two EU--funded learning object repository projects and is currently principal investigator for the JISC -funded Streamline project and a partner in the PERSoNA project. She is also Leeds Met's site coordinator for the multi--institutional HEFCE -funded CETL Active Learning in Computing and is co-organising a Disciplinary Commons for HCI educators

Martin Graff is a Reader in Psychology at the University of Glamorgan, and an Associate Fellow of the British Psychological Society. He has published widely in the area of E-learning and Cognitive Style, and is currently preparing a book due out next year on psychology of the Internet. His research interests include effective learning and online social interaction.

Sue Greener is a Senior Lecturer in Management and Human Resource Development at the University of Brighton, Brighton Business School. She is a co-founder of the Business School's research group Business eLearning (BeL) and has just completed a Doctorate in Education at Brighton focussing on Students' Readiness for Online Learning.

Stefanie Hain studied business information systems at the Martin-Luther-Univertsity Halle-Wittenberg (Germany) and graduated with a master's degree in 2007. She is now a Ph.D. student and works as a research associate at the Institute of Information Management, University of St. Gallen HSG (Switzerland). In her research she focuses on knowledge management, e-collaboration, web 2.0, and social software. Since 2007 she also works within the competence network "*Business 2.0 – Center for Innovations in Business Processes*" that deals with the impact of web 2.0 and the associated paradigms on business processes. Furthermore, Stefanie Hain acts as a reviewer for several scientific journals and conferences (e.g., MISQ and I-KNOW).

Cheyl Hodgkinson-Williams is affiliated to the Centre for Educational Technology at the University of Cape Town as an Honorary Research Associate. She was previously an Associate Professor of ICT in Education at Rhodes University in Grahamstown for 9 years. Prior to that she was a Senior Lecturer in Computer Assisted Education at the University of Pretoria for 4 years.

Jill Jameson, PhD, MA (KCL), MA (Cantab.), MA (Goldsmith's), PGCE (Notts.), BA/PGSAPD (UCT) is Director of Research and Enterprise, Co-Chair of ALT-C 2008 International e-Learning Conference, Director of the JISC eLIDA CAMEL and eLISA at the University of Greenwich School of Education and Training. Jill is National Convenor of the SRHE HE-FE Network and has an international reputation in e-learning, lifelong learning and leadership in education. Series Editor of Continuum International's 24-book Essential FE Toolkit, Special Editor of Alt-J's (2000) Edition on ILT in FE, BJET's (2006) Special Edition and Lifelong Learning Strand Coordinator JISC's 2007 Innovating e-Learning conference, Jill is an AACE Editorial Board Member, ED-MEDIA, E-LEARN, BERA, BELMAS and International Knowledge, Culture & Change conference presenter and an invited biographee for Who's Who International of Professionals and Marquis Who's Who in the World.

Jenny Lane currently co-ordinates a post graduate course in teacher education in Perth Australia. She has worked in the field of learning disabilities and inclusive education in South Africa for over twenty years. Her research interests include use of new technologies to promote learner engagement, digital video analysis, strategies accommodate the learning styles of students, girls and ICT and behaviour management.

Thomas Louw matriculated in 1990 at D.F. Malan High School. He obtained a HED (1994) at UP specialising in Computer Science, Mathematics, Biology, Music and Drama; a BEd (hons) in Computer-based Education (2000) from RAU and a MEd (2002). He taught and lectured Computer Science, IT and CAT at Vorentoe High School, RAUCALL and UJ. Arno implemented a computer integrated curriculum at RAUCALL and lectured the associated subject didactics. He co-authored textbooks, completed courses in research methodology and is a certified WebCT/Blackboard trainer (2006). Arno is currently an instructional designer at UJ responsible for the professional development of lecturers.

Mario Marais is a senior researcher in the ICT in Education, Youth and Gender group of the Meraka Institute of the CSIR. Research areas include the use of ICT in education and problem structuring via soft operations research techniques. Recent work included the piloting of technology clubs for children and the application of systems engineering principles to poverty alleviation systems. He holds Masters degrees in Physical Chemistry and Theology.

Simon McIntyre is the Online Course Coordinator (Postgraduate) at the College of Fine Arts, The University of New South Wales, Sydney, Australia. He has co-operatively pioneered learning and teaching approaches for fully online art and design education since 2003, and has helped establish an internationally recognised quality online learning reputation for the Faculty's online learning and teaching unit, COFA Online.

Mandia Mentis is a senior lecturer at Massey University in Auckland, New Zealand. She has coordinated the Post Graduate Special Education Programme since 1998. She designed and manages the e-learning environment for the Educational Psychology and Post Graduate Special Education programmes using a Community of Practice approach. She has worked in special and inclusive education settings at the primary, secondary and tertiary levels and her current research interests include e-learning and teaching for diversity.

Susan Moisey is an Associate Professor in the Centre for Distance Education at Athabasca University, where she teaches courses in the Master of Distance Education

program. She has been involved in distance education since the early 1970s. Her research interests include distance education for learners with disabilities, community building, and inclusive education.

Marí Peté is educational technologist at the Durban University of Technology's Department of Educational Technology. As part of a threesome team she focuses on supporting lecturers to teach online. This includes nurturing a community of practice and providing a safe space where innovators can experiment and learn. Offering a credit-bearing course in web-based learning is an important part of providing lecturers with incentives and rewards to sustain their practice.

Dee Pratt holds a Doctor of Technology degree in Language Practice, her specialist areas being theoretical modelling of communicative practices and educational software design. She is currently Research Co-ordinator of the Faculty of Arts & Design at the Durban University of Technology, as well as Leader of the Technology Enhanced Learning Research Group. An experienced WebCT practitioner, she has recently piloted the running of Moodle courses, including mixed-mode research modules at bachelor, masters and doctoral level. She was nominated faculty "Quality Champion" of teaching and learning in 2006, and passed Assessor Training at mastery level in 2007. Her research, teaching and learning, and course design activities are centred around a communicative principle which was the product of a long-term study on writing practices.

Paul Prinsloo is an Education Consultant at the Institute for Curriculum and Learning Development (ICLD) at the University of South Africa (Unisa). He is also a doctoral candidate in Religious Studies at Unisa and the title of his dissertation is "A critical evaluation of the South African Policy on Religion and Education". Paul's main responsibilities at the ICLD include curriculum development, the design of rich environments for active learning, the effective integration of technologies in teaching and learning as well as doing research. During 2007 Paul was the recipient of an Open University (OU) International Fellowship. During the Fellowship, Paul joined the OU Business School (OUBS) and did collaborative research with Dr Sharon Slade and Ms Fenella Galpin. His interests are Critical Theory, learning theories and cultural studies.

Marlia Puteh is a lecturer at College of Science and Technology, Universiti Teknologi Malaysia, Malaysia. She holds a doctorate in Education from Monash University, Australia in 2007. Her doctoral thesis which focuses on "Electronic Learning in Malaysian Universities and the Transformation of Malaysia" facilitates her engagement in research activities related to government and university ICT policies as well as issues in public and private Malaysian higher educational institutions.

Osman Sadecks' background transcends Technology Education, Technical Subjects & Educational Media Technologies. He has authored Technology Education textbooks and has been integrally involved in articulating the South African National Curriculum Statements for Technology Education and Engineering Graphics & Design. Osman has completed a Masters MEd.(e-Learning) and is currently employed as an e-learning advisor in an educational district in the Western Cape, South Africa.

Florin Salajan received his doctoral degree from Teachers College, Columbia University in the broad field of International Education, with an emphasis on Communication and Computing in Education. His primary research interests include applied educational technologies, European Union policies in education, technology and society in the context of globalization, and information society theories.

Sibongile Simelane is an Instructional Designer at Tshwane Universty of Technology in Pretoria. She has submitted the Masters in Educational Technology dissertation and awaiting decision her research topic is "Success Indicators and Barriers to Success in Implementing Technology Enhanced Courses During a Professional Development Programme. Her research interest include the implementation of online learning, the effective use of e-assessment, and the preparation of lecturers to integrate technology in their teaching and learning. She has presented papers in various conferences nationallly and internationally and has published articles in accredited journal and conference proceedings.

Ken Takeuchi. 1997-Graduate Department of Pure and Applied Chemistry, Graduate School of Science and Technology, Tokyo University of Science, and got Ph. D. 1997-2001-Post Doctoral Fellow of Intense Pulsed Neutron Source Division at Argonne National Laboratory, USA. 2001-2006-Assistant Professor of Faculty of Industrial Science and Technology, Tokyo University of Science. 2007-Associate Professor of Faculty of Industrial Science and Technology, Tokyo University of Science

Karin Tweddell Levinsen has a long professional experience within the fields: pedagogy, content architecture, interaction design, didactic design and the transformation of learning objectives and material into design of learning applications for cd-rom and web. During her professional carrier, Karin has continued research in e-Learning. In nov. 2006 she defended her Ph.D. thesis on collaborative online teaching and learning at university level, based on a long term case study of a Danish master programme. She is now associate professor at the School of Education - Aarhus University.

Hannelie Untiedt is a senior Instructional designer at the Department of Education Innovation, University of Pretoria since 2005. Prior to this she held a teaching position for more than 14 years and was also head of department. Currently she is responsible for the development of e-Learning solutions at the Faculty of Health Sciences, University of Pretoria. She holds a Med (Computer-assisted Education) also obtained at the University of Pretoria.

Liezl van Dyk is a Senior Advisor (e-learning) it is, amongst others, my job to advise lecturers and ICT infrastructure providers at our institution concerning the most efficient and effective use of ICT towards the enhancement of learning. Previously, I lectured as part of the Industrial and Systems Engineering programme. The findings presented here are outputs from my PhD thesis (work in progress), which is a culmination of my passion for learning and my passion for effective and efficient systems and processes.

Annelien van Rooyen has a MCompt degree at the University of South Africa. She is a PhD candidate at the same university where she is busy with research on the use of multi-media in accounting modules. One of her main research interests is blended learning and its impact on the teaching of accounting at a distance education institution. She has been a lecturer in the Department of Financial Accounting since 1985.

Gerda van Wyk was born and raised in the Free State, South Africa. She obtained a B.Soc Sc. Honnours degree in Psychology at the University of the Free State. She practiced as a psychometrist for almost 20 years during which time she developed a special interest in reading difficulties and the development of learning skills through movement and music. At present she is employed by the University of Johannesburg as an evaluator of technology-assisted learning.

Steve Vosloo is the Communication and Analytical Skills Fellow at the Shuttleworth Foundation in Cape Town. His focus areas are education, e-government and digital local content. He recently completed a one-year research fellowship at Stanford University researching youth and digital media. He holds an Honours degree in Information Systems from the University of Cape Town.

Information and Communication Technologies Integration in Teaching: Use of a Business Game in a Supply Chain Course

Nabeel Al-Qirim
UAE University, Al-Ain, UAE

Abstract: This research shows the results of using a business game (BG) for a Supply Chain (SC) course over three semesters by female students. Utmost care was followed in designing the BG to abide to recent pedagogical trends. The course has both theory and developmental (laboratory) components. The objective from introducing the BG is to provide an integrated assessment tool covering both components and to enrich the student learning process through facilitation and mentoring. Thus, the purpose of this game is to expose students to the real business and the online trading environments. Students are expected to form groups, adopt business ideas in a SC setting (in coordination with other groups), and plan and implement the business (business case) and developmental (functional SC prototype) parts. In the business plan, groups are expected to strategically trade shares online using appropriate online tools to diversify their investment portfolios and to increase the overall SC surplus. The scope of the BG is intended to extend across the whole semester and hence, progressing both the theory and technical components of the groups' projects (report, presentation, demonstration) as the different SC topics are progressed and covered. The BG has proved useful in fulfilling its objective raising both theoretical and practical implications.

Keywords: Pedagogical trends, business game, facilitation, technology, UAE tertiary students

Developing Critically Thoughtful, Media-Rich Lessons in Science

Philip Balcaen
University of British Columbia, Okanagan, Kelowna, Canada

Abstract: In this paper, I describe a conceptual framework and a professional development approach used to create critically thoughtful and media-rich science learning resources. Greater clarity about the nature of critical thinking and how to support teachers in learning to implement it are needed if we are to respond to the broader calls for critical thinking both as a central goal in science education and as a key ingredient in the ecology of 21st Century e-learning environments. The conceptual framework is a model of critical thinking developed by The Critical Thinking Consortium that supports critical thinking by embedding the teaching of five categories of intellectual tools into the teaching of curriculum content. The "tools for thought" include addressing the need for focused and relevant *background knowledge, criteria for judgment, thinking concepts, thinking strategies* and the development of *habits of mind*. The professional development approach engages practicing teachers through focused inquiry groups in collaboration with rich media technicians to develop the e-critical challenges (lessons). Aspects of this "comet approach" include a series of face-to-face sessions, gradual and planned for introduction to use of laptop computers, developing inquiry oriented writing teams and expert mentorship between large group face-to-face sessions. I explain the unique aspects of both the development process and the challenges in the context of a project involving 12 teachers in the creation of media-rich critical thinking lessons in science for grade 7 students. Although project assessment data collection is currently underway, I offer several initial observations in relation to the four goals of the project.

Keywords: Critical thinking, science teaching, media-rich, curriculum development, one-on-one laptop, collaboration

An e-Learning Model Based on Collaboration and Sharing

Sonia Berman and Victor Katoma
University of CapeTown, South Africa

Abstract: Much of our learning does not occur during times of instruction, but rather during practical application of new knowledge in projects and assignments: we learn best by doing. This paper presents a model for e-learning through collaboration and sharing which promotes computer-enabled learning from one's peers during that important time when students are applying new concepts and skills in a project of some kind. Our model is based on the use of blogs (weblogs) as a vehicle for students to learn from each other, and on a draft-feedback-refinement approach to assignment/project development. It hones those skills essential to all learning – reading, writing, summarising, arguing and critical thinking, and reduces feelings of isolation and uncertainty. The model includes an automated method of highlighting items that are top quality, highly contentious, or "hot topics", and an option to automatically reorganise the system accordingly. The simple, familiar, popular, easy-to-use nature of blogs encourages learners to interact with the material, and a number of extensions to the blog infrastructure provide further incentives to work within the system. The paper includes a description of a prototype implementation of the model which was used in a Research Methods course at the University of Cape Town. It outlines the initial audit of current practice and needs; explains how powerful blog creation software tools greatly simplify system construction; and discusses feedback from the students who used it.

Keywords: Semantic weblog, e-learning, quality measure

When the Second Language Teacher Goes Online: Changes in Professional Identity

Mads Bo-Kristensen
Resource Centre for Integration Vejle Denmark

Abstract: Globalisation and the robust European market have considerably influenced the increase in mobility in European countries, primarily among those who would like to work or study. In Europe, consequently, second language teaching is being challenged by demands for new educational contents and organizations, e.g. online education. The demand for flexibly-organized language teaching grows – and will grow in the coming years. This demand brings about a number of questions concerning the professional identity of the language teacher. What happens to the professional identity of the second language teacher when he/she goes online with his/her profession? The teacher creates and maintains his/her professional identity while reflecting on, and interacting with the student, the learning material and the role he or she perceives for him-/herself. These reflections and actions change when the setting changes from face-to-face teaching to online instruction. Online methods and principles open new possibilities for the teacher to improve, expand, explore his /her profession. Such possibilities, however, require new perspectives on the profession that one exercises in physical contexts. These insights can be used in second language teachers' basic and continuing education. This paper will provide a description of the professional identity – or identities – of today's language teachers, using qualitative interviews of new and experienced online language teachers as tool.

Keywords: Professional identity, professional development, online teaching, globalisation, second language teaching, teacher education

Podcasting and its Relation with Student Performance

David Bond, Tony Holland and Peter Wells
University of Technology, Sydney, Australia

Abstract: The provision of course material, including lecture notes and overheads, to students through learning management systems is commonplace in Australian universities, and the practice is well documented in the literature (e.g Jensen, 2007). Similarly, provision of lecture recording on magnetic tape cassettes dates back at least three decades, and is common place in provision of distance education. However, the digital recording of lectures and making these available to students generally through a learning management system (now referred to as podcasting) is a much more recent phenomenon and has only really impacted on the tertiary education sector for the past 3-4 years (Sull, 2005). This paper addresses the issues of how students utilise these recordings, and perhaps more importantly, how it impacts students academic performance.

A major concern in the Australian university sector is that some students choose not to attend lectures. This occurs notwithstanding the belief that lecture attendance is a critical mechanism for the presentation of course material. Researchers have investigated the reasons for this (e.g. Holland and Pithers, 2007) and the most commonly cited reasons for this non-attendance is that students consider themselves to be 'time-poor' and 'too busy with assessments' to regularly attend. Endeavouring to address this problem and ensure student access to course material, university lecturers have availed of recent technological developments and podcast lectures. Being able to download podcast lectures and listen to them at a convenient time and place would seem to be an ideal solution for 'time-poor' students and is often cited as a major reason for university lecturers to consider podcasting their lectures (e.g. Read, 2005). Furthermore, there is evidence that students consider podcasting lectures as being of 'excellent value' to them in their studies (Tynan and Colbran, 2006).

While students may consider podcasts to be 'excellent value' from an intrinsic convenience perspective, a more critical concern is how students utilise podcast lectures and how this is associated with student academic performance. Convenience is important for time-poor students, but can podcasts be used as a substitute for lecture attendance, or are they more useful as revision tool. To address this it is first necessary to consider student utilisation of podcast lectures, and then evaluate the relation between student utilisation of podcasts and performance. This is necessary to determine whether podcasts really represent 'excellent value' and if students are getting value from the act of downloading a podcast lecture.

The first of the primary results from this study suggest that students do use podcasts, with approximately 85 percent of students accessing the podcasts, and downloading, on average, eight of the twelve podcasts. The second is that the utilization of podcasts is positively associated with student performance, but only when the podcasts are used for revision and only for theoretical questions. The issue of whether podcasts can be regarded as a substitute for lecture attendance for 'time poor' students remains unresolved.

Keywords: podcast, student performance, utilization

Ability Through Mobility

Adele Botha[1], Madelein van der Berg[1], Jacqueline Batchelor[1], and Carolina Islas Sedano[2]
[1]Meraka Institute, Pretoria, South Africa
[2]University of Joensuu , Finland

Abstract: In today's modern world, mobile technology's value is perceived in terms of its ability to facilitate convenient, personal and mobile connectivity to its users. In Africa, and specifically South Africa, this value is not only experienced in terms of the mobility provided by and through the technology, but it also encompasses the concept of ABILITY. The concept of the ability of users to access and contribute to the world wide web, to be included in virtual collaboration, to gain access to specialist information, and to develop skills needed to function in a technological society are becoming paramount in today's world. Viewing mobile technology as localized accession portals from an educational perspective in a developing country also challenges researchers to understand the implications of this type of access within the framework of technological needs and the social interactions that it supports and enables. Research requires an understanding of the needed mobility across different diverse and not necessary complimentary technologies on the one hand and, on the other hand, the mobility and abilities provided in the physical space, across hardware, in conceptual space and across time.(Sharples *et al.*, 2007) Mobile technologies display many aspects, from the operating systems used by the different phone makes and models, network proprietary protocols and ultimately the integration of all of the before mentioned into other information and communications technologies. This paper reflects on the opportunity, challenges and potential of mobile technology to extend "mobility" to "ability" while always aspiring to support the user's connection to the virtual world within a locally relevant technology framework.

Keywords: Mobile technology; connectivity; network protocols

An Auto-Tutor for System Identification in Control Engineering

Martin Braae
University of Cape Town, Rondebosch ,South Africa

Abstract: System identification is an essential precursor to the design of control engineering systems in industrial environments and requires the skill of determining simple yet common linear differential equation models from stimuli-response graphs of plant data that are provided as plots of time-varying signals. The auto-tutor described in this paper is a computer program that is intended to present its student users with such data plots that have been produced automatically by random transfer function models (i.e. differential equations used to define linear dynamic systems). These mathematical models are generated to have randomly distributed parameters yet are constrained to match a level of difficulty set by the instructor. The student is shown the necessary time-domain graphs that closely mimic those obtained from industrial processes, can re-run the step-response experiments as is often done in practice and is required to take a set of measurements and make calculations to determine the most appropriate transfer function model for the given graphical data. The program can be fully configured through a comprehensive instructor interface that is password-protected. This interface allows the constraints on parameter ranges, the probability of particular model configurations (including order, zero and deadtime) and the amplitude of measurement noise to be pre-defined. This functionality enables the students on a course to use the program for a range of exercises with problem complexity that is graded from elementary entry level to advanced postgraduate level. The student answers are submitted electronically, captured and automatically marked in a manner that provides the most useful feedback for formative instruction. The program also provides both algebraic and graphical indications of how well the student answer matched the model used in the question. Alternative marking schemes and strictness can be imposed by the system. All relevant information is date-stamped and archived, and the entire student interface can be operated over the internet in a minimalist server-client configuration with data-coding that enhances security. Problems encountered in various aspects of the program development are discussed, ranging from those associated with the automated generation of random yet partially constrained transfer functions to the difficulties of finding an acceptable marking scheme for such mathematical structures.

Keywords: Control engineering, system identification, education

Perceptions of Lecturers on the Contributions of Technology-Assisted Learning: Do They Converge Towards The University of the Future?

Izak Broere and Marlena Kruger
University of Johannesburg , South Africa

Abstract: The Centre for Technology Assisted Learning (CenTAL) at the University of Johannesburg (UJ) has had the brief since its inception in 2002 to promote and support technology-assisted learning (TAL) through a blended learning and teaching approach. Towards the end of 2006, the Management Executive Committee of UJ requested that the value added to learning and teaching by TAL be explored and reported on. A Task Team was formed to conduct this investigation. Our first aim was to establish, through a literature review, key components or requirements of an envisaged *University of the Future.* Thereafter, a questionnaire was designed to obtain the lecturers' perceptions on the contributing role that TAL should and can play while developing these key components to establish the *University of the Future.* In this University, the new generation students (called "digital natives") will find a home while being developed and equipped for the world of work. The perceptions expressed in this survey, completed by lecturers of UJ who are all current users of the learning management system, are analysed and linked and found to support many of these key components of the *University of the Future*. Different important parallel pillars also are identified and reflected upon; pillars that need to be in place to ensure successful implementation of information and communication technologies (ICTs) at higher education institutions. The important question in this paper is if these lecturers' perceptions on the integrated use of ICTs and its contributing role converge to the key features of an envisaged *University of the Future.*

The above requirements, and the insights gained from the perceptions of the lecturers, might be valuable for people involved in the strategic positioning of TAL at universities and should contribute to keep them focusing on the key components of a *University of the Future*. They also are valuable to academic development centres and to people involved in the professional development of academic staff for integrating and optimising the use of TAL.

Keywords: Technology-assisted learning, realities, perceptions, convergence, lecturers, strategic, universities

The Impact of South Africa's ICT Infrastructure on Higher Education

Cheryl Brown[1], Herbert Thomas[2], Antoinette van der Merwe[3] and Liezl van Dyk[3]
[1]University of Cape Town, South Africa
[2]Division e-Learning, University of the Free State
[3]University of Stellenbosch, South Africa

Abstract: In this paper we describe South Africa's information and communication technologies (ICTs) infrastructure, highlight the issues South African Higher Education Institutions (HEIs) face in terms of ICT access and argue that a greater awareness of these issues can help us plan better e-learning interventions in Higher Education.

We draw on recent research about the use of ICTs in our sector describing the prevailing and emergent practices with regard to the pedagogic integration of ICTs as well as a survey conducted amongst 14 "e-Learning managers" from South African HEIs. The South African ICT infrastructure of concern to HEIs are evaluated in terms of issues such as internet users, bandwidth, demographic divides, cost and cell phone subscriptions. Barriers to e-learning that affect staff and students across institutions are also highlighted. We then examine what these constraints mean for teaching and learning and provide some suggestions as to how opportunities can be maximised.

It is concluded that despite our varied HE institutional contexts, each with their own infrastructural and organisational challenges, there are definite areas for collaboration, joint research projects and sharing of good practice. These opportunities are critical for e-learning practitioners, especially whilst we are operating in an environment of resource constraint.

Keywords: ICT infrastructure; access; HE management

IM Dr Math: Using Instant Messaging in a Mathematics Tutoring Project

Laurie Butgereit
Meraka Institute Pretoria, South Africa

Abstract: Instant messaging (IM) over cell phones is extremely popular in South Africa. A local South African company, MXit, provides a free cell phone based application, also called MXit, which allows participants to use IM protocols over cell phones to communicate using General Packet Radio Service (GPRS). At the time of writing this paper, MXit had nearly 5 million users in South Africa and approximately 45% of these users are teenagers. This paper describes a project where teenagers could get help with their mathematics homework over MXit on their cell phones in the afternoons after school. The service was offered in both English as "Dr Math" and in Afrikaans as "Dr Wisk". A local university provided volunteers from their engineering department to act as tutors for the services. This paper covers the technical aspects of how we set up a tutoring service using IM over cell phones as well as the administration required for such services and some of the unexpected social aspects of the service.

Teachers' Perception of Institutional Strategies in e-Learning Implementations: A Comparative Study of an Argentinean and a Swedish University

Ines Casanovas[1], Gladys Fernandez[1], Stefan Hrastinski[2], Christina Keller[2][3] and Jorgen Lindh[3]
[1]National Technological University, Buenos Aires, Argentina
[2] Uppsala University, Sweden
[3]Jonkoping International Business School, Jonkoping, Sweden

Abstract: In order to study the complexity and dependence on cultural, geographical, social and technological aspects on e-Learning implementation, we performed a joint research between an Argentinean and a Swedish university to compare teachers' perception of individual and organizational factors affecting e-Learning initiatives. The method of doing this has been to conduct a survey at both universities, distributing a questionnaire among teachers. Collected data was then analyzed to see if there are similarities and differences.

In this work, within cultural aspects, we will focus on the organizational aspects and institutional strategies for e-Learning developments though the results about attitudes, purposes, barriers and driving factors will be referred in order to enlighten the analysis of the institutional frame.

We have seen that the results are quite similar for the two universities. The major barriers to e-Learning at both sites were lack of time and lack of knowledge about technology. Although the findings seem to be related to individual concerns, they can also be seen as a consequence of an institutional culture that restricts the time for updating and training. The teachers experienced that they gained limited support from the university management in their ambitions to develop e-Learning. Hofstede's Power Distance dimension, although not equal, is middle ranked for both countries. According to this, both academic staff, in more or less degree, coincides in thinking of universities as central managed institutions that have to lead and support their e-Learning initiatives by funding them, and recognizing and rewarding individual efforts.

Keywords: e-Learning, higher education, culture, barriers, institutional strategies

Enablers and Barriers, Intentions and use: Faculty Take up of an Online Learning Environment

Glenda Cox
University of Cape Town, South Africa

Abstract: This paper describes the take up of an online environment, (Vula, the University of Cape Town's instance of Sakai) in a Humanities department, one of the first to begin using Vula through the initiative of the Head of Department. The University of Cape Town is a medium- sized residential university. Interviews and online data reveal the reasons for academic use and non-use of technology. Roger's diffusion theories form a theoretical base for this research. The findings reveal that the academics distribute normally into Rogers' Rate of adoption curve. Management education theories of organisational change are also used to interpret the findings.

This paper explores reasons for change in practice, grapples with the ways in which some academics innovate, and sets out to identify sources of inspiration or encouragement. Findings include that innovators will innovate regardless of support (in this case the Head of department and staff developers) and that 'ownership of change' is very important. Several barriers to change of practice are identified. The biggest challenge for staff developers identified in the study is that academics don't see the link between their teaching and using the technology, indicating a lack of awareness of the pedagogic possibilities of technology. Some academics are motivated to try new tools and do see how technology can be used to achieve teaching goals but often this intention does not always result in use because of lack of time and workload.

Keywords: Organisational change; diffusion theory, staff development

Fish or Fowl? What is this Creature Called Educational Technology?

Laura Czerniewicz
University of Cape Town, South Africa

Abstract: Drawing on what researchers and professionals in the field internationally say, this paper reviews educational technology as an emergent field. The review reveals the continuum of perspectives on what the field is, and how it is bounded or fragmented. The paper considers the field as a discipline, and describes two of its dimensions: the professional and scholarly considering how the forms of knowledge differ and overlap in each domain. It posits some dichotomies which may frame the field such as science/ social science and positivist/post-modernist. Finally the paper provides conceptual frameworks for distinguishing fields from one another and suggests what the categorisation of the field might mean, especially considering its emergent status in a rapidly changing context.

Keywords: Educational technology, elearning, profession, discipline, field, knowledge

Collaborative Learning Designs for Postgraduate Writing Interventions

Andrew Deacon and Shaheeda Jaffer
University of Cape Town, South Africa

Abstract: Writing theses and essays is the central activity of academic postgraduate programmes. These concern becoming a researcher and a scholarly writer. While word processing and e-mail might be ubiquitous tools of researchers, the role of technology tools to facilitate and develop scholarly writing is much less well understood in these university postgraduate programmes. A primary issue facing educators with whom we engage is how to effectively utilise technology tools to support aspects of postgraduate student writing and related scholarly activities. Typically a lecturer might envisage that web tools would make face-to-face sessions more effective. This can involve a difficult negotiation and questioning of the role of technology and its contribution to scholarly practices. Using an Activity Theory frame and data obtained from observations of face-to-face sessions, interviews with educators and online course environments, we contrast two cases where tools such as wikis, course websites and referencing software were introduced in very different contexts. Both interventions aim to improve student writing and inducting students into a scholarly discourse, yet differ markedly in the pedagogies adopted and consequently the tools used. The first is a Writers' Circle, where a group of students come together to support one another in writing their theses. The second is a more traditional postgraduate History course where students attend seminars. These cases contrast how educational technology designs adapt to the scholarly focus of the courses and pedagogies of the lecturers. Writers' Circle introduced a common 'meta-language' to discuss draft thesis chapters and used technology simply to share documents prior to circle meetings. The History research methodology course involved much more coordination in sharing short writing tasks and other research activities. Identifying the different analytical tools and the implicit pedagogies used by the lecturers was key in developing the appropriate educational technology solutions.

Keywords: Postgraduate writing, educational technology, learning design, staff development, wiki, pedagogy

A Reflection on the Effectiveness of Strategies Followed to Enhance e-Learning in the Faculty of Health Sciences at the University of Pretoria

Erika de Bruyn and Hannelie Untiedt
University of Pretoria, South Africa

Abstract: This study reflects on the effectiveness of various strategies that were implemented in the Faculty of Health Sciences at the University of Pretoria (UP) to enhance engagement with, or adoption of e-Learning by lecturers. These strategies were analysed together with the results of a quantitative audit that was conducted on active web-supported modules in the faculty. The audit was conducted to determine to what extent the strategies followed had an impact on student interaction or activity and the level of use of the available instructional tools by lecturers, in both the old and the new learning management systems (LMSs). Through qualitative interviews and/or questionnaires, lecturers verified the results from the audit and reflected on the effectiveness of strategies used before or during the implementation of the new LMS.

The results of this study will be used to propose strategies to encourage engagement in instructional technology in order to live up to the expectations of students and will inform the nature of future support offered to faculty members.

Keywords: e-Learning; strategies; implementation; learning management system; module; audit

Is the e-Learning Object "Create Interactive Accessible e-Learning" Accessible?

Anne Dickinson
Coventry University, UK

Abstract: This paper analyses the accessibility of an e-Learning object entitled "Create Interactive Accessible e-Learning". Although there are many tools and guidelines for evaluating accessibility they can be complex or difficult to interpret. This paper highlights the literature discussing these tools and standards. It then proposes a series of simplified criteria for checking accessibility. It uses these criteria for evaluating the accessibility of the e-Learning object and addresses any shortfalls that arise.

Keywords: e-Learning design, web-based exemplars, accessibility, free, e-Learning technology

A Graphical and Statistical Evaluation of users' Learning Paths in the Information System SpInSy

Christian Eder and Eva Karall
University of Vienna, Austria

Abstract: In the last years great emphasis has been put on the development of multimedia systems in sport. However, a comprehensive evaluation of the systems is uncommon. The paper at hand provides an analysis of the eLearning system SpInSy, focusing on the users' behaviour and individual learning paths. The evaluation is based on recorded server Log-Files from the years 2005 and 2006. Two main aspects were evaluated: On the one hand, Log-File data was processed, e.g. analysing hits, page views and the duration of use. On the other hand, and this is the primary focus of the evaluation, the users' navigation through the system was investigated. The aim was to get valid information about the utilization of the information system and the users' navigation paths through the system.

In order to visualize a user's learning path each screen page has a unique page identity. These identities, in addition to the basic key data, allow it to analyse each user's navigation path which can be graphically displayed by means of a special analysis program. In addition, it is possible to overlay the original navigation model of the information system with each user´s learning path. Thereby, main learning paths could be identified and visualized. The graphics also show that some areas of the system are significantly less visited than others.

Keywords: Multimedia, user learning paths, log-file analysis

Podcasts in Higher Education – Learning On the Move Literally

Janet Finlay, Jakki Sheridan-Ross and Andrea Gorra
Leeds Metropolitan University, UK

Abstract: It is commonly acknowledged that today's students juggle multiple roles and responsibilities along with their studies and that they make use of mobile technologies for a variety of reasons. Mobile phones have become almost the 'tools of the trade' for students to keep in touch, access information and generally organise busy lives. We routinely see students with headphones plugged into their ears listening to music or other sound files as they go about their daily business, often whilst travelling on foot, bicycle, buses, and trains. Our diverse student population therefore continues to present opportunities for us to explore new approaches to meeting their learning needs while taking account of their often hectic lifestyles. Students are increasingly involved in work-based and practical learning activities rather than traditional classroom-based taught classes. As the face and pace of technology continues to change, there is a growing need to consider teaching and learning practices that make the best and most effective use of mobile technologies (Fisher 2006). While we consider the students and their needs, it is important to remember that academic staff also often have learning needs as they attempt to produce new, or revise existing, learning materials that are suitable for mobile technologies.

Leeds Metropolitan University is one of a handful of UK universities involved in a collaborative project partnership with Apple Europe to explore the use of podcasts in a teaching and learning environment. The partnership offers the opportunity to pioneer the sharing of good practice nationally, fostering engagement of staff and students across a range of levels.

A number of trials have taken place around the university including the development of learning materials; virtual tours for prospective students; e-newsletters; and support mechanisms for academic staff wishing to develop new (or adapt existing) resources to this new format. The Podcast Solutions Pilot provides a vehicle to develop the trials into something more substantive that will be of interest and benefit, not only within our own university but to the wider Higher Education community. CETL ALiC (Burd 2005) is supporting the pilot through researching the pedagogical issues of using this type of technology in a teaching and learning environment. (CETL ALiC is a HEFCE (Higher Education Funding Council for England) funded collaborative Centre for Excellence in Teaching and Learning, Active Learning in Computing in partnership with the Universities of Durham, Newcastle and Leeds). The JISC funded (Joint Information Systems Committee) Streamline (Finlay 2007) project is also working closely with the Podcast Solutions Pilot and is investigating the learning object workflows associated with podcasting.

This paper provides a qualitative overview of work in progress at Leeds Metropolitan University on a university-wide Podcast Solutions Pilot.

Keywords: Podcast, higher education, mobile learning

From e-Learning to m-Learning - Practical use of the Cellphone for Teaching and Learning in the South African Classroom

Merryl Ford[1] and Adele Botha[2]
[1]Meraka Institute, Pretoria, South Africa
[2]University of Pretoria, South Africa

Abstract: The rise of mobile telecommunications and the cellphone in Africa has been an incredible success story. The cellphone is poised to play a major role in the stimulation of the information society and can be seen to be the most important networked knowledge exchange technology used in Africa today. However, the use of these increasingly powerful computing devices in the classroom has not yet reached a high acceptance level and many schools are banning them. Some of the reasons include lack of knowledge on the effective use of these tools in the classroom and a shortage of available, easy to use and cost effective educationally-focussed mobile software applications. MobilED (Mobile EDucation) is a research project which aims to design a suite of cellphone technologies, applications and services to support teaching and learning in schools in South Africa. Various cellphone technologies and communication protocols (SMS, MMS, voice, bluetooth, Java and Symbian-based applications, telephony, WAP, GPRS/3G/EDGE) are being investigated in collaboration with educators in order to develop useful and pedagogically-appropriate applications and services for the classroom. The technological solutions will be supplemented by example lesson plans, tested in real classroom environments. The suite currently consists of an "audio wiki", a "street memory" service, an mTutor application and an assessment tool. This paper reports on the results of initial pilots, work-in-progress and explores the possibilities for this technology as an important and powerful pedagogical tool in the classrooms of South Africa.

Keywords: Mobile, cellphone, audio, text, applications, services, lesson plans, pedagogical tool, schools

The Analytic-Intuition on Dimension of Cognitive Style and Web-Based Learning

Martin Graff
University of Glamorgan, UK

Abstract: Previous research has demonstrated that the effectiveness of hypertext-based systems for learning are to some extent dependent on the architecture of the system (Shapiro, 1998; MacDonald and Stevenson, 1999). However, it is also conceivable that the success of such systems for learning may depend upon an individual's cognitive style, which has been linked to the effectiveness with which an individual may learn. This study investigates the interaction between cognitive style and hypertext architecture and how architecture may be matched to cognitive style to maximise learning performance. Materials used are the CSI test of cognitive style as developed by Allinson and Hayes (1996), and two hypertext architectures, a 'short page' architecture condition consisting of twenty-two pages and a 'long page' condition consisting of eleven pages where participants were required to 'scroll' down the page in order to view it. Different forms of learning are assessed, which are a short answer test and an essay test. The educational significance of this research is that it illustrates how hypertext based e-learning environments may be designed to match an individual's cognitive style, which conceivably result in more effective learning.

Keywords: Cognitive style, web-based learning, hypertext

Plasticity: The Online Learning Environment's Potential to Support Varied Learning Styles and Approaches

Sue Greener
Brighton Business School, University of Brighton, UK

Abstract: I can't do online learning." This is a surprisingly common response from HE students who have a narrow view of what online learning might comprise. Images of screen-gazing at mega-bytes of text or childish multi-choice quizzes on CD-Roms have encouraged strange reactionary responses from many otherwise engaged learners.

This paper reports a qualitative study which, among other things, aimed to explore the views of HE teachers experienced in the use of Virtual Learning Environments about the variation and value of specific learning styles and approaches in relation to effective learning in those online environments. University teachers speak readily about learning style preferences, cognitive strategies and andragogical principles (based on Knowles, 1975) of self-directed or self-managed learning, but often in terms which suggest that virtual learning environments favour certain individual styles.

The findings from a detailed grounded analysis of interview data from ten enthusiasts for online learning suggest a potential plasticity of online learning environments which can accommodate any style or strategy. There was a sense in the transcripts of a different kind of learning space, which could mould itself to these differences in a way which could not be achieved in a traditional classroom. Some authors, including Palloff and Pratt (2003), identify the importance of differing learning styles and approaches to learning in HE and tackle the issue of how to accommodate such differences online. This research suggested that the plasticity of the online learning environment compensated for such variety of style, without the need for engineering learning activities online to cater for specific styles. Online, the time flexibility and potential for learner control can support multiple styles and strategies, provided the teacher has designed the environment to allow this, and of course that the relevant technologies are available to the teacher. So, rather than the environment dictating design, within the limits of available technologies, the teacher's approach to design may dictate the degree to which the plastic potential of the online environment is available to the learner.

Keywords: Plasticity, online learning, VLEs, learning styles, readiness for learning

Strategic Learners at a Distance

Tony Greener, Sue Greener and Asher Rospigliosi
Brighton Business School, University of Brighton, UK

Abstract: This working paper explores the application of ideas about interaction and conversation at the root of online learning (Shale & Garrison 1990, Laurillard 2002, Sims 2003) to an undergraduate course delivered at distance but aiming to provide an online interactive learning experience.

Su et al (2005) discuss the difficulties many teachers face when working with new technologies in trying to encourage interaction at a distance, where learning new software, and finding the time to innovate and persist with new ways of using the affordances of online environments for learning, take their toll in a busy schedule. As a result the opportunities for interaction may be few in reality, because the designed elements are replicated from face-to-face teaching experience and teachers are unsupported in their technology learning.

The paper explores the experience of developing an online course for final year undergraduate learning, staffed by UK teachers and delivered to students in South Africa and United Arab Emirates (UAE). Two semesters are contrasted, where the design elements available in the first semester (web pages, hotlinks, online library facilities and asynchronous conferencing in addition to core texts) were supplemented on the basis of student feedback reporting lack of personalised response and detailed explanation. In the second semester, module leaders were asked to learn new software to develop video lectures (based on Powerpoint™ with visual and audio commentary), improved scheduling of synchronous livechat sessions and weekly summary webcasts, which could be downloaded or streamed as movies or audio podcasts.

Interviews with the teachers concerned evaluate the move to a richer online design, particularly in relation to students' choices about which elements to use. Increasing the video and webcast-mediated relationship between learner and teacher appeared to have the effect of reducing text-based contact in asynchronous forums. Was this moving away from the very essence of collaborative and interactive online learning back to a passive distance model?

Keywords: Distance learning, learning approaches, VLE, learning design

IT Worked for us: Online Strategies to Facilitate Learning in Large (Undergraduate) Classes

Fran Greyling
University of the Witwatersrand, Johannesburg, South Africa

Abstract Higher education institutions are compelled to accommodate growing class sizes as student numbers have increased over time, especially at undergraduate level. Good teaching principles are relevant to all class sizes. For example, teachers of all classes are required to create safe learning environments, motivate and engage students, interact with students, provide stimulating assessment tasks and give prompt feedback. However, meeting these requirements in the context of large classes is more challenging. As a result, traditional large class teaching methods are often characterised by the passive absorption of material, which is not ideal.

What constitutes a large class? Class sizes of 60 or more have been considered large. In this paper, we report on online teaching, learning and assessment strategies for classes made up of approximately 600 first year students in Business Management 1 offered at the University of Johannesburg, South Africa.

The purpose of this ongoing research project is to integrate educational technologies in the classroom and study the impact of these classroom changes on the students' learning experience. The programme, which blends face-to-face teaching, paper-based teaching materials and online learning by means of WebCT/Blackboard tools, is now in its second cycle of implementation. This teaching strategy aims at greater lecturer-student interaction, engaging students with the course materials on a regular basis and eliciting feedback from students, which is used to re-teach aspects of the subject that the students find particularly difficult.

The blended learning strategy resulted in enhanced student perceptions of the quality of teaching and learning, and a significant improvement in student throughput. The findings and recommendations reported in the paper are based on student feedback, gleaned through online surveys, online artefacts created by students and lecturers' classroom experiences.

Although the authors report on online teaching, learning and assessment practices that proved to be effective in large classes, many conclusions may be of relevance to smaller classes.

Keywords: Large classes, online teaching-learning, assessment, evaluation, social presence

Learning Journal – Weblogs in Academic Courses

Stefanie Hain and Andrea Back
Institute of Information Management, St. Gallen, Switzerland

Abstract: This paper examines the impact of weblogs on individual learning processes in a university environment. It outlines experiences with weblogs as an instrument of learning reflection or a learning journal. This paper presents an innovative didactical concept based on the Web 2.0 paradigm and evolving technologies.

Weblogs have emerged with the paradigm of Web 2.0 and user-generated content and have gain in importance through the various evolving application contexts, for example, the transfer of knowledge within enterprises, the communication and exchange of experiences with customers, and even the acquisition of projects by power bloggers. In this paper, weblogs are considered in the specificity of learning journals that focus on two objectives: first, supporting individual learning by means of reflection as the most effective method of individual learning; and, second, multiplying these efforts through interaction and discussion within a group of individuals with common interests. The latter is based on contribution-based pedagogies that maintain that collaboratively creating learning resources and sharing them with others are promising practices through which students can learn. Additionally, it is argued that this style of teaching relates to a growing trend in higher education in which the focus of learning is moving away from building a basic knowledge store and toward emphasizing a wider range of skills.

We successfully applied the weblog approach to several academic courses during which qualitative and quantitative data were collected in an empirical study. This paper reflects our experiences with weblogs as a support for university lectures and is based on four semesters of exploration and adaptation. Within the scope of the research approach of design research (Hevner et al. 2004), it provides a structured method to support individual learning processes within a learning community realized by a weblog in the specificity of a learning journal. Verification with students and experts has led to a holistic method through which lecturers and coaches can successfully integrate weblogs into academic courses or even professional trainings. This paper addresses both academic learning and professional education management initiatives. Essentially, it aims at in-house training in enterprises, vocational schools, and universities. Interviews with experts also reveal how to successfully align this method with professional trainings.

In conclusion, this paper suggests a method with which to design a learning environment by means of learning journals to enforce increased individual learning. More specifically, it reveals that learning journals enable the achievement of level three (transfer to and application in the working environment) of Kirkpatrick's (1994) four-level model, which was generated to evaluate learning programs.

Keywords: Web 2.0, weblog, learning journal, reflection, contribution-based theory

e-Portfolios for Academic Development: Career Progression Vehicles or Private Tools of Reflection

Stylianos Hatzipanagos and Simon Lygo-Baker
King's College, London, UK

Abstract: Portfolios have been used for assessment in academic development as an alternative to exams and assignments, seeking to address criticisms that conventional assessment fails to take account of the context in which teaching practitioners operate. e-Portfolios offer staff a digital technology that is both a personalised learning space owned and controlled by the learner and a presentation tool for formal assessment purposes at a 'point in time' (Stefani et al 2007). However, this can result in a tension between process and the product and in e-portfolios that become electronic repositories of resources which simply tick boxes for career progression. The paper reports on a project that investigated the use of e-portfolios by teaching practitioners developing a critical portfolio of evidence for an award bearing academic development programme. The project aimed to enable teaching practitioners to access and gain familiarity with pedagogically sound e-portfolio opportunities. In addition, it aimed to foster a reflective approach, promote critical thinking focused on learning and teaching and enhance continuing professional development. The outcomes of this project will be discussed in terms of an appreciation of e-assessment by the teaching practitioners involved, recommendations for an e-portfolio environment which uses e-learning resources to foster a reflective approach that can enable and enhance continuous professional development for academic staff.

Keywords: Academic development, professional development, e-assessment, reflection, e-literacy, e-portfolio

Paradox, Promise and Problem: A Social Realist View of the Potential of Open Educational Resources at the University of Cape Town

Cheryl Hodgkinson-Williams and Eve Gray
University of Cape Town, South Africa

Abstract: The OECD reflects that "although learning resources are often considered as key intellectual property in a competitive higher education world, more and more institutions and individuals are sharing digital learning resources over the Internet openly and without cost, as open educational resources (OER) (2007:9).This extraordinary trend of making teaching and learning resources and approaches freely available to other lecturers and students has been dubbed a new "culture of contribution" by Atkins, Seely Brown and Hammond (2007:3) in a recent review of the achievements, challenges and new opportunities of the OER Movement. By January 2007, over 3000 open education courses were available from over 300 universities worldwide (OECD 2007). The providers of OER are from well-reputed institutions internationally, but are predominantly from the US (e.g. MIT, Johns Hopkins, Rice), UK (Open University) and combined in repositories in Europe (e.g. MERLOT).

While informal sharing of resources undoubtedly takes place, South African universities have no formal equivalent of OER offerings as yet. This paper reports on a study currently being undertaken at the University of Cape Town and reviews how information communication technologies (ICTs) are being used to enhance teaching and learning and what the possible benefits and drawbacks are of sharing these resources and/or pedagogic strategies with other lecturers and students beyond the confines of UCT.

It uses a social realist framework (Archer 2000) in an endeavour to understand how the formal structures of policy at a national and an institutional level enable or constrain the practices of individual or groups of lecturers. Moreover, it highlights the agency displayed by individual or groups of lecturers in response to the national and institutional structural enablements and constraints. It concludes by raising the question of whether the provision of structural enablements would be sufficient to overcome lecturers' lack of interest in sharing their resources more publicly.

Keywords: Open educational resources; open education; social realism, information communication technology

Integrating Content- And Web-Based Instruction: Creating HIV/Aids Awareness in a Virtual English Classroom

Rubeina Ismail-Allie and Linda van Ryneveld
Tshwane University of Technology, South Africa

Abstract: Of relevance to every living-being at this point in time is the HIV/AIDS pandemic. The most visible impact of HIV/AIDS is the increase in deaths of young adults. Recent studies undertaken have indicated that there was an escalation of HIV/AIDS on South African campuses, with 1 in 5 undergraduates being HIV positive (Tshwane University of Technology, 2007). It was also predicted that these figures could escalate even further if mechanisms were not put in place to control the spread of HIV/AIDS on campuses.

The need for the involvement of the education sector in controlling the surge of HIV/AIDS pandemic is clearly pronounced by various authors (Katjavivi & Otaala, 2003; Kelly, 2003). Without education, AIDS may continue its rampant spread. With AIDS out of control, education may be out of reach. The education system should therefore ensure the integration of good quality sexual health and HIV/AIDS education into the curriculum. In 2007, South African universities received a once-off fee of R250 000 from the Department of Education to put in place essential services and programmes for students and staff for the prevention, treatment and care of those infected with and affected by HIV/Aids.

Beside the societal changes that have to be brought about from the above discussion, the Higher Education system in South Africa is undergoing numerous other changes. The changes occurring in the instructional delivery system are specifically apparent. There is an increase in the use of multimedia presentations, video conferencing, and more recently web-based instruction. Web-based instruction is already revolutionalising how students work, think and access information. These technological innovations have a direct impact on current university practices and policies and subsequently have the potential to alter our traditional definitions of education**.**

Since Tshwane University of Technology strives to be a centre of excellence for technology, it makes sense that programmes offered at the institution should be technologically innovative. Hence, this study examines how and why technology-based instruction should be used to create HIV/AIDS awareness in the Extended English programme at Tshwane University of Technology.

Keywords: Integration, web-based instruction, content-based instruction, HIV/AIDS awareness, extended English programme

The eLIDA CAMEL Model of Collaborative Partnership: a Community of Practice in Design for Learning

Jill Jameson
The University of Greenwich, London, UK

Abstract: Using a communities of practice (CoP) e-learning model for collaborative partnership in Design for Learning (D4L) can facilitate successful innovation while enabling ongoing 'critical friend' appraisals of effective practice. This paper reports on 21 e-learning case studies collected by the JISC-funded UK eLIDA CAMEL Design for Learning Project. The project implemented and evaluated learning design (LD) tools in higher and further education within the JISC Design for Learning pedagogic e-learning programme in 2006-07. Project partners carried out user evaluations on innovative tools with a learning design functionality, collecting design for learning case studies and LD sequences in a range of post-16/HE contexts using LAMS and Moodle. The project brought together learning activity sequences from post-16/HE partners into a collaborative e-learning community of practice based on the CAMEL (Collaborative Approaches to the Management of e-Learning) model, contributing to international developments in design for learning. This paper briefly provides an overview of the key project outputs in terms of their contribution to e-learning innovations, including evaluation results from teachers and students using online surveys. The paper explores intentionality in the development of a community of practice in design for learning, reporting on trials of learning design and social software in bridging tensions between formalised intra-institutional e-learning relationships and inter-institutional project team dynamic D4L practitioner development. Following a brief report of practitioner D4L e-learning case studies and student feedback, the catalytic role of the 'critical friend' is highlighted and recommended as a key ingredient in the successful development of a nomadic model of communities of practice in the management of e-learning projects. eLIDA CAMEL Partners included the Association of Learning Technology (ALT), JISC infoNet, three universities and five FE/Sixth Form Colleges. Results reported to the UK JISC Experts' Pedagogy Group demonstrated e-learning innovations by practitioners in D4L case studies, illuminated by the role of the 'critical friend', Professor Mark Stiles of Staffordshire University. The project also benefited from case study evaluations by Dr Liz Masterman of Oxford University Learning Technologies Group and the leading work of ALT and JISC infoNet in the development of the CAMEL model.

Keywords: e-Learning, communities of practice, collaboration, design for learning, JISC, case study

Kusasa: Developing Analytical Thinking Skills through Peer-taught Software Programming

Barry Kayton[1] and Steve Vosloo[2]
[1]Bright Sparks, Cape Town, South Africa
[2]Shuttleworth Foundation, Cape Town, South Africa

Abstract: Kusasa – a Zulu word for "tomorrow" – is a new, open-source e-Learning initiative to develop analytical thinking skills in learners from grade 4 to 12 in South Africa (SA). The project was initiated in response to the severe shortage of skilled mathematics (maths) and science teachers in SA, but also in recognition of the increasing prevalence of computer labs in schools. The goal of Kusasa is to create a software programming-based learning environment that is teacher facilitated (as opposed to taught) and partly peer-taught, to develop learners' analytical thinking skills. The overall project goal is to improve learner performance in maths and science.

Kusasa makes extensive use of illustrated characters and comic stories. The characters are a novel way to provide role models for the attitudes and values that promote the intended analytical thinking. The characters also function as the facilitators of learning sequences in LAMS, a learning management system (LMS), and as the guides for tutorials in a programming environment designed for young learners called Squeak eToys. eToys is heavily informed by Papert's (1993) constructionist approach of learning by creating, in this case modelling and creating computer-based objects and processes that learners are studying in maths and science. Learners also share their "public artefacts" through LAMS.

Kusasa is a whole learning system that includes software, curriculum-aligned content, teacher training and a framework to establish a new culture of learning. For many learners in SA whose teachers may be poorly trained, poorly paid and overworked, Kusasa shows – perhaps for the first time – the characteristics and skills that good analytical teachers should demonstrate
.
In development since November 2005, Kusasa implementation is due to begin in April 2008. This paper introduces the context, or rationale, of the project and the learning theories that underpin it. The software programs used in Kusasa are described, along with the limitations that we have encountered in using those programs. The paper then focuses on the content and lesson programming of Kusasa by describing the approach of incorporating role models; comic-form stories; experiments and computer modelling opportunities; peer-teaching and learning; and extensive opportunities for reflection. This "story so far" of a work in progress will be relevant to curriculum developers, teachers, researchers and learning technology practitioners.

Keywords: e-Learning, analytical thinking, constructivism, constructionism, comic, squeak eToys

An Online Social Constructivist Tool: A Secondary School Experience in the Developing World

Ayse Kok
Camp Rumi Technology Literacy Group, Istanbul, Turkey

Abstract: With the rapid advances in technology, several online learning tools come onto the stage. Being an online learning delivery tool to support a full range of teaching and learning activities conducted by educational institutions Moodle facilitates online content creation and collaboration by entailing various social and communication tools that support teacher-student, student-student, and teacher-teacher interactions. This paper presents the "Moodling"(Moodle, 2005) experience within a secondary school in a developing country, namely Turkey. Based on a focus discussion group with the foreign language teachers, the author depicts the critical points that need to be taken into consideration so that an effective collaborative online platform for both teachers and students to learn together can exist.

Keywords: "social constructivism", Moodle, "virtual learning environments", "online collaboration", "social artifacts"

Beyond U-tube: An Innovative use of Online Digital Video Analysis in Teacher Education

Jenny Lane and Tony Fetherston
Edith Cowan University, Perth, Australia

Abstract: This paper reports how digital technologies can be successfully incorporated into traditional teaching programmes to support the learning of a new generation of learners. The paper describes two e-learning tools, in part one it describes the introduction of LessonLab an innovative e-learning venture with preservice teachers. This web-based platform called LessonLab used with six cohorts of preservice teachers approximately 600 students, of whom 25% participated in this evaluation. A special feature of this platform is its ability to house streaming video and a range of digital video analysis functions. Research was conducted to determine the effectiveness of this use of digital technology. Quantitative and qualitative data were obtained from participants, which revealed that the majority of participants benefited from this use of technology to support their learning.

Part two of the paper describes a new application developed by one of the authors. This application called Artichoke is a cost effective digital video analysis tool, which can be used in research and teaching applications. These studies have relevance for all educators who are keen to use technology to promote effective learning and thinking for today's` learners.

Keywords: Digital video analysis, teacher education, learning styles, e-Learning

Digital Literacies in Higher Education

Mary Lea, Robin Goodfellow and Sylvia Jones
The Open University, Milton Keynes, UK

Abstract: Substantial investment in e-learning in global HE contexts has been accompanied by a rapid growth in digital communication technologies. As a result students now engage in a range of digital texts, both in and outside the curriculum, many of which (texting, online chat, web browsing, social networking) are far removed from the more conventional literacy demands of university study. The research project introduced in this paper contributes to our understanding of this changing environment in exploring the nature of literacies, learning and technologies and how these intersect in students' lives as learners. It also throws light on the blurring of the distinction between what is in and what is outside the curriculum and the implications of this for learning.

Research in the field of e-learning has generally taken the technologies as its starting point (Conole et al 2006) and has paid little attention to the part that literacy as social practice plays in the construction of knowledge in digital environments (Goodfellow & Lea, 2007). Drawing on previous research into academic literacies (Lea & Street 1998; Lea & Stierer 2000), this research takes a textual lens to the experience of learning of undergraduate students in a digital age. These students are often referred to as 'digital natives', spending time text messaging, chatting on-line, surfing the net and using social networking sites. Such activity has led to claims of a crisis in student literacy, including the suggestion that students are no longer able to engage effectively in traditional academic tasks such as essay writing. The use of the web is also blamed on an exorable rise in plagiarism. At the same time, e-learning now plays a central role in the delivery of the curriculum; for example, students now access web-based course resources, participate in online discussion, download lecture notes and presentations, produce their own visual presentations and keep learning blogs. They also have to complete electronic records of progress and personal development plans.

Applying in-depth, fine-grained ethnographic-style methods and drawing on research into literacy as social practice, this work in progress paper will provide evidence of students' *actual* engagement with digital literacies in an attempt to take a measured approach to some of the claims that are being made about 'digital natives'. Students in the study are selected from three very different UK HE institutions. The levels at which they are studying and their social background also vary widely, with some students taking foundation degrees and others honours degrees.

This work in progress paper will address questions raised in the mini-track, 'educational technology and the digital divide', and specifically in terms of, ' why are students with equally high access using ICTs to such different extents and in such different ways?

Keywords: Digital literacies; social networking; curriculum; students; diversity

Developing Web-Based Continuing Professional Development for IT Teachers of the NCS

Arno Louw
University of Johannesburg, South Africa

Abstract: This is a study about professional skills development for Information Technology (IT) teachers. The study aimed at developing an online learning ecology (LE) that hosts an online programme aimed at continuous professional teacher development (CPTD) focusing on IT teachers. The use of Information Communication Technologies (ICTs) in South African schools brought about the possibility of using web-based education (WBE) for the purpose of bettering CPTD for IT teachers in Further Education and Training (FET).

The rationale for this study argues for an alternative way for a means of communication with and training of IT teachers in a more intensified manner. Theory on adult education, web-based pedagogy, and the available web-technologies, composes the theoretical framework for this study. Subsequently, theory on instructional design (ID) is applied in developing the online learning ecology, online programme, as well as developing a community of practise (CoP) for IT teachers.

Keywords: CPTD: continuing professional development; FET: further education and training; ICT: information and communication technology; NCS: national curriculum statement; CoP:cCommunity of practitioners

TekkiKids – Experiences in implementing technology clubs in a South African context

Mario Marais[1], Marcus Duveskog[2] and Nomusa Dlodlo[3]
[1,3] CSIR, Meraka Institute, Pretoria, South Africa
[2] University of Joensuu, Finland

Abstract: A key element for preparing learners for life in a technological world is the ability to provide them with access to tools to realise their innovation ideas as physical artefacts. This paper reports on an effort to address the issue of access to science, engineering and technology (SET) education and careers through raising awareness among primary school children in South Africa. Learners participated in hands-on activities that were aimed at stimulating their interest in SET as part of the TekkiKids initiative.

To reach the learners requires a different pedagogical approach that will unleash their creativity and innovation. TekkiKids is about exposing children in grades 5 to 7 to a hands-on technology experience in which learners experience various technologies in an effort to influence them to follow education and careers in SET. The intervention does not follow a formal curriculum approach but is based on extra-mural activities. The learner is freed from the pressures of the classroom, and provided with a more unstructured and empowering experience where they are free to experiment. TekkiKids is about applying the design process to solve a technology challenge. Children from well-resourced and less well-resourced schools were exposed to SET via challenges that cover the design and programming of robots using Lego Mindstorms. This was a testing ground for an early exposure to elements of robotics, programming, computer literacy, mechanics, the design process, team work and problem-solving.

The research on the experiences of primary school learners in a TekkiKids environment is qualitative in nature. The information on their experiences in the SET environment is collected not only through observation of the activities of learners but also through interviewing both the learner and the teacher as activities progress. From this research the children benefit from an increased awareness of opportunities in SET. Educators on the other hand are exposed to more innovative ways of keeping their learners interested in SET activities. Preliminary recommendations for running technology clubs in the SA context was developed. The policy makers will gain more knowledge on effective strategies for increasing the SET pipeline.

Keywords: Technology clubs, primary school learners, SET awareness, constructionism, self-directed learning

Leap of Faith: Effective Steps for Establishing Online Collaborative Learning Initiatives

Simon McIntyre
The University of New South Wales, Sydney, Australia

Abstract: Concepts of 'traditional' working and teaching practices are increasingly becoming insufficient, as technology continues to enable unprecedented collaboration across the globe. Boundaries of locality, time and discipline are breaking down, revealing new and exciting collaborative professional and educational possibilities. Tomorrow's graduates will not only need to possess disciplinary knowledge and skills, but also the ability to effectively communicate and work with others in online collaborative environments. Despite this, there are still many sectors within education being 'left behind' when it comes to integrating appropriate online learning strategies into their curricula. This can result in a mad scramble to get content online fast, without considering that specific online learning and teaching approaches must also be established to ensure relevance, sustainability and effective student learning.

Educators must evolve their approach – shape their own 'learning futures' (Salmon 2007), or they will soon find large aspects their teaching methods mismatched to industry practice. Students must be taught how to overcome the challenges of working together in digital spaces. Effective online communication and collaboration should be taught as part of an integrated curriculum, merging traditional skills and knowledge with new digital working practices, so that graduates are equipped to become true future leaders in their field. When faced with the reality of initiating such educational change, many institutions do not know where to start. Developing infrastructure, acquiring the technology, designing curriculum and developing online teaching approaches for such *'a leap of faith'*, can all seem like impossible barriers.

- So how can educators overcome these problems and make a start?

Over the last four years, the College of Fine Arts (COFA), The University of New South Wales, Sydney, Australia has successfully overcome such barriers to develop a suite of fully online courses in disciplines such as graphics, interior and urban design, and even more 'traditional' art disciplines such as drawing and sculpture. The success of these undergraduate courses also led to the development of a unique fully online Masters degree in art and design. Through the examination of a range of qualitative and quantitative data, along with reflections of both teachers and students from our staff development programs and COFA Online courses, this paper offers insights and accessible strategies learned through years of practical experience and continuing research to support the development of online learning and teaching initiatives, staff training and effective online learning and teaching techniques that engage students, and foster the collaborative and communications skills that will be so important in future workplaces.

Reference: Salmon, G. 2007. Learning Futures (Keynote address ConnectEd Conference, The University of New South Wales)

Keywords: Collaborative learning, curriculum design, training, evaluation

Distributed Communities of Practice: An Exploration of a Distributed Community of Practice of South African Life Science Teachers

Robert McKay and Pamela Miller
University of Pretoria, South Africa

Abstract: This study researches the experience of the members of the Biology Teachers Network (BTN). The BTN is a distributed Community of Practice (CoP) primarily made up of Biology/Life Science teachers, teaching at private/independent high schools in South Africa. A few members belong to schools in Namibia and Mozambique and non-teaching members consist of text book authors and government education officials.

The membership of the BTN is voluntary. The BTN is supported by a core group of members and administered by single moderator. The network uses an email system to communicate and share information as an automatic listserv proved to be beyond the capabilities of the membership.

Etienne Wenger is the authority on the theory of CoPs and provides in depth background to the processes that are evident in a CoP. A CoP consists of the Domain, Practice and Community and through a process of negotiation of meaning, learning takes place through identity formation. CoPs can exist online in the form of distributed CoPs. Passionate leadership is essential for the formation of a CoP as is the voluntary participation of the members.

A Naturalistic case study methodology is considered to be the most appropriate research tool to study the experience of the of the members of the BTN. In this study a focus group, email and a serious anecdote are used as data sources. The data was analysed using three instruments derived from the literature. The instruments are a table of identifying characteristics, a checklist of criteria pertinent to a CoP and a set of descriptors to measure the quality of the shared information.

The conclusion from the analysis of the data is that the BTN is a vibrant and fully functional distributed CoP in the coalescing stage. Participation in the BTN has led to an increase in professional development and ICT skills amongst some of the member teachers. The fact that this was achieved through the use of email instead of sophisticated websites suggests that this model of distributed CoP is suitable for the professional development of teachers in South Africa.

Keywords: Distributed communities of practice knowledge management teacher professional development

Navigating the e-Learning Terrain: Aligning Technology, Pedagogy and Context

Mandia Mentis
Massey University, Auckland, New Zealand

Abstract: Over the last ten years e-learning has rapidly emerged as a potentially effective mode of higher education, but it is still unclear what factors are important in the design of an effective e-learning course. e-Learning has been described as being a "disruptive technology" that changes how learning is approached in higher education (Garrison & Anderson, 2003). The extensive changes in the technologies over the last decade have the potential to influence the way we engage with knowledge, but the potential will only be realised if we integrate this with an understanding of learning, and design the use of e-learning technologies accordingly within different contexts (Laurillard, 2005). This paper explores the influence of the areas of technology, pedagogy and context on e-learning practice. Three vignettes relating to e-learning are presented which represent the shifts in technology and the tensions and influences of this on context and pedagogy. These vignettes provide the background context within which to discuss the design of an e-learning alignment guide (the eLAG). This guide is a navigational tool, which offers e-learning designers a perspective on navigating the e-learning topography. It is devised to assist practitioners when navigating the changing and complex terrain of e-learning and teaching, enabling some alignment of the three e-learning zones. The e-learning alignment guide is described in detail, outlining the changes occurring within the areas of technology, pedagogy and context. In the zone of technology, the significant development is from 'web1' content management systems in e-learning to emergent 'web 2' social networking tools. Pedagogical approaches range from transmission models of teaching and learning to social constructionist approaches. Changes in pedagogy and technology suggest the potential for more individualised, user-controlled, informal learning contexts. The e-learning guide is a potentially useful tool for designing and developing e-learning environments and the application to practice is illustrated using the three e-learning vignettes. The key finding of this paper is that technology, pedagogy and context need to be closely aligned in order to realise the potential of e-learning.

Keywords: e-Learning e-Learning design alignment technology pedagogy

Designing e-Learning Through Games – Reconceptualising the 'Fun' and the 'Serious' in Computer Assisted Language Learning

Bente Meyer and Birgitte Holm Sørensen
Aarhus University, Denmark

Abstract: A recent development in the area of e-learning is the use of game-based material (Serious Games) for learning. The advantage of using games for e-learning is according to Gee (2003) that games may provide visual and embodied models for physical and social human action in the world. In addition to this the use of online games for educational purposes may tap into experiences with interaction and community building that learners have from informal settings. In the paper we shall argue for the potential of serious games for teaching and learning languages online. The paper builds on data from a research project, Serious Games on a Global Market Place (2007-2010), in which an online game-based platform for teaching and learning English (www.Mingoville.com) has been studied in the context of English education in Danish primary schools. The initial research process – which was based on an analysis of the platform as well as interviews with platform developers – suggested that one of the challenges of developing a design for serious games in language education consists of renegotiating the educational games genre to balance drill-based exercises with contextualised simulations that involve fruitful thinking, real language interaction and student engagement. One hypothesis of the project is, following the initial research and drawing on previous research in the field, that the process of designing serious games for CALL may significantly benefit from involving children's own experiences with using languages (primarily English) online for gaming and interacting. This to some extent involves transcending the dichotomy of 'serious' and 'pleasurable' learning found in the discourse on learning with games inside and outside schools.

Keywords: Serious games, computer-assisted language learning (CALL), the educational design of games, motivation and games, formal and informal learning

Building Inclusive Libraries to Bridge the "Digital Divide"

Susan Moisey
Athabasca University, Alberta, Canada

Abstract: In rural communities, common barriers to the use of web-based information and communication technology include a lack of equipment and connectivity, as well as expertise and literacy. These barriers are especially common for people who are economically or socially disadvantaged, such as individuals with disabilities and others in marginalized groups (e.g., aboriginal people, new immigrants, those living in poverty).

The *Inclusive Libraries Initiative* has been designed to address these barriers. Since 2003, this project has been fostering the development of inclusive libraries in Northeast Alberta, the second-most-westerly province in Canada. The project is based on the premise that local libraries are ideally positioned to offer access to high-quality computer and online technology, including assistive technology, and expertise in their use. Libraries are natural supports that can be developed to increase community capacity, thereby enhancing the inclusion of individuals with disabilities in the communities where they live, work, and learn. This presentation will present the outcomes that are being achieved through this project and the lessons learned along the way.

Keywords: Disabilities, inclusion, community development, assistive technology

One Lecturer's Perspective of e-Learning Implementation in Developing Contexts

Tulimevava Kaunapawa Mufeti
University of Namibia, Windhoek, Namibia

Abstract: e-Learning has brought some remarkable breakthroughs in pedagogical approaches in many educational institutions throughout the world. In an attempt to realize the same benefits, universities in developing contexts have often adopted e-Learning implementations intact, although these implementations may be more illusionary than real in their own contexts. Constructive e-Learning implementation has thus, unfortunately not been globally realized, as many institutions of higher learning in developing contexts are still struggling to acquire the basic technological infrastructure required for e-Learning. This paper presents a Computer Science lecturer's view on e-Learning implementation and adoption at an institution of higher learning in a developing context. It uses the University of Namibia as a case study to demonstrate how e-Learning may be achieved in such contexts. The paper starts by describing how e-Learning was implemented at the University, and focuses on experiences and lessons learned from the implementation. It further stresses the need for collaborating with partner institutions to share resources that individual institutions might not have. An important lesson learned is that, the most appropriate methodology for e-Learning adoption and integration is one that is directly adapted to the institution's circumstances. The paper concludes by stressing the need for a customized benchmarking methodology that continually evaluates and strives to improve the performances of individual institutions if educational excellence is to be attained.

Keywords: e-Learning implementation, developing contexts, lessons learned, evaluation

Investigating Student Use of an Anonymous Online Questioning Environment in a Large Class

Dick Ng'ambi and Irwin Brown
University of Cape Town, South Africa

Abstract: One of the challenges of teaching large classes is the lack of personal contact with students. The consequence of such distance between lecturer and students is slowness with which lecturers gain insight into learning difficulties and frustration of students. Online collaborative learning tools have been touted as immensely beneficial to enhancing face to face teaching. In this paper we investigate the use of an anonymous online questioning environment in a large class setting. The primary focus is on the development of a taxonomy of question types based on the analysis of artefacts. The class in question was made up of more than 600 first year undergraduate commerce students studying an Information Systems course. The anonymous online questioning environment was made available for students to ask and answer questions outside of normal face to face class times or lecturer consultation times. Questions could be answered by student peers or by lecturing staff. Answers given by lecturers were clearly distinguishable by an "official response" icon in the online environment. A taxonomy made up of 5 question types was inductively identified from the data. Such a taxonomy serves as a tool to diagnose the benefits that can be derived from the use of such a tool in a large class context, and the potential pitfalls to be aware of. These and other implications are discussed in the paper.

Keywords: Online questioning environment, Anonymity, Large Classes, Peer-to-Peer learning

e-Learning Adoption Conceptual Framework: The Link Between e-Learning Characteristics and Adopters Characteristics

James Njenga and Louis Fourie
University of the Western Cape, Cape Town, South Africa

Abstract One means of Higher Education Institutions (HEIs) in Africa updating and advancing their teaching and learning processes, and student management and administration capabilities is through the adoption of e-Learning. E-Learning is the use of electronic devices (usually Information and Communication Technologies) to impart, enable or deliver instructional contents or experiences. Diffusion and adoption of innovations, like e-Learning, have been studied for a long time due to the importance of understanding among other things the sources of the differences in the patterns of diffusion and adoption in relation to their high failure rates and the high amounts of money spent in their development and implementation that often lead to organizational losses. This scenario necessitates the identification of alternative frameworks that would facilitate the adoption of e-Learning. Diffusion in this case is the spread or transmission of e-Learning in HEIs across space in a given time period. Adoption has been defined as the process through which a party responsible for decision making undergoes from a) initial knowledge of an e-Learning, b) to developing an opinion about e-Learning that would determine the decision to use or reject it, c) to investing resources in e-Learning and finally d) integrating the innovation into the daily life of the party (entrenchment and routine usage). Consequently this paper introduces an e-Learning adoption conceptual framework of how individual decisions are influenced or determined by the characteristics of e-Learning being adopted and individual factors. The framework encapsulates the positive factors that can be replicated and enshrined in HEIs and by its stakeholders for successful e-Learning adoption, as well as the negative influences that the adopting party (or its advocates) should be aware of and be prepared to deal with. Further, a series of propositions are presented and examined in the light of individual and organizational factors that would influence the adoption of e-Learning. These propositions most importantly form the link between characteristics of e-Learning and the individual and e-Learning factors affecting its adoption. The implications of these propositions and avenues for future research are also discussed.

Keywords: e-Learning, e-Learning adoption, e-Learning characteristics, adopters' characteristics, Higher Education Institutions

An e-Learning Mandala Reveals how a Community of Practice is Sustained Through a Professional Development Programme

Marí Peté
Durban University of Technology, South Africa

Abstract: The goal of this study is to transform education through blended learning and cross-disciplinary problem-solving at a contact university of technology in South Africa. The purpose of this paper is to reflect on Pioneers Online, a community of practice sustained through a professional development programme offered to lecturers at the Durban University of Technology (DUT). During the eighth annual community launch, we examine this practice once more in the kaleidoscope of action research. The visual representation of our vision which comes to mind is a mandala, for its guiding principles of interconnectedness, interdependence, enquiry and transformation. In this paper the author examines how the cultivation of a mandala has taken shape, in the process of refining the concept and curriculum of Pioneers Online. The core question raised in this paper is: How does one achieve in one curriculum, the equally important goals of interconnectedness, interdependence and transformation on the one hand; and on the other, teach lecturers skills, and meet programme certification requirements? This investigation is informed by the input of the online pioneers who have done the DUT short course in web-based learning, pitched against an elective of the Post-graduate Certificate in Higher Education. Four other South African universities have adopted and adapted the Pioneers Online model in developing similar professional development programmes. The autor examines critically, and provides insights into successes and failures, with the aim of sharing strategies for the advancement of South African Higher Education.

Keywords: Communities of practice; action research; professional development; e-Learning

Answers to Modernity: Contradictions among Learners, Teachers and Curricula with respect to e-learning?

Karen Bjerg Petersen
University of Aarhus, Denmark

Abstract: In his book *The consequences of modernity,* the British sociologist Anthony predicts e-learning environments. He emphasises that 'modernity is inherently globalising' creating 'disembedded' social relations and tearing 'space away from place by fostering relations between "absent" others, locationally distant*'.*

Based on a case study and interviews with e-learning teachers and learner participants in a virtual classroom setting and on extracts of the curriculum developed for the particular e-learning course, the aim of the paper is to discuss how different positions in an e-learning triangle – teacher, learner or curriculum planner positions - result in different strategies or 'answers to modernity'. The research has taken place as a study of e-learning and virtual teaching of Danish as a second language for adults.

The fact that relations in virtual learning are established between physically absent individuals, who are locationally distant and may never meet, seems to necessitate different strategies towards e-learning, depending on the position in the learning triangle.

The research results indicate, that teachers compensate for the disembedded social relations in e-learning environments by trying to build 'virtual communities of learning', learners however to experience these disembedded relations, while curriculum planners, on the other hand, seem to intend to take advantage of the conditions of dislocated social relations in e-learning.

Keywords: E-strategies, answers to dislocation in e-learning, e-learning, modernity, e-curriculum

The Student Factor in building an e-learning culture: Experiences at the University of Botswana

Nduduzo Phuthi[1] and Olefile Bethuel Molwane[2]
[1]National University of Science and Technology, Bulawayo, Zimbabwe
[2]University of Botswana, Gaborone, Botswana

Abstract : This paper presents findings of a small study on the prevailing characteristics and preferences of university students that can be linked to their motivation to adopt and sustain e-learning as their key learning strategy. The qualitative case study was carried out through a questionnaire survey, interviews and classroom observations of third year students enrolled in a five-year degree programme in design and technology at the University of Botswana. The university has embarked on a deliberate path of technological transformation through the University of Botswana e-learning initiative (UBel) which has been significantly supported by the institution's management (Thurab-Nkhosi et al 2005). In this study, students were taken through a variety of learning activities incorporating internet-searches, group work and peer presentations, media-enhanced lectures, and guest lecturing. Through these activities, the students were encouraged to discover and communicate their strengths and preferred learning styles in an attempt to inform their readiness and motivation to embark on full-scale e-learning as desired by UBel.

Owing to various reasons, the bottom-up approach to organizational transformation and innovation diffusion is often less explored because of, among others, problems of feasibility and expediency. The largely imported e-learning technology is often assumed transferable and appropriate for all students, regardless of background, orientation and aspirations. While e-learning is indeed suitable for the maturing and independence-seeking university learners who need more guidance than shepherding, few academics appear to understand who their students are, and which of their characteristics can be useful to bring about identified change in the learning and teaching processes. It has been suggested that university students, the most sensitive section of society, are open to ideas and have unsettled minds looking for change, while the universities they attend are centres of revolutionary ideas (Dibaj 2000). There are opportunities to derive from this. For their part, higher education students in Botswana have been, and are being, shaped in the realm and mindset of the prevailing socio-cultural environment around them. Being citizens of a fast economically developing country with a rare 'inborn' multi-party democracy described as 'an oasis of tolerance and non-violence amid civil strife and political chaos' among its neighbours (Rule 1988), Botswana university students are likely to portray situation-consistent behaviours and attitudes towards learning in general, and e-learning in particular. The findings of this study suggest that the surveyed students were largely expressive but unempowered knowledge and information recipients whose intellectual potential and multiple intelligences (Pritchard 2005) were not being fully exploited. They preferred less challenging learning tasks only because they were used to them, but would otherwise welcome active, interactive and information-rich experiences in their learning, with e-learning as a definite favourite.

 Keywords: Preferred learning style, student characteristics, transformation, empowerment

The BTech Research Module for Journalism: Theoretical Aspects of Course Design in Developing Research Capacity through Blended Learning

Dee Pratt and Mikhail Peppas
Durban University of Technology, South Africa

Abstract: This paper addresses two key issues in Higher Degree learning at a University of Technology, namely, how to facilitate the development of students into independent researchers, and how to harness ICT to this end. The BTech level is a critical one for developing research capacity, as at this stage that basic research procedures need to be mastered in preparation for masters, and, later, doctoral study. Currently the BTech Journalism course is offered on a part time basis only, and use of an online component in the module facilitated communication for both lecturer and students and led to the development of a "community of practice" where learners not only shared resources but constituted a resource for each other. The blended learning approach outlined here is experiential and outcome-based: learners mastered research processes by completing the tasks which more experienced researchers perform in preparing a research proposal. While the above course features are commonly accepted best practice, what is thought to have made this course particularly successful is the theoretical underpinning of the course design. The course is based on a communicative principle formulated in doctoral research, which can be seen to have implications for not only communicative but also pedagogical and investigative social processes, and which gave the course thematic coherence. Thus while the course is easy to follow at face value, and is presented as a series of straightforward research tasks, at a deeper level learners tap into a generative mechanism which can be seen to operate at a number of different levels. The approach described here attracted expert supervision from outside the university and resulted in improved throughput as well as better quality research reports. In view of its success and its generic nature, the course has been cloned for use in other BTech, MTech and DTech programmes.

Keywords: Blended learning, research capacity, modelling, outcome-based education, experiential learning

Online Learning: Narratives of (Dis)location

Paul Prinsloo [1], Sharon Slade [2] and Fenella Galpin [2]
[1]University of South Africa, Pretoria, South Africa
[2]Open University Business School, Oxford, UK

Abstract: The growth in using ICT to plan more effective learning in higher education necessitates a critical appropriation of the impact of 'transactional immediacy' on students' experiences of online learning and teaching. As institutions attempt to counter the effect of 'transactional distance' by exploring opportunities offered by asynchronous and synchronous online learning environments, the 'immediacy' of online education is often valorised. 'Transactional immediacy' in online learning can result in experiences of disorientation and dissonance. These experiences, though, are not necessarily negative.

This paper shares findings from a study of students' online journals in the Professional Certificate in Management, offered by the OU Business School. The study found ample evidence of a variety of dislocations which students experience, but also a variety of locating strategies employed by students to deal with the multifaceted disequilibrium some experience in learning online. This dislocation can be technological, epistemological and ontological. In their learning journals, students reflect on such experiences, but also document a variety of strategies to self-author. This paper aims to provide a theoretical foundation for the notion of (dis)location in online learning; presents qualitative research findings regarding the (dis)locating experiences of students, and shares ideas for the design of online learning experiences within a hermeneutical framework of (dis)location.

The findings have implications for the design, management and administration of online learning, and specifically for the use of online learning journals.

Keywords: Autopoiesis (dis)location, online learning, learning journals, transactional distance, transactional immediacy

e-Learning Implementation in Malaysian Universities: The Universiti Teknologi Malaysia Experience

Marlia Puteh
Universiti Teknologi, Malaysia

Abstract: This paper evaluates Malaysian universities response towards their assignment of producing knowledge workers that began in 1996, after the establishment of the Multimedia Super Corridor. The Malaysian government economic reform during the 1990s included high expectations about the role of Malaysian universities in the production of knowledge workers. The need for knowledge workers was seen by the universities as a signal to move towards creating graduates with a good grounding in Information technology. The educational revolution that took place in 1996 saw significant changes in the strategies applied by the university sectors. In particular, mission statements of Malaysian private and public universities began to include objectives designed to promote e-learning methodologies and multimedia skills. In their recent struggle towards becoming internationally ranked universities, instigated by the Times Higher Education Supplement rankings, Malaysian universities are further compelled to demonstrate their academic excellence via the technology. These institutions' failing efforts in accomplishing their mission statements are publicly debated and becoming a peril against their core agenda. This paper examines how a case study university charts its route towards this direction through its implementation of electronic learning. Specifically, it examines faculty resistance and acceptance towards the use of technology in delivering teaching. Roger's technology adopter's model emphasized that convincing reluctant users to use the technology is most challenging as these people made up 84% of the members in an organization venturing into innovative practice. A similar occurrence was observed in the case study university. Why have these people been reluctant? This paper also investigates the difficult experience by university management in dealing with technology laggards. A key conclusion of this research is that Malaysian universities need to evaluate its e-learning strategies if they aim for e-learning to be established and aspire for successful attempts towards the creation of the requisite knowledge workers that Malaysia needs.

Keywords: Strategic planning, adopters, teaching and learning, e-learning, resistance, policy

Transformation of Traditional Classroom Learning Activities into Learning Objects

Osman Sadeck
The Western Cape Education Department, District Metropole South, South Africa

Abstract: e-Learning is exponentially becoming an increasing presence in higher education and to a lesser degree in schools. Whilst higher education continues to transform for e-learning, traditional face to face (f2f) practices are institutionalised at schools. Progressing school education in the digital age presents challenges such as; how might curricula be repurposed for e-learning and how might we reconceptualise the perceptions and practices that tradition has socialised us into. This implies the development of a digital culture which factors in new didactic positions and curricular structures (Mustaro, et al 2006; Burgess 2003).

The ultimate goal of this study is the development of e-learning for quality education in South African schools. This study looked at how schools might employ a learning object approach to e-learning. The aim was to develop an instrument to evaluate traditional learning activities for transformation into learning objects. Learning activities represent the actual learning tasks that are undertaken, and learning objects are taken to be the single concept learning opportunity delivered and engaged with digitally.

The study was conducted as a qualitative case study, investigating learning activities in a Design & Technology (D&T) curriculum. Existing activities were analysed in terms of their granularity, aggregation and reusability. Literature on the design and evaluation of learning objects, and learning object theories was reviewed to inform the development of the instrument. It was found that learning activities could be deconstructed into categories and mapped into the instrument. The instrument that has been developed can be used to inform the actions of reflective practitioners engaged in reflexive processes through an analysis of classroom activities to inform learning object design decisions. It showed that learning activities could be evaluated on two levels; what they represent in their present form and their possible identity as learning objects. The study showed that the transformation of learning activities into a learning object does not imply a simple transformation of a traditional activity directly into a digital one.

Keywords: Learning object, granularity, aggregation, transformation, reusability, learning object identity

Interactivity with Dental Content at the University of Toronto: Second-Generation Digital Learning Applications

Florin Salajan and Greg Mount
University of Toronto, Canada

Abstract: In its efforts to continue the modernization of its curriculum, the Faculty of Dentistry at the University of Toronto has developed a second-generation series of its digital learning materials. In their first iteration in 2006, the instructional materials were somewhat static in nature, with limited interactivity beyond simple "play and watch" controls. In 2007 a new project yielded a number of applications which introduce a level of interactivity with the content that was absent previously from dental learning materials at the Faculty. This paper presents the production cycle of these new interactive learning objects. It also demonstrates the functionality and relevance of the learning objects in relation to the content traditionally used in the dental curriculum.

While a total of six learning objects were created in the second iteration of the content development program, only three modules are described in detail in this paper, namely: *Panoramic Radiography: Principles and Interpretation, Gross Human Anatomy 3D Atlas* and *Restorative Dentistry: Virtual Cavity Preparation.* Each of these modules introduces unique elements of interactivity with the content, specifically designed to address hard-to-grasp concepts in their respective dental disciplines.

Thus, the panoramic radiography module demonstrates, with rich 3D visuals, the techniques of performing a panoramic radiograph and tests the student's understanding of key concepts of tomography and radiography. The gross anatomy 3D atlas allows the student to "virtually dissect" a computer-generated model of the human neck and head anatomy, from cutaneous to osseous level. Finally, by using the virtual cavity preparation module, students can simulate a "drilling session," on a selection of tooth categories, while trying not to exceed a hidden, pre-defined ideal area of the tooth.

Informal feedback has indicated that the applications were well received by the students and that they have proved useful in enhancing the teaching and learning outcomes at the Faculty of Dentistry. The paper concludes with an update of the status on the research that is being conducted to measure the effectiveness of the three applications.

Keywords: Instructional design, instructional technology, three-dimensional modules, interactive learning, interactive applications

Merging Real Life Experiences with Technical Knowledge in a Playful Manner – A Case in e-Inclusion

Carolina Islas Sedano[1], Adele Botha[2], Mario Marais[2] and Erkki Sutinen[1]
[1]Joensuu Yliopiston Finland
[2]Meraka Institute Pretoria South Africa

Abstract: Connectivity to the Information Society does not imply inclusion. Active members of the Information Society (IS) do not just own technology and a connection to the world wide web, they know how to use the technology and inform and express themselves through it. It is therefore not enough just to provide the technology, individuals also need to be able to use it to meet their needs and support their activities. We made use of what we call video games as a potential channel to support the e-inclusion of marginalised members into the information society.

Most interactive video games are designed by and for younger adults from specific cultures and contexts, targeting specific markets. This neglects a vast world wide population with different needs, such as the elderly. They have distinct needs, cognitive abilities and desires that are vastly different from the game design target market. A conceptual framework based on activity theory guided the planning and implementation of a series of game design workshops. Through these workshops it has been possible to observe how a group of seniors learned information and communication technology (ICT) skills through the process of game design. In addition they were able to express themselves in the digital world while their life-experience and creativity captured in their game designs was turned into a digital form under their control.

During the last part of the game-workshop held at a Seniors' technology club in spring 2007, we developed gaming software, or "digitalized" the games which previously had been conceptualized and developed by the seniors. We used participatory techniques for software development and action research for understanding of the process. By including the seniors actively throughout the design process, games were developed that they enjoyed. Additionally we could observe how through this digitalized game development process, the seniors and developers learned to express and understand each other and to produce a product that can be played and enjoyed by other IS members. Our research suggested that this was an important consideration for the participants. These workshops offered a richer experience than merely observing elderly users with specific applications.

This paper further reflects on the importance that the game-design approach brings in promoting e-inclusion, collaboration, reflection, knowledge exchange, learning and creativity of different individuals by incorporating the life experience of their designers. In addition, this approach, aligned with activity theory, focussed on the games as objects and the elders as the main users being included in the game community leading to an increase in their self-confidence. Thus creating a sustained interest in the e-inclusion process. Case studies of this nature provide valuable insights in e-inclusion activities.

Keywords: e-inclusion, game-design, elderly, activity theory

Success Indicators and Barriers to Success in Implementing Technology Enhanced Courses During a Professional Development Programme

Sibongile Simelane
University of Technology, Pretoria, South Africa

Abstract: Tshwane University of Technology invests heavily not only in the empowerment of our human resources, but also in other resources. It does this in order to ensure that the programmes will be able to accomplish their stated aims successfully and in order to make such programmes readily observable. The Partners@Work programme shows that some courses are far more successful than others. As TUT allocated much time and resources to this programme, it is necessary to ensure the success of the program.

The aim of the study was to identify the success indicators of the technology-enhanced courses and the barriers that prevented the successful implementation these courses through investigating the implementation component of the Partners@Work programme at TUT. Qualitative data was collected by means of a case study that uses an interpretive approach and that incorporates elements of ethnography. The participants in the study were those staff members who participated in the Partner@Work programme in the twelve months between June 2005 and June 2006. The data was analysed by means Atlas.ti™.

This paper reports on the success indicators and barriers to success during the implementation component of the partners' technology-enhanced courses during the Partners@Work programme at TUT. The findings of the study revealed that the success indicators included the availability of required support, access to stable and reliable technology, a properly functional Partners@Work programme, the design of the development component of the Partners@Work programme, and new multimodal approach to teaching and learning. The findings also identified various barriers to success such as the unavailability of required support, unstable and unreliable technology, an over-demanding Partners@Work professional development programme in technology, the lack of sufficient student exposure to technology-enhanced courses, and lack of time.

Keywords: Success indicators, barriers to success, implementation of technology-enhanced courses, professional development programme

Effective Recruitment and Selection of Online Tutors

Sharon Slade and Fenella Galpin
Open University, Milton Keynes, UK

Abstract: This paper is not intended as a piece of research, but rather describes the authors' experiences in developing an approach to the recruitment of tutors working on globally-available courses that are supported through an online environment. The approach recognises that, as well as a standard set of facilitation and academic skills, additional competences are required for effective online student support. These include proficiency in working with basic technical tools with access to appropriate ICT, as well as an understanding of the constraints and benefits of online communication, the use of appropriate language and an appreciation of cultural differences.

A background to the tutor-student support model is set out and a summary given of the current traditional approach to tutor recruitment, whereby applicants are invited to a venue for interview and to demonstrate other largely face-to-face tutoring skills.

The continuing advancement of ICT and an improved understanding of managing effective online learning has led to an evolution of course delivery, allowing students to successfully participate in many courses without geographic constraints. This in turn has required a revised approach to tutor recruitment which tests for newer competences which the standard approach omitted to address.

As part of this approach, the paper discusses a set of activities designed to establish applicants' understanding of the differences needed to transfer effective facilitation of student learning into effective *online* learning. Detailed examples are given of some of the activities used, as well as an indication of the expected responses. The recruitment method is adapted to suit the needs of each course, as required, and has evolved as a result of experience and application to a wide range of different courses and requirements. This approach has been applied within the OU Business School over the last 4 to 5 years to well over 100 applicants to at least 12 online courses for which the majority of students are international. In addition, this approach has now been recommended as standard for recruitment of tutors to online courses across the wider Open University

Keywords: Online, recruitment, tutors, global, competences, e-Learning

Introducing a Learning Management System in a Large First Year Class: The Impact on Lecturers and Students

Jen Snowball and Markus Mostert
Rhodes University, Grahamstown, South Africa

Abstract: The challenges of teaching large classes are well documented in the literature on teaching in higher education. Educational technology literature often reports on the potential of information and communication technologies (ICTs) to address the challenges associated with high student numbers. However, used inappropriately, technology can perpetuate entrenched practices and simply support performance models of teaching that encourage transmission approaches to learning. This paper reports on the impact of implementing a learning management system (LMS) in a first year introductory macroeconomics course with 600 students in a blended learning context. Experiences of the course coordinator, lecturers and an educational technologist are discussed and data was also collected on student perceptions via a course evaluation questionnaire. Results show that the LMS was successful in a number of areas, particularly in improving the lecturers' accessibility to students and in encouraging interaction and participations in online discussion forums.

Keywords: Large classes, blended learning, learning management system

Development of an e-Learning System Utilizing a Portable Video Game Player to Increase the Educational Level of Laboratory Training Courses in Small Group Instruction

Ken Takeuchi[1], Manabu Murakami[1], Atsushi Kato[2], Ryuichi Akiyama[3], Hirotaka Honda[1], Hajime Nozawa[1], and Ki-ichiro Sato[1]
[1]Tokyo University of Science, Oshamambe-cho Hokkaido, Japan
[2]PHD, Inc. Nakamichi-cho Hakodate-shi, Hokkaido, Japan
[3]Muroran Institute of Technology, Mizumoto-cho Muroran-shi Hokkaido, Japan

Abstract: The Faculty of Industrial Science and Technology at Tokyo University of Science developed a two-campus system to produce well-trained engineers possessing both technical and humanistic traits. In the first year of study, students reside in dormitories in the natural setting of the Oshamambe campus located in Hokkaido, Japan. This education program at Oshamambe provides students with a rich humanity, which especially enables them to empathize with nature. The faculty has started developing a novel e-Learning system called SPES NOVA. We have applied this e-Learning system, which includes competency management, knowledge management, blended learning and group study, to a conventional education program.

In 2006, this three-year project was supported by the Ministry of Education, Culture, Sports, Science and Technology to implement a new program for contemporary educational needs. One part of the project was the development of an e-Learning system that distributes educational materials via a wireless LAN during instruction. The system was used effectively in an example of ubiquitous computing in laboratory training courses, which included small group instruction. The students were able to browse the systematic exposition of experimental techniques as well as learn the correct usage of experimental apparatuses by using a portable video game player during experiments. The teaching materials contained not only the answers to possible questions, but also the lectures for the day.

The e-Learning system is able to record the laboratory training course lectures, and can then stream them back in video format. Furthermore, the portable video game player can save images as well as data from the experiments. This e-Learning system is connected to the computer network on campus. Therefore, students can review the learning materials by using a personal computer before and after the laboratory training courses. When used during the small group instruction of the laboratory training course, this unique system effectively helps participants develop their lecture note-taking skills, hone their communication skills, and learn the correct usage of the experimental apparatuses used in liberal arts.

Keywords: Portable video game player, small group instruction, laboratory training course, dormitory

Boosting Young Children's Writing Skills With Compensational e-Learning Designed for Dyslexics

Karin Tweddell Levinsen
University of Aarhus, Copenhagen, Denmark

Abstract: Since the consent to the Salamanca Statement on special needs education from 1994, e-learning developers have focused on tools aimed at supporting dyslexic learners. The importance of these efforts is at display every year in the Special Aids exhibition area at the BETT-event in London. In the special needs education for dyslexics, ICT and e-learning is now widely used. However, the Salamanca Statement also inspired the vision of *The Spacious School* and the idea that children with learning disabilities should be transferred from special classes and included in the ordinary classes in primary schools. In the beginning of this process, the children with special needs were present in the classroom with their compensational e-learning, ICT and special teacher support, and they were not always included in the socially organised learning activities. Consequently, class teachers and subject teachers were not aware of the existence and potentials of the compensational e-learning and ICT tools.

In recent years in Denmark, ICT has moved from being present in schools to becoming an available, everyday resource. That is, it and computers have begun to move out of the computer rooms and most pupils use ICT, e-learning and computers in various contexts when ever it seems convenient. The wider use of it in schools has opened for new ways of including the children with special educational needs and while knowledge of dyslexic compensational e-learning and ICT tools was earlier restricted to the special teachers, teachers in general have now become aware of their existence. Within the frame of a large scale research project in primary schools in Denmark (Project IT and Learning – PIL), this change of awareness led to teacher-initiated experiments with the Danish e-learning special needs-software *CD Ord* in first and second grades. The teachers wanted to see whether these tools could inspire normal children as well as children with special educational needs, to start writing their own stories.

The paper presents the research findings from the empirical studies of experiments in Second grade. The paper concludes that most children in the experiments wrote longer and more complex stories than normally expected from this age-group. And especially the children displaying a visual learning style demonstrated a step progress.

Keywords: e-Learning, writing skills, reading skills, storytelling, dyslexics, special needs, it support

A Data Warehouse Model for Micro-Level Decision Making in Higher Education

Liezl van Dyk
University of Stellenbosch, South Africa

Abstract In its broadest sense, e-learning can be defined as the facilitation of any type of learning by means of any type of information and communication technology (ICT). The process of facilitating learning (teaching process) is a cyclical process that typically consists of the following: Analyze the situation, define the outcomes, design and deliver of learning activities and assessment activities, then the effectiveness of the teaching process is evaluated, which lead again into a situational analysis with respect to the next teaching cycle.

The use of ICT and quantitative methods to support decision making with respect to the evaluation of the effectiveness of teaching processes is far from reaching its full potential. In this paper a business intelligence approach is followed in attempt to exploit ICT to enable the evaluation of the effectiveness of the teaching process. Each time a lecturer or student logs into a Learning Management System (LMS), participates in an online discussion, completes an electronic quiz or reads an electronic document, an electronic transaction is performed. With each transaction performed, data are captured by the LMS. As a result loads of data are created, which are most often only archived for record keeping purposes and not used to support decision making.

The purpose of the paper is to propose a data warehouse module for micro-level decision making that draws upon electronic student tracking data captured by LMSs and other information sources used by Higher Education Institutions (HEIs). For purposes of this paper e-learning is restricted to learning facilitated by an LMS. Within the scope of the paper, the LMS tracking data of most undergraduate Industrial Engineering modules of the University of Pretoria for 2005 and 2006 are used to learn about the methodological quality of data. To accomplish this, the student tracking data are quantified in terms of hits frequency, hits consistency and average time per hit. These indicators are correlated with performance per student per module as well as learning style index (Felder ILS).

Keywords: Learning management system; data warehouse; tracking data, decision support

Integrating Mobile Technology into a Distance Education Accounting Module

Annelien van Rooyen
University of South Africa Pretoria South Africa

Abstract: Educators are constantly faced with the challenge of incorporating different technologies into their study materials. At the University of South Africa (UNISA), the fifth largest open and distance learning (ODL) higher education institution in the world, with almost 250 000 learners, this is even more important as prospective national and international learners demand a higher quality learning experience and improved outcomes.

Computer-aided learning, discussion forums, online learning technologies and e-learning are successfully used by higher education institutions throughout the world. In the context of South Africa as a developing country, online technologies and e-learning benefit only a small number of learners at present as most of UNISA's learner population do not have sustained access to online facilities.

One of the most effective means of support in distance education is to make contact with the learner by any means that will bring the lecturer and the learner together. The learner's success and the success of the institution depend not only on the quality of the learning package, but also on the quality and scope of the support that is given to the learner. Integrating mobile technologies into the learning model will have a positive effect on learners' learning experience. UNISA's vast learner numbers and learner profile pose unique challenges for the integration of mobile technologies into learning experiences in such a way that these technologies make a difference.

This paper shares findings from research into the integration of mobile technologies into the study experience of second-year accounting (ACN202R) learners at UNISA. The research found ample evidence that learners benefited from the weekly communication they received from lecturers. This qualitative research provides insight into how learners experienced the use of mobile technologies in a pilot study in 2007 and the impact the research had on student retention.

Keywords: Mobile technology, short message system (SMS), retention, distance education, accounting

Technology-Assisted Reading for Improving Reading Skills for young South African Learners

Gerda van Wyk and Arno Louw
University of Johannesburg, South Africa

Abstract This paper addresses the controversial issues of improving the reading skills of young learners through technology-assisted reading programmes. On reporting the results of primary school learners from grade 2 to grade 7 who participated in a computer-based reading programme for seven months, we try to answer the critical questions of whether computer-assisted reading programmes should be embraced or avoided. We also have looked at the possible benefits of such an intervention apart from the improvement of reading skills. The poorly developed reading skills of South African learners slowly became evident over the last couple of years as teachers, parents, employers and professionals were confronted with this ongoing crisis. The Department of Education (DoE) stated that the South African youth do not read as well as their foreign counterparts and actions were put in place to address the growing problem. However, despite this acknowledgement, decision makers are still indecisive in effectively addressing the problem. Many theories exist on why children are reading impaired and who should accept responsibility for it.

Data of the findings in this paper was collected over a period of seven months and reflects the reading results of learners who followed a combination of a computer-based reading programme, visual accuracy and visual memory computer exercises as well as the application of specific paper-based activities. Groups were small, with continuous personal intervention and communication from the facilitator with each learner. This paper also qualitatively reflects on the additional benefits or negative experiences of learners who participated in the electronic reading programme. The qualitative data was accumulated from interviews with learners and teachers involved. The efficacy of the reading programme was evaluated through continuous assessment of learners' performance on different aspects of reading, including reading speed, reading comprehension, spelling and language. The reading results obtained were compared with the initial reading assessment before implementing the programme. The overall experience of learners who participated in this programme provided valuable information in evaluating the reading programme as a whole.

Results obtained from this study indicate that improvement in reading speed, comprehension and spelling was unique to every learner individually. The benefits beyond the improvement of reading skills obtained as a result of the programme encompass many areas of the learners' development, such as social learning, collaborative learning, finer perceptual motor skills, confidence and a general improvement in marks in other subjects. This paper attempts to provide insights into the value and challenges of computer-assisted reading for primary school learners and into the importance of adapting teaching methods in response to a crisis.

Keywords: Computer-assisted reading programmes; improvement of reading skills; evaluation; assessment; primary school learners; reading comprehension; mastering of reading skills

Integrating a Wide Variety of Student Information Sources to Support Institutional e-Learning Decisions: A Stellenbosch University Case Study

Antoinette van der Merwe and Liezl van Dyk
University of Stellenbosch, South Africa

Abstract: It is common knowledge that the amount of information accessible to people has increased exponentially. The problem is no longer the amount of information, but how to utilize the information effectively to support decision-making. Specifically with regards to e-learning, Higher Education institutions continually need to make decisions with respect to the development of infrastructure, processes and resources. These decisions sometimes come at a considerable financial cost and hence need to be made carefully. In this paper, Stellenbosch University is presented as case study of how information can be utilized to support decisions with respect to the development of infrastructure, processes and resources towards the advancement of e-learning. The information included in the study is captured at different instances for different purposes:

Feedback about the computer literacy of first-year students extracted from the ALPHA baseline questionnaire, completed by all first-year students during their first week on campus;
Tracking data extracted from the learning management system (LMS);
Demographic data taken from the student information system;

Feedback from a custom-made questionnaire administered at the end of 2007 with regards to the student experience of the e-learning systems, technology, processes and resources on campus.

This paper will focus on the following: (1) A discussion of the conceptual framework of the study; (2) The design of a data warehouse from which decision support information is extracted; and (3) A discussion of valuable decision support provided by this information.

Keywords: e-Learning, information, data warehouse, institutional decision-making