

# **The Proceedings of the 8th European Conference on e-Learning**

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## Preface

These Proceedings represent the work of contributors to the 8th European Conference on e-Learning, ECEL 2009, hosted this year by the University of Bari in Italy. As usual the papers range across a very wide spectrum of issues, all of which are pertinent to the successful use of e-Learning applications. It is clear that the role being played by e-Learning in the pedagogical process is considerable and that there is still ample scope for further development in this area.

The range of researchers from different institutions in different countries is impressive. It is clear from the research being done all over the world that the role which e-Learning plays today and may play in the future is truly global. The really important outcome of this global reach is that research and new ideas may easily be shared among both the academic community and those practitioners in other organisations who wish to be informed of the most recent thinking in the field.

With an initial submission of 193 abstracts, after the double blind, peer review process there are 97 papers published in these Conference Proceedings. These papers reflect the truly global nature of research in the area with contributions from Australia, Austria, Belgium, Canada, China, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Ireland, Italy, Japan, India, Malaysia, New Zealand, Nigeria, Norway, Portugal, Romania, Russia, Saudi Arabia, South Africa, Spain, Sweden, Turkey, United Kingdom, United Arab Emirates and the United States. A selection of the best papers – those agreed by a panel of reviewers and the editor will be published in a conference edition of the EJEL (Electronic Journal of e-Learning [www.ejel.org](http://www.ejel.org) ).

I wish you a most interesting conference.

Dr Dan Remenyi  
Trinity College Dublin Ireland  
October 2009

# Biographies of Conference Chairs, Programme Chairs and Keynote Speakers

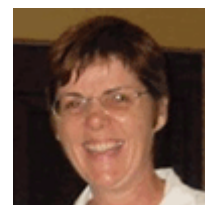
## Programme Chair



**Agostino Marengo's** research activity as Assistant Professor in Faculty of Economics at University of Bari, takes place primarily on didactic methodologies implemented by the use of ICT tools, particularly the development of e-learning web-based platforms that compete to introduce the technologies of distance learning in traditional institutional campus courses and activities. As coordinator of OSEL (Open Source e-learning research project, <http://www.osel.it>), currently his research plan is to create a database of Open Source LCMSs in order to choose and compare them. The research group is actually involved in usability, accessibility and quality evaluation of LMS (Learning Management Systems) and CMS (Content Management Systems) with a special goal to evaluate Open Source e-learning platforms. Website: <http://www.agostinomarengo.it>. Skype: agomare.

## Conference Chair and Keynote Speaker

Jane Klobas is a researcher at Bocconi University in Milan, Italy, where she is joint leader of a multi-national study of students' psychological responses to online learning. She also holds an appointment as Professorial Fellow in the Graduate School of Management at the University of Western Australia in Perth, Australia. Jane has many years of experience in both distance and online teaching, and has won awards for her innovative teaching at the University of Western Australia. Her research concerns the role of the Internet in communication of information. She uses principles of social psychology and economics to study the role of the Internet in education and in tourism.



## Keynote Speaker



**Julià Minguillón** received his PhD from the Universidad Autònoma de Barcelona (UAB) in September 2002. In January 2001 he joined the Universitat Oberta de Catalunya (UOC) where he is a faculty member of the Computer Science, Multimedia and Telecommunication Studies department. He has developed learning resources for object oriented programming, abstract data types engineering and compiler construction. He is also involved in the integration of e-learning standards in virtual learning environments, such as IEEE LOM, SCORM and IMS LD. His main research interests include the formal description of the learning process by means of ontologies, personalizing the learning process by means of adaptive itineraries based on reusable learning objects, and user modeling in virtual e-learning environments applying web mining techniques for improving user experience and usability, accessibility and mobility issues. He is also interested in open educational resources and the uses of social tools for teaching and learning in virtual learning environments. He was in charge of the UOC participation in the OLCOS (Open Learning Content Observatory Services) EU funded project. He leads the Spanish Government funded PERSONAL(ONTO) project, the framework that articulates all the aforementioned research lines and the E-MATH++ project which promotes the use of learning object repositories in virtual learning environments.

## Biographies of contributing authors (in alphabetical order)

**Ahamed Bakeri Abu Bakar** has served the National Library of Malaysia for 24 years. He currently holds the position of professor at the Department of Library and Information Science, International Islamic University Malaysia, Kuala Lumpur, Malaysia. He has published a number of articles in refereed journals and has presented numerous papers at international conferences worldwide covering areas such as digital libraries, e-governments, and information access.

**Gemma Aguado** received her degree in Pedagogy at the University of Barcelona in Postgraduate Design and Production of Multimedia Instructional Materials at the Autonomous University of Barcelona. University Master in Educational Psychology at the University of Barcelona. Currently technical research of IN3 (UOC) and professor in the Faculty of Education at the University of Barcelona. Her interest is currently focused on the Psychology of Education, and especially in the processes of teaching and learning computer based learning.

**Asma Al-Ayed** is a lecturer in Computer Science department at Umm AlQura University, Makkah, Saudi Arabia. Her Master thesis was about intelligent FAQ answering system for e-learning platforms. Her interests include knowledge management, e-learning, and adaptive systems.

**Nahla Aljojo** worked as an IT manager in the economics and administration department at King Abdul Aziz University in Saudi Arabia. She has a master's degree in computer systems and Information Technology from the Washington International University (USA). She is also a Ph.D. doctoral student at the School of Computing at the University of Portsmouth (UK).

**Antonios Andreatos** is a Professor at the Computer Engineering Division of the Hellenic Air Force Academy. He received the Diploma in Electrical Engineering from the University of Patras, the M.S. from the University of Massachusetts (Amherst), the M.Ed in Adult Learning from the Hellenic Open University and the Ph.D. from the National Technical University of Athens.

**Sara Archard** is a lecturer at the University of Waikato, Aotearoa/New Zealand. She teaches in an online Graduate Diploma of Teaching–Early Childhood. Sara is currently undertaking her M Ed and is researching how personalising the eLearning environment may impact on developing a community of Learners.

**Mikel Asensio** Ph.D. is senior professor at the Universidad Autónoma de Madrid (Spain). Since 1987, he is teaching Cognitive Psychology, Informal Learning and Art Psychology. Into the museum field, he is the Director of different projects about museum planning, heritage interpretation and education. He is the director of different research projects from European, National, and Regional Agencies. He is the author for more than one hundred publications. Last years became interest on TICs and museums.

**Ana Barata** graduated in Modern Languages and Literature at the Faculty of Humanities of Oporto University in 1998. She developed her Master dissertation in English Culture at the same faculty, and is currently a PhD student in Communication Sciences in the field of Interactive Audiovisual and Media at the New University of Lisbon. She teaches languages skills in the Computer Engineering degree at ISEP and collaborates with GILT and the Multimedia Laboratory.

**Ghiță Bârsan** is Professor and Vice-Rector for Academic Studies at Land Forces Academy, Sibiu, Romania, in the Technical Sciences Department. Author of 14 books and 114 articles and studies in International Conferences Proceedings and specialized reviews, he is responsible for “Army-e-Learn” project for Romanian Land Forces. His main research expertise areas are in the following domains: Defense Modeling and Simulation, Advanced Distributed Learning and Mechanical Engineering.



**Josep Batalla** Since 1998 has been a lecturer in Economics and Business Studies at the Universitat Oberta de Catalunya (UOC). He holds a PhD and is a graduate in Economics and Business Sciences from the University of Barcelona. At UOC he carries out his teaching and research activities in the field of applied economics. He is author of several articles on these subjects and researcher of the Observatory of the New Economy (ONE), which belongs to the Internet Interdisciplinary Institute (IN3-UOC).

**Yongmei Bentley** is Senior Lecturer in Logistics at the University of Bedfordshire. She teaches business and management related subjects at both undergraduate and postgraduate levels. Her current research interests include applications of e-learning, logistics and supply chain management in a downturn. She is an active researcher, Fellow of HEA, and holds membership of CILT, and UKAIS.

**David Bond** is currently a lecturer in the School of Accounting after joining the School in 2003. He completed his BBus (Hons) in 2002, and has recently submitted his PhD. He has taught financial reporting at both an undergraduate and postgraduate level.

**Mark Brown** Associate Professor is the Director of Blended Learning and Distance Education at Massey University. He has over 20 years experience in the university sector. Dr Brown has an extensive background in the use of new educational technologies for flexible and distance learning and serves on several journal editorial boards. Notably, he was centrally involved in developing the Mahara open source eportfolio system. Dr Brown's holds a National Award for Sustained Excellence in Tertiary Teaching.

**Margaret Bruce** has been enthusiastically involved in podiatric education for more than 25 years, mostly spent at the University of Plymouth. I have been engaged in the development, organisation and delivery of the curriculum and am focused on supporting learning in practice.

**Richard Caldarola** is an Assistant Professor of Business with Troy University, Atlanta, USA. He facilitates on ground and online courses in Marketing, Accounting, Research, and Strategy. He holds a Doctorate in Business Administration (D.B.A.) from Nova Southeastern University (Fort Lauderdale, USA), and is a Certified Management Accountant (CMA) and Certified Financial Manager (CFM).

**Antonio Cartelli** is researcher in Didactics and special pedagogy, he manages the Laboratory for Teaching-Learning Technologies and the Centre for ICT and on line teaching in the Faculty of Humanities at the University of Cassino – Italy. Among his most relevant publications there is the *Encyclopedia of Information Communication Technology*, edited in collaboration with M. Palma. He is also editor in chief of the “International Journal of Digital Literacy and Digital Competence” starting its publications in 2009.

**Ines Casanovas** was born in Buenos Aires in 1953. She is an Engineer in Information Systems, Master in Higher Education and Master in Informatics. At present she is professor and researcher at UTN (National Technological University) and at University of Buenos Aires. Since 2003 she has been Guest Lecturer at Jönköping International Business School in Sweden, where she is currently performing her doctoral studies in Informatics. She is also member of the CenIT International Research Group and Director for Special Projects and Researches in FUNDESCO (Foundation for Knowledge Developing) of Argentina. As professional she has worked as IT auditor for the Argentinean Government and IT Project Manager for 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 in IT and Educational Technology fields.

**Mark de Groot** works for the Technologies for Learning team at Leeds Metropolitan University. He has more than 10 years experience initiating and supporting a wide program of staff development activities across and beyond the University.

**Antonio De Nicola** is a researcher at IASI of the Italian National Research Council (CNR). He is the author of several papers on eLearning, business processes, ontology building methodologies, and semantic technologies. He has participated in the activities of several European and national projects. Among them, there are LEMAIA, Web-Learning, COIN, Interop NoE, and LD-CAST.

**Carmen de Pablos** is a Professor in the Business Administration Area at the Rey Juan Carlos University in Madrid from 1994. She is specialised in the impact of information technologies over organisational systems where she develops main research. She has presented communications in different international venues and has published in specialised journals.

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**Patrícia Dias** teaches at the Catholic University of Portugal and is a member of its Research Center in Communication and Culture. She graduated in Social Communication, is a Master in Communication, Organization and New Technologies and is currently researching for her PhD in Communication Sciences, focusing ICT mediated communication in organizations.

**Jiří Dlouhý** is specialist on cybernetics, since 1992 works in Environmental Center of the Charles University, Prague – responsible for environmental informatics, databases, computer network, and co-ordination of educational projects – he is the head of Environmental Education department. He is also a member of executive board of the European Environmental Bureau, a chairman of the Society for Sustainable Living; a founding member of the International Society of Information Specialists (in 1995 president of this society).

**Elisabeth Dunne** is Head of Project Development, in Education Enhancement at the University of Exeter, UK. Her career has been devoted to the promotion of innovation and change through coordinating and directing major research, development and evaluation projects, and initiating a range of institutional developments, to support the enhancement of learning, teaching and assessment.

**Alan Durrant** is Head of Work Based Learning, School of Arts & Education at the University of Middlesex. His current research interests include Developing Learning and teaching in higher education, The role of student feedback in developing academic programmes and Supporting established practitioners in the creative and cultural sectors.

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**Erik Engh** from Sør-Trøndelag University College, has collaborated with mechanical industries world wide during the last 30 years. He has obtained experience from education and training of industry personnel in a range of different countries. Mr. Engh has been developing and implementing systems for Quality Assurance and Quality Control. He has participated in several Leonardo da Vinci and Eureka projects targeting skills upgrading process in industry during the last years.

**Nuno Escudeiro** is an Assistant Teacher at the Computer Science and Informatics Department at ISEP – Instituto Superior de Engenharia do Porto. He is a PhD student and a researcher at LIAAD

INESC Porto LA – Laboratory of Artificial Intelligence and Decision Support. His main research interests are related to information retrieval and automatic edition of unstructured digital objects.

**Sebastian Fiedler** is a researcher at the Centre for Social Innovation in Vienna, Austria. From 2005-2008 he was the pedagogical manager of iCamp, an EU funded research and development project that explores the potentials and limits of supporting competence advancement in respect to collaborating, self-directing and social-networking within landscapes of distributed tools and services in higher education.

**Álvaro Reis Figueira**, PhD, is presently a lecturer at Faculty of Sciences in University of Porto. In the last years Prof. Figueira has been conducting most of his research in semantic digital libraries, web-based learning and standards in education coordinating the information systems development team at the FCUP's Computer Centre.

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**Andreas Giannakouloupoulos** is a Lecturer at the department of Audio and Visual Arts of the Ionian University. With an interdisciplinary background including Economics, Logic and Communication studies, his main field of academic activities is Computer Mediated Communication and especially the web development technologies. His research interests focus on information architecture, web-based media, content management platforms and e-learning systems as means of effective communication via the web. Personal website: <http://www.media.uoa.gr/~andreas>

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**Neil Glen** works primarily in the field of tangible computing and web 2.0 as consultant, practitioner and researcher. His interests lie in connections between the physical spaces we occupy through the virtual spaces we create. At Bath School of Art and Design Neil heads up the school's interest in interactive media. Through his consultancies, [nextdesign.co.uk](http://nextdesign.co.uk) and [just-pressed](http://just-pressed.com), he has worked for organisations including Apple Inc, Nokia, Transport for London, IDEO, FutureLab, and the RCA in London.

**Scott Grabinger** is associate professor emeritus at University of Colorado Denver, USA in learning technologies. He developed the framework of Rich Environments for Active Learning for student-centered learning. Current interests include using Web 2.0 applications to develop more accessible instruction for the range of diverse online learners and the intersection of neuroscience and education builds things, takes pictures, and travels.

**Colin Gray** started life as an astrophysicist before drowning in maths and escaping to web design. Soon he moved into education, teaching web-development at Jewel and Esk College. This led to an elearning development role at Edinburgh Napier University where he is now an Academic Development Advisor, helping lecturers to enhance their teaching through technology.

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**Thanos. HatziaPOSTOLOU** is a Senior Lecturer in the Computer Science Department and Course Director of the MSc in Technology, Innovation and Entrepreneurship at CITY College, International Faculty of the University of Sheffield in Thessaloniki, Greece. He has been concerned with the development, evaluation and deployment of innovative teaching-learning technologies and methods for higher education in blended and distance learning settings. His primary interests also include intelligent and personalised learning management systems, computer science education, and entrepreneurial education.

**Rose Heaney** has been a Learning Technology Advisor at the University of East London since 2004. Initially my main remit was to support academic staff in their use of the VLE (Blackboard Vista) but increasingly I find myself working with many other technologies, a current area of interest being the use of Second Life® in healthcare education. Prior to UEL I worked in a variety of IT training and e-learning roles in both educational and commercial settings.

**Margery Hornibrook** is an honorary at the University of Sydney, Australia. Prior to this she worked in senior management positions at a state and national level most recently for , The Le@rning Federation a national schools online curriculum content initiative managed by Curriculum Corporation until April 2008. She was responsible for managing the facilitation, coordination and implementation associated with all communication activity for The Le@rning Federation. The role ensured effective, quality controlled, ongoing collaboration with all shareholders and stakeholders and continued support for and understanding of the initiative. She also managed the research program and activity associated with that program for The Le@rning Federation. The design and implementation of online curriculum content relies on ongoing research to provide both qualitative and quantitative data which can inform and improve further development and take-up in jurisdictions and schools.

**Paul David Henry** is an e-learning consultant and principal at Program House where he provides strategic planning and design of online learning environments for corporate and academic clients. He has taught online since 1995 - taking a journeyman's approach to e-learning innovation by conducting action research to improve instruction. He teaches online courses in research, education, business, and information systems at the University of Maryland University College, University of Phoenix, and George Mason University.

**Margery Hornibrook** is an honorary at the University of Sydney, Australia. Prior to this she worked in senior management positions at a state and national level most recently for The Le@rning Federation a national schools online curriculum content initiative managed by Curriculum Corporation until April 2008. She was responsible for managing the facilitation, coordination and implementation associated with all communication activity for The Le@rning Federation. The role ensured effective, quality controlled, ongoing collaboration with all shareholders and stakeholders and continued support for and understanding of the initiative.

**Alex Ibáñez** is Professor at the Faculty of Education at the University of the Basque Country in Bilbao, Spain. Degree in History and Ph.D. in Educational Sciences, has worked as a professional archaeologist for over 15 years. At present, research on informal learning and archaeological sites.

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technologies include both institutional and non-institutional learning environments, alongside mobiles and Web 2.0 applications. He is also the project manager at DMU for the MoRSE project, which is a partnership with Kingston University funded by JISC, focusing upon the use of Web 2.0 tools with remote learners. For more information on this project see: <http://www.morse.ac.uk> and <http://www.learnex.dmu.ac.uk>

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**Alan Hilliard** is a Principal Lecturer in Diagnostic Radiography and a University Teaching Fellow at the University of Hertfordshire. Alan qualified in 1988 as a Diagnostic Radiographer and worked within the NHS until 2001. Since moving into education in 2001, Alan has developed his interests in motivating students to engage in active learning. From the introduction of the university's MLE "StudyNet" Alan has worked to investigate methods of integrating it into teaching and learning, and to explore new ways of collaborative learning, to create a blended learning environment. He is currently continuing his development and evaluation of collaborative learning in his role as a teacher for the Blended Learning Unit.

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**Amanda Jefferies** is a University Teaching Fellow and Principal Lecturer at the University of Hertfordshire, UK. She is now seconded to their Blended Learning Unit, one of the UK's Centres for Excellence for Teaching and Learning. From 2007-09 she was Director for the JISC funded STROLL project.

**Tuomo Kakkonen** Dr received his PhD in computer science from the University of Joensuu, Finland in 2007. His main research interests are related to natural language processing and educational technology. Kakkonen's research topics include syntactic parsing of natural languages, document comparison methods, automatic assessment of students' texts and plagiarism detection.

**Andrea Kelz** studied English and philosophy at Karl-Franzens-University Graz, Austria. She is professor and foreign language coordinator at Campus Pinkafeld (University of Applied Sciences Burgenland, Austria). Five years ago she became responsible for the institution's e-learning strategy and its implementation. Research interests include widening access to higher education and blended learning scenarios in language teaching.

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Technical University and The Head of International Training Department of the Centre for Information Technologies in Education of the Ministry of Education and Science of Lithuania. The main scientific interests: Technology-enhanced learning problems analysis, e-Learning systems architecture and interoperability, adaptation and personalisation of e-learning content and software and optimisation of learning software and learning process.

**Karin Tweddell Levinsen** is an associate professor in online education at university level at the Danish School of Education at Aarhus University. She is a member of the internationally acknowledged Research Programme on Digital Media and ICT in a Learning Perspective. Currently her research is focused on both university pedagogy and ICT and ICT and learning in the primary school. Of special interest is the implementation of ICT support for children with reading and writing difficulties. Karin Tweddell Levinsen has many years of experience as a professional user centred design developer of digital educational solutions, and she has been in the field since the two-screen solution and the laserdisc.

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along with providing learning resources, media and ICT equipment and facilities and the online learning environment.

**Rosina Merry** is a senior lecturer in the Department of Professional Studies in Education at The University of Waikato in Hamilton. Rosina was one of the Flexible Learning Leaders (FLLinNZ) during 2005/2006 and is currently working on a PhD, through which she is exploring ways in which ICT can be integrated into The University of Waikato's Teacher Education degree programme. The rationale being that when students graduate they will have the confidence, knowledge, dispositions and skills to use ICT as another tool in their teaching practice.

**Linda Mesh**, who has taught English as a Second Language, Business and Medical English for many years, completed her MA degree in Online and Distance Education, Institute of Educational Technology, Open University, UK. She is currently Learning Technologies Designer and coordinates online courses for the Siena University Language Center, Italy. Her research interests include ubiquitous learning, re-thinking pedagogies for more student-centered approaches, and the effects of sociocultural and psychological factors on online, collaborative second language discourse.

**George Mouzakitis** Prof is currently academic dean at Educational Organization e-DEKA offering educational and training courses linked with USA and UK Universities via e-Learning. He is the Manager of the LinkedIn group "e-Learning Think Tank Team". He received his M.A. degree from Western Michigan University in Special Education and his Ph.D. from Columbia State University in Communication. His interests are focused on Market Research, Training Needs Analysis and Material Production for Specific Education/Training fields.

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**Will Murray** is the CEO of nLearning Ltd, the leading provider of plagiarism prevention services in Europe with over 90% of UK universities and all major awarding bodies subscribing to the plagiarism detection software turnitin™. nLearning continues to provide advice and consultancy through plagiarismadvice.org and also runs the largest biennial conference dedicated to plagiarism.

**Minoru Nakayama** graduated from Tokyo Gakugei University in 1983 and completed the M.E. program in 1985. He received a Dr. of Engineering degree from Tokyo Institute of Technology in 1989, and has been an associate professor at the Center for Research and Development of Educational Technology (CRADLE), Tokyo Institute of Technology since 1993. His research concerns educational technology.

**Kamila Olševičová** received her MS in mathematics and computer science and PhD in system engineering in 2001 and 2005, respectively. She is now an assistant professor in the Department of Information Technologies, University of Hradec Kralove, Czech Republic. Her current research interests include multi-agent systems, constraint satisfaction and knowledge modelling. She participates in e-learning projects.

**Rikke Orngreen** research area lies in the cross-field of interaction design, IT didactical design and learning theory. In an applied way, she investigates the development, implementation and evaluation of IT supported learning and teaching processes.

**Jennifer Patterson** is senior lecturer in Education at the University of Greenwich, she has been recently introduced to e-portfolios. She is currently extending her original research in French Feminist critical readings of visual and verbal identities, by reading representations and

communications in student-centred creative constructions of digital e-selves, using reflection and negotiated learning. A complementary therapist, other research interests include narrative diagnostics, sustainability and outdoor learning.

**Andriani Piki** is a doctoral researcher in Technology and Information Management at the School of Management, Royal Holloway University of London. She holds a BSc in Computer Science and an MSc in Business Information Systems. Her research interests are centred on computer-supported collaborative learning in both educational and work environments.

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## **e-Learning in Malaysia and Nigeria; a Bibliometric Study**

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**Abstract:** e-Learning entails dissemination of knowledge, information, experiences and skills through the use of electronic devices. The issue of e-Learning has now become a major talking point universally. Moreover with the advent of computer and other information technologies in the present day global society, e-Learning becomes widely accepted and practiced globally. E-Learning is practiced in academic environments such as, the universities and other related institutions in developing countries. The purpose of this study is to assess the state of e-Learning in Malaysia and Nigeria. To achieve this purpose, contextual analysis of bibliometric method was applied on e-Learning literature and it is expected that the outcomes for e-Learning for both countries would be different in certain aspects solely because of the differences in the ICT penetration, geographical location, cultural acculturation of the two countries under study. Malaysia is located in South East Asia; while Nigeria on the other hand is located in Africa south of the Sahara. The data base used for gathering data sets for the study was an educational resources data base (ERIC). The choice of this database was made mainly because of its comprehensiveness, popularity, coverage and representativeness in education, which is directly related to teaching and learning dimension. The findings of the study showed that there are differences between e-Learning practices and experiences in both countries. In Malaysia e-Learning appears to be mainly via government while in Nigeria only 70 percent are supported by the government and the other 30 percent are supported by non governmental organizations.

**Keywords:** Learning, Malaysia, Nigeria, contextual analysis, bibliometric study

## **The Smart Office Hours Assistant: an Intelligent Student-Centered FAQ System**

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**Abstract:** Generally, during learning, students usually have issues and problems that they cannot resolve by themselves without the assistance of their tutors and instructors. In web-based learning, chat rooms, e-mails, and bulletin boards play an important role in answering student stalled issues. However, the tutor has to be online at a specific time to support and answer students' questions. Unfortunately, repeated questions consume tutors' time and decrease the chances to serve more students during the time specified. Not to mention, the student time is not efficiently utilized due to the waiting time until being able to schedule and attend a chatting session with the tutor, or to wait for receiving a response to his/her question by e-mail or on a bulletin board. It is worth noting that psychologists recognized that each individual student has his own model that determines the best way to receive answers to questions, which differs from one student to another. The student model describes how individual students differ in their way of learning, therefore, adapting the answer to a question in such a way to match the student model would improve the efficiency of his/her understanding and, hence, elevates the learning effectiveness, according to psychologists. In this research, we approached the office hours' problem by supporting both students and tutors by automatic answering of students' repeatedly asked questions. We treated repeated questions similarly to frequently-asked-

questions (FAQ) but with a novel manipulation to match the specific student model. Accordingly, we developed a model for a Smart Office Hours Assistant (SOHA) that imitates online office-hours' sessions in a manner that suites more the e-Learning paradigm. In SOHA, different students will receive different versions of the answer to the same question. Among the considered student model attributes are background domain knowledge, learning styles, and IQ level. A framework for designing SOHA for e-Learning and a prototype have also been developed under this research.

**Keywords:** Learning style, student model, adaptive e-Learning, learning objects, FAQ answering system

## **Active Learning Methods in Teaching Computer Science Courses at HAFA**

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**Abstract:** Fast developments in information and communications technologies (ICT) during the last 17-20 years have significantly affected the behaviour of today's students. Teaching methods we had used for years in our lectures seem too boring and old-fashioned to this new generation of students, grown up in the digital age and exposed to digital technologies since they were born. These students have inherited a social and technological culture which makes them think and process information differently from the past generations, in that: a) they are fully dependent on tech equipment and b) their learning is constructed as a much more social process. According to social constructivism, students learn best when they construct their interpretations on a subject and communicate this recently acquired knowledge to their colleagues (Huertas et al. 2007). Web 2.0 technologies have a lot to offer when incorporated into active learning methods. Within this context, higher education institutions must continuously re-evaluate and adapt their pedagogical approaches. In this paper we refer to five methods which have been used or tested in our didactic practice, at the Computer Engineering and Information Science Division of the Hellenic Air Force Academy. Specifically, we shall refer to the following methods: (a) 'Ithaca' PBL method, successfully used during the past twelve academic years; (b) Connectivism and Web 2.0 technology, used successfully during the past two academic years; (c) Constructivism in each lecture, used successfully during the past academic year; (d) In-class Computer-supported collaborative learning, recently introduced experimentally; (e) Cultivation of virtual communities of practice (VCoPs), planned for the upcoming academic year.

**Keywords:** Constructivism, connectivism, Computer-Supported Collaborative Learning, project-based learning, 'Ithaca' method, virtual Communities of Practice

## **Websites and Museums New Informal Learning Applications**

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**Abstract:** Different institutions dedicated to heritage presentation have incorporated technological resources in order to take advantage of their appealing and motivational effect for the public. Nonetheless, frequently this kind of institutions doesn't have a theoretical educational framework from which analyse the role new technologies play in this context, and there are few studies about good practices that must guide their different

uses (Hawkey, 2004). However, to the present, a lot of new technological tools have only been applied in a superficial way, being only generalized as a passive support for internal or external communication. Although the New technologies are considered a possibly adequate tool for the educational purposes established by the informal learning (Hawkey, 2002), as well as for the management of other information kind, we have to consider that the advantages of new technologies are only potential, and they depend on the kind of technologies that would be used as tools, as well as on the features of the activities designed for them or how to implement the information. From *Light Blue Loops* project, there has been a series of studies about new technologies mediated practices that are being developed in Spanish museums. The goal is to determinate which technologies are being used, and evaluate if they are using the educational potential that technologies provide. The first of the studies is an analysis of one of the most extended technologies in Spanish museums: institutional websites. The study took in consideration diverse aspects of the websites, such as navigability, collaborative frameworks they can offer and the evaluation of the educational activities they offer. Results show how the majority of them use this technology only as a pamphlet oriented to introduce themselves to the public, usually with deficient information. In few cases there have been found *forums*, nor other collaborative spaces or frameworks. Also, the educational activities found have designs and interfaces little compatible with an active user. Although results are not encouraging, they also show a little and promising seed of the so-called *web 2.0.*, that in a near future we hope would become a generalized practice in our country.

**Keywords:** New technologies, website, museums, informal learning

## **How Blogs and Web Platforms Have Changed Communication Through Activist art: An Approach to Existing Online art Communities**

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**Abstract:** Since the sixties the technological development has reached overwhelming rates, namely in the computer science field, making computers and online interaction essential everyday tools. Concepts such as websites, software or algorithms of exclusive use among computer experts till the eighties became also part of the art world vocabulary. First adopted by the so-called net artists, those terms soon became familiar among art enthusiasts in general. Internet art protagonists explored the potential of the new medium not only in the production of art works but also in artistic dissemination, actively claiming the public space and banishing frontiers that limited art to the world of traditional galleries and museums. The “offline” art world assisted to the emergence of an “online” art world, in which alternative methodologies, objectives and communities flourished. etoy.CORPORATION and @TMark, emergent platforms at the beginning of the nineties, propelled artistic creation and dissemination practices only made possible due to the development of the WWW. Although still active in producing and disseminating digital artistic work (mostly activist) when compared to the potential and range of more recently created platforms, such as deviantArt.com, or several individual blogs, the relevance of those former platforms in digital activist art dissemination tends to fade. The main purpose of this paper is, then, to present an empirical approach to these current online art platforms, regarding their communication and dissemination potential as well as their relevance to digital activist art issues. Are these platforms mere content repositories or do

they incite the passers-by to give their contribution? Are they online close communities or do they intend to open their boundaries and reach wide world inhabitants at large? In which way have the previous web platforms like etoy, @TMark or Rhizome.org opened the path for the current art platforms and blogs available in cyberspace? Is the theoretical literature on digital and media art reflexive of the actual and present online digital art? To discuss these raised questions we have focused on artistic activist projects available in the referred platforms and in individual blogs, and on some theoretical literature, mainly by Michael Rush, Christianne Paul, Oliver Grau and Rachel Greene.

**Keywords:** Digital art, activism, online art platforms, internet art

## **Evaluation of Learning Based on Transverse Competences Using Web 2.0 orientations: the e-Transfolio**

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**Abstract:** One of the demands that today's society is making of the European Space of Higher Education (ESHE) is the establishment of a system that favors providing students with a comprehensive education that aims to achieve the optimum development of the skills needed in our current society. Another requirement concerns reforming the methodologies applied in classrooms, focusing the emphasis on learning and evaluation (personal, social and professional) based on competences and giving students a more prominent role in these processes. This social and academic framework is based on an organic model of information in which information is reused, reinterpreted and returned. We are talking about promoting complex methodological changes which involve the redefinition of the whole concept of learning and evaluation which are key aspects of the education system. Faced with this outlook, the Open University of Catalonia (UOC) has devised a new transverse evaluation instrument based on learning competences: the *e-transfolio*.

**Keywords:** Higher education, e-Learning, competence based learning, e-portfolio, evaluation of transverse competences, educational innovation

## **E-Plasticity: an Asynchronous e-Learning Solution for Artillery Barrels Autofrettage Process**

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**Abstract:** It is common knowledge that e-Learning solutions in the mechanical engineering field can be spectacular as design but very hard to implement. The paper provides relevant aspects on designing and implementing the *e-plasticity* asynchronous e-Learning solution within Land Forces Academy, Romania. The project was developed in a four-stage process. The first stage aimed at developing a basic theoretical model for elastic-plastic analysis of the thick-walled tubes subjected to an internal pressure. The proposed model is based on the plastic flow theory where the constitutive equations are formulated as a relationship between infinitesimal increments of strain and stress and some parameters of the plastic state. The problem is directly connected with the issue of self-hooping or autofrettage. In the model, we have used a particular equation for the stress-strain curve determined by a number of trials. Based on the mathematical model described above, we have designed our own innovative program within FEM. In the second stage we have validated our model based on experimentation methodology within



alloyed steel models, with mechanical characteristics similar to the materials specific for artillery barrels, which were tested. In the last two stages we have planned to promote an integrated educational module, named e-plasticity, in order to develop e-content in the mechanical engineering domain, particularly in the field of plasticity theory. The obtained results led to an increase of the e-Learning capabilities achieved by the Land Forces Academy. The web-design team has chosen the ToolBook Instructor courseware for the design of the e-Learning solution. It is a system which creates complete courses, at author level, allowing online learning applications' design and distribution. The e-plasticity educational module can be transmitted via the Internet or use any Learning Management System in compliance with SCORM and AICC standards. The paper concludes with several recommendations for using the e-plasticity educational module and provides future research issues within the plasticity domain.

**Keywords:** e-Learning solutions, plasticity, web-pedagogy

## **On-The-Job e-Learning: Workers' Motivations and Perceptions. The Case of "La Caixa"**

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**Abstract:** Increasing use of virtuality as a methodology of on-the-job training has become an unquestionable fact. There are several factors explaining the adoption of e-Learning as an alternative to vocational training of workers: company size, geographical dispersion of employees, sector of activity in which the company operates, intensive use of ICT, etc. From the point of view of the organization, there are several studies that have analyzed the determinants of virtual learning. However, few papers have explored virtual training from worker's standpoint (i.e. their opinions and perceptions). This paper takes this perspective by surveying –through an internet questionnaire– training habits, perceptions, motivations and disincentives to undertake face-to-face or online instruction of 2,000 workers of the leading European savings bank "la Caixa". The first objective of this study is to analyze the financial institution employee's attitudes towards the need for training. The study focuses on the existence of significant differences between new workers who are trained with the aim of been integrated into the organization and those "old" employees who intend to advance professionally. The second objective is to analyze the perceptions that employees have about the different training methodologies (online and face-to-face). Through the association of attributes to each type of training a positioning map has been obtained. Finally, a segmentation of "la Caixa" workers has been made using variables about perceptions and motivations for training and overall assessment of continuous instruction received. This cluster analysis shows the existence of different profiles of workers towards the use of digital technologies in on-the-job learning.

**Keywords:** e-Learning, on-the-job training, worker's attitudes, ICT, factor analysis, non hierarchical cluster analysis, "la Caixa"

## **Evaluating the Impact of Distance Learning Support Systems on the Learning Experience of MBA Students in a Global Context**

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**Abstract:** This paper reports the findings from an investigation into the distance learning support systems of a UK University's overseas MBA programme. This programme is provided to several countries around the world in alliance with the overseas' local higher

educational institutions (HEIs), and is delivered primarily via online courses, but also with periods of face-to-face teaching by both UK and local staff. The aim of the research was to evaluate the learning support mechanisms that are used to deliver this programme overseas, and to determine their impact on the learning experience of the MBA students. The primary research method was questionnaire surveys which were conducted over two periods: April - July 2008, and January - March 2009. The first survey showed a high level of satisfaction with the MBA programme as delivered, but also indicated areas that could see further improvement. The impacts of programme changes were examined in the second survey which revealed students' improved satisfaction with the programme after the implementation of the changes in the programme support systems. The outcomes of this research have not only helped improve the learning support systems and enhanced the quality of this particular programme, but could also help provide guidelines for other HEIs that offer, or intend to offer, blended learning courses globally.

**Keywords:** Distance learning, MBA, questionnaire survey

## **Towards a Service-Oriented e-Learning Framework Based on Semantics**

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**Abstract:** e-Learning has gained more and more interest to transform and support the learning process ubiquitously. The design of an e-Learning system must consider many different perspectives, ranging from the specification of the adopted learning methodology to the organization of learning objects in Content Management Systems, to the integration of e-Learning services in Learning Management Systems, to the customization of learning contents for the involved users. All these perspectives should be taken into account in a consistent manner. We propose an integrated e-Learning framework that enables modeling of an e-Learning system according to the Software as a Service paradigm. At the heart of the SaaS paradigm there is a catalog of reusable learning services that can be composed into the final system. These services are considered as units of work implementing learning activities and are modeled according to the considered perspectives. The vision of e-Learning systems in such an integrated way is not new. Our aim is twofold: (i) to adopt semantics for service annotation to merge and relate in a consistent way different perspectives, in order to support both designers of new e-Learning programs and learners for customizing learning contents to their needs and exploiting e-Learning services in a more focused way; (ii) to exploit reusable e-Learning services for their fast composition in new e-Learning platforms.

**Keywords:** e-Learning integrated framework, Semantic Web technologies, service-oriented architecture

## **Student Performance and its Association with Utilisation of Teaching Material**

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**Abstract:** This study examines the utilization of online course material by students and evaluates the relation with students' subsequent performance in assessments. Evidence is

provided of the extensive utilization of online course material, although the pattern of utilization suggests that the label of 'digital natives' being applied to these students may be somewhat presumptuous. Specifically there is some evidence of a positive link between utilisation of practical exercises and performance as well as lecture slides and performance. No significance is found for either the utilisation of the discussion questions, quizzes or podcasts. Whilst we have made a necessary first step in order to ascertain impact of student utilisation and performance, a bigger question remains. How to increase students' timely utilisation of material?

**Keywords:** Learning management system, utilization, student performance

## **Moodle as a Trojan Mouse: Policy, Politics and Pragmatism**

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**Abstract:** This paper argues that selecting a new Learning Management System (LMS) is a strategic decision about the future direction of your institution. However, the development of a robust methodology for the selection of a new LMS is particularly challenging given the fluidity of the elearning environment. This is especially so when both quantitative and qualitative factors are overlaid by institutional requirements involving political considerations. Selecting the technology is only part of the process and the least problematic aspect. The real challenge is embedded in institutional culture. The paper reflects on the tactics, strategies and approval process involved in the decision to adopt Moodle to replace a proprietary system for the delivery of learning in New Zealand's largest university-level distance education provider. Critical to the process was the explication of guiding principles, pedagogical criteria and identification of institutional requirements, along with politically astute alliances and allegiances to inform and endorse the selection process. Those centrally involved in the decision process draw on their experiences and reflect on the type of questions that senior managers need to ask when considering new strategic initiatives in open and distance learning.

**Keywords:** Moodle, learning management system, policy, leadership, institutional culture

## **Dishonesty Deterrence and Detection: how Technology can Ensure Distance Learning Test Security and Validity**

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**Abstract:** Examinations are generally understood to be used to measure the range of student-learners' achievement of learning outcomes. A continuing concern for educators as well as for business and certification trainers is whether each student-learner completed the examination assessment individually or if there was an incidence of dishonesty. Yet universities and business and certification trainers must evaluate individual performance and achievement objectively and fairly. Distance learning examinations require a different approach than do on ground course examination deliveries in order to deter and detect dishonesty among the student-learners. There are several deterrence alternatives to the use of a live proctor for examinations, ranging from partnered testing (Hancock, 2007; Webb, 1997), to probabilistic collusion detection (Belleza & Belleza, 1989; McKeever, 2006; Nath & Lovaglia, 2009), to altering the exam process (Chiesl, 2007; Yao, 2006). More importantly, the International Test Commission Council published the International

Guidelines on Computer-Based and Internet Delivered Testing in 2005. These comprehensive recommendations propose an a priori consideration of technological, quality, and control issues. There is however a new technological application for distance learning testing. This paper reviews the similarities and differences in cheating among assessment modes. It then investigates cheating indicators and predictors, and methods of examination cheating detection. An analysis of testing guidelines from the International Testing Commission and from several major universities is presented, and a review and evaluation of several remote examination proctor systems in the United States is conducted, with recommendations for their use in university and private distance learning venues.

**Keywords:** Cheating online; remote proctor; examination security; online education assessment

## **Frameworks for Digital Literacy and Digital Competence Assessment**

**Antonio Cartelli**

**University of Cassino, Italy**

**Abstract:** The paper starts by describing the changes in the theory and practice of computing at school in the last years. It focuses first on the transition from character interfaces to graphic interfaces (GUIs), then on the Internet, with a special attention to the presence of misconceptions and mental schemes in students' minds. Today debate on the features of the digital divide and the interest that public institutions have for new forms of literacy based on IT/ICT follow; the example of the key competences for lifelong learning, as stated by the European commission is analyzed and digital competence, the fourth among them, is discussed. After the above issues the proposal of a framework for digital competence assessment, developed by an Italian research group funded by the Italian Ministry of Research and Education, is analyzed. The analysis of students' answers to a questionnaire built under the guidelines of the above framework and the suggestions from colleagues while presenting the results of the work in meetings and conferences all over Europe led to the proposal of changes in the structure of the above framework. The most relevant among them are: the introduction of the Piaget basic categories: space, time and causality (from his theory of genetic epistemology) in the cognitive area of the framework, in order to take into account the changes ICT induced on those categories in last years, the consideration of the affective, psycho-motor and cognitive skills that Bloom and others used to describe the taxonomy of educational objectives, the hypothesis of a social-relational taxonomy, strictly connected to collaborative networking phenomena and social networking. In the conclusion the proposal of new instruments and strategies to be used for the development of assessment instruments for effective digital competence and feedback strategies is discussed.

**Keywords:** Computing literacy, digital competence, digital competence assessment, digital literacy, IT/ICT literacy, misconceptions

# **Exploring the Current Theoretical Background About Adoption Until Institutionalization of Online Education in Universities: Needs for Further Research**

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**National Technological University, Buenos Aires, Argentina**

**Abstract:** Online education in institutional contexts means new organizational problems. The fact that universities need to change to accommodate the impact of technology on learning is already known and accepted. Coping with changes from adoption until institutionalization of online education represents a formidable management challenge for universities. Online education, under the umbrella of e-Learning was perceived by several early researchers as an innovation per-se, “established and embedded” in educational institutions. Nevertheless, the Department for Education and Skills of UK insists that e-Learning is not embedded at any stage of education. The focus was strongly set on technological, practical and pedagogical aspects but there are relevant reports about failures in embedding innovations in educational institutions. The institutional lack of strategies to cope with international students and new technologies as well as supporting for future online developments clearly appeared in recent studies. Competition in the market of Higher Education has pushed universities towards the adoption of sophisticated organizational practices to ensure effectiveness. These new institutional models require changing traditional functions and roles, as online education does not usually fit into the existing university structure. The transition from on-campus to online education evolves in new roles, either in the pedagogical or in the administration domains. Organizational factors, more than teachers and students attitudes or technological features seem to mark the differences in the general perception about technology-mediated education getting successfully embedded in institutional new programs, roles, procedures, culture and structures. The aim of this paper is to revisit the existing theoretical background about the process from adoption until institutionalization of online education and explore the needs for further research. The overall purpose is to encourage researchers to fill the gaps of knowledge helping university managers to address a more clear understanding of the individual and organizational interactions that influence the development of strategies and institutionalization of emergent online educational initiatives. Exploring the current theoretical background it could be found that IT-innovation adoption models describe very extensively organizational issues, but they mainly take into account educational innovation take-up, adoption and implementation as isolated stages. They focus on factors and prescribed practices, but not on the human interactions during the transition from individual adoption until institutionalization. The disconnection between individual and organizational IT adoption research was remarked by the Diffusion Interest Group in Information Technology (DIGIT) in their 2004 conference. Since then, several authors have claimed for a better understanding of this linkage. The lack of clearness about the phenomena and a description of how individual and group-level processes enable and/or hinder the development of organizational routines, were reported as a still under-developed topic and according to the findings of this review it seems to be still an ongoing theme. Consequently, under the circumstance of the transformation that universities are undergoing, the need for a systematic study analyzing the implementation of emergent IT innovations in education appears as significant. Particularly, the process from its adoption at individual level until its institutionalization and the linkage between individual and organizational purposes need to be addressed.

**Keywords:** Emergent online education, adoption, organizational factors, institutionalization, universities

## **A Web-Based Tool for Assessing Online Peer-Reviews**

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**Abstract:** Self and peer-evaluation allow the development of learning environments which provide students with the means to consider upon their own (and of their colleagues) current learning skills. However, if each student in a class performs an evaluation of two of his(her) peers, which in turn will have to be assessed by the teacher/educator, then the additional work will certainly double. Hence, when considering large classes, this methodology is clearly infeasible due to the overload of work. In this article we describe a solution to provide educators with better conditions to implement self and peer-evaluation by using a web-based tool that can be coupled with general open-source learning management systems. Our tool, based on the Moodle Workshop module, features an automatic online distribution of the students' submitted assignments for peer-evaluation, and an automatic assessment of the evaluations. The criteria for evaluating student submissions can be set to meet the teacher/educator objectives as it comprises a several templates ranging from open questions graded over a topic-match table, to multiple choice questions, calculated questions, and even full text graded over sets of error-banded answer statements. The system, throughout comparison of every criteria item in the student's submitted assessment with the teacher's assessment, or with the considered best assessment by the system (depending on configuration), automatically computes a grade which reflects the quality of the student's assessment. It is also flexible enough to allow configuration of evaluation parameters as: number of criteria and topics to use as the evaluation table; weights assigned to criteria; scales used in each evaluation topic; degree of rigidity for assessment (from very lax to very strict), and the number of peers to evaluate. The configuration interface allows overlapping of activity phases (evaluation of examples from the teacher, own work submissions, peer-review, review assessment and display of results) - it is possible to have students reviewing their peers, even if not all the students in the class have already submitted their work. To present the final grades, including information from the peer-review and correspondent assessments, we created a dynamic page with sliding panes which follow a minimum information display principle: specific (student) information is accessible from the general (class) information pane with a single click. We also implemented a system of graphical 'alerts' to the teacher/evaluator for problematic situations in which manual intervention is recommended.

**Keywords:** Workshop, peer assessment, computer mediation, Moodle, usability.

## **Creating Confident Web Conferencers a Web 2.0 Approach to Staff Development**

**Mark de Groot and Gill Harrison**

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**Abstract:** The paper considers and evaluates the evolving strategies used for introducing staff at Leeds Metropolitan University to the web-conferencing tool Elluminate. Initial staff familiarisation with the tool used a simple approach with some interaction, wherein small groups of staff were introduced, in web conferences, to the facilities available. This might

be considered a Web 1.0 approach to staff development. However the idea of user-created content dictated the further development of the sessions, as staff were asked contribute resources. In a later Web 2.0 phase of staff development, which is currently a work in progress, more flexible and ambitious web-conferencing sessions for staff development are being run, with a wider remit than simply the further improvement of the participants' skills as "moderators". Feedback has included suggestions about how staff would want to use a web-conference: whether for discussing drafts with individual students (possibly PhD supervisees), for holding seminars with small or large groups of undergraduates, or for meeting online with colleagues about planning or administration. Other ideas under exploration include the use of students as technical web-conferencing assistants to staff and the integration of links to the rich array of resources available on the Web. The paper views web conferencing as a significant tool at the disposal of an institution intending to respond to the changing needs and expectations of 21st century students. It proposes guidelines for staff development that will be of interest to any institution that is introducing web-conferencing and hence has a need to create competency for this in its staff.

**Keywords:** Web 2.0, web conferencing, illuminate, staff development

## **The Evaluation of e-Learning Practices in the University Education System**

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**Abstract:** The information and communication technologies are promoting deep changes in our society by originating new concepts, as e-Learning, e-government, e-commerce, etc. All of them have each day more impact in our daily lives. The e-Learning is one of the teaching styles highly implemented in the last ten years. Measuring the quality of the e-Learning practices is much more complex than comparing some indexes. It implies discussing about models and all the activities that can promote the change to produce an effective way for achieving the desired objectives. Up to now, the dominant trend for the evaluation of the e-Learning practices has been the application of different systems containing indexes of quality previously applied to private firms and other Institutions. A group of concepts and methods coming from traditional standardized systems (as for example, the ISO norms and the models for the total quality management evaluation, TQM) are assumed, however, the need to look for a personalized framework of reference in the e-Learning practices, promotes lots of research on this issue. All the options pay attention to the following aspects: the need for modelling the quality of the virtual training activity and the explicit expression of the models; that it is to say, what are the main criteria applied, the principles and the objectives that make sense and govern the processes, methods and tools for the quality, etc. In this research we have tried to describe the state of the art of the evaluation of the quality in e-Learning practices. Apart from considering the ones identified by Belanger and Jordan (2000), we are going to pay special attention to the economic evaluation and to the practices of evaluation centred around the benchmarking practices, specially the BENVIC model and the UNIQUE methodology applied in the European e-Learning upper educational space.

**Keywords:** Evaluation, e-Learning, methodologies, university, quality, information and communication technologies

## **VET: A Tool for e-Learning 2.0**

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**Abstract:** Web based virtual worlds, social network, and more generally web 2.0 applications have been significantly impact on the e-Learning. The real innovation is not purely technological, but social. In this context, our paper analyzes how to build a virtual environment tool that can take advantage of those web based training applications that are currently popular under the name: e-Learning 2.0. The goal is structuring a Virtual Classroom being compliant with e-Learning 2.0 standards and the social network approach, thus promoting the so called “collective knowledge” construction. The virtual environment tool (here referred to as VET) can be seen as a separate component easily integrable in any e-Learning system. The two main types of computer mediated communication, asynchronous and synchronous, have been exploited to the utmost just for promoting the collaborative learning following the strengths of social software. Chat, forum, web tv and other communication tools were integrated in the chosen e-Learning environment with regard to the training needs, always emphasizing the active role of every part involved in the learning process. The environment, based on open source software, presents a two- layer structure: on one hand there is the social network framework providing typical interaction functionalities accessible by all registered students that can freely communicate and cooperate without the trainer presence and on the other hand there is a different level of collaborative learning characterized by the virtual classroom, where the presence of the instructor is required. The here presented architecture shows a synergistic combination of web 2.0 applications in a single one for crossover e-Learning purposes. The potential users can be found both inside and outside the academic setting. Moreover, the possible integration of advanced feedback sensors would be very advantageous for the developing specific assessment applications of the proposed environment.

**Keywords:** Collaborative learning environment, virtual classroom, web 2.0

## **Use of Wiki Tools for Raising the Communicative Aspect of Learning**

**Jana Dlouhá and Jiří Dlouhý**

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**Abstract:** E-Learning is not only a tool for knowledge management and the efficient development of cognitive qualities but also promotes interactivity and community building. Wiki software in particular is useful in the process of education for building independent learning spaces to which students contribute, and it supports the social aspects of the teaching/learning process. The communicative features of wiki are the subject of the research regarding the added value of e-Learning compared to traditional goals stated in educational theories. The article begins by briefly reviewing this Web 2.0 tool in terms of its educational potential. It presents a case study of HE e-Learning courses where the technical properties of different environments in Web 2.0 are linked to the specific need for an interdisciplinary approach to education for sustainable development. The educational objectives of the course are closely linked to the specific character of sustainable development (which is considered to be a social process based on multi-stakeholder communication rather than the sum of diverse political activities) and critical social theory,



particularly the theory of communicative action which has emancipatory consequences for those involved. In the educational sphere, these goals are supported by the selection of “group oriented software” which promotes creativity in the context of academic writing on diverse themes. This supports action competence development and provides diverse communication opportunities which foster students’ relationship building. The complex aim of the learning project presented in the article is the building of an extensive educational wiki electronic encyclopedia by students’ contributions, through their collaboration on diverse environmental subjects. This learning space provides a knowledge base of easily accessible information for students’ different assignments and practical work and is designed to support individual expression; by their contribution to this learning environment students feel part of the knowledge generation community. Contributions are evaluated according to their quality and pages are allocated varying statuses expressed by the level of copyright –some can be continuously upgraded by specialists or by new generations of students. The communicative aspect of learning is easy to trace in the wiki “discussion” option and can be mapped in the history of the page; thus qualitative evaluation is possible. Aspects such as flexibility in selecting the learning strategy and a creative approach present a real challenge for assessment, widely discussed in the literature. A peer review process conducted by students themselves and the quality of their discussion combined with the teacher’s assessment is proposed as a contribution to this discussion. Students’ interest in active work in the interactive electronic environment was investigated and positive results received. High quality results in terms of students’ portfolios (essays and review discussions) provide evidence of usability of the presented pedagogical tool at university level. The article concludes with a review of our experiences with MediaWiki, useful for those interested in utilizing it as an educational tool. The use of electronic media and its potential link to the theory of communicative action in the educational context is briefly reflected upon.

**Keywords:** MediaWiki, environmental education, online social space, communicative aspect of e-Learning

## **Is Audio Feedback a Useful Way of Enabling Students to Learn? A Case Study**

**Elisabeth Dunne and Sue Rodway-Dyer**  
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**Abstract:** This paper presents a case study of audio feedback on a written assignment given to first year Geography students. Feedback is key to learning, but students seem rarely to be satisfied with its quality or quantity. Audio feedback is currently assumed to offer a powerful means of engaging students in their learning. A number of small-scale practitioner studies suggest, for example, that digital feedback suits today's student, and that aural feedback tends to be more extensive, easier to access and understand, and with more depth than written. However this is still an area wherein rhetoric abounds, and many assumptions are made about the benefits of working in this way. This paper outlines some of the difficulties of offering worthwhile audio feedback that undergraduate students will use to improve their learning. Data has been gained through questionnaire survey and focus group and individual interview discussions with students to gain their views on audio feedback, and how they have made use of this. A 'stimulated recall' interview was used to gain information from the lecturer on his conceptualization of the purpose and organization of the feedback he offered. Findings suggest that the students' expectations and the purpose of the feedback in a particular context may have both cognitive and affective implications for learning. They also highlight that there are many factors that need to be considered when giving feedback, such as the optimum time length for audio feedback,

the style, the tone of voice and the register of language; Findings also suggest that the process of stimulated recall is a highly effective means for an academic practitioner to review their performance and to recognise the need for changes in the way they work. However, what remains difficult is the promotion of a culture of engagement in feedback by students, with students reviewing their own progress and making deliberate efforts to improve their academic performance. Although this is a single case study, there are many issues raised that are transferable to a variety of other contexts in which audio feedback might be used. Further, many of the points raised are applicable to any feedback context, whether written or audio-based.

**Keywords:** Audio feedback, pedagogy, student learning, student satisfaction

## **Heutagogy: What Your Mother Didn't Tell you About Pedagogy and the Conceptual Age**

**Jane Eberle**

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**Abstract:** As we enter the conceptual age, there needs to be a re-thinking of the merits of pedagogy vs. andragogy and heutagogy. Heutagogy, the study of self-directed learning, with its double-loop orientation, allows students to reflect on and respond to their personal growth as they move from problem to action to solution. There has been a call for educators to consider the need for development of right-brain thinking skills as opposed to the previous left-brain emphasis if students are to compete in a global society. These concepts are important to e-Learning because competition for worthwhile, easily accessible online learning challenges educators to deliver the biggest bang for the buck. No longer is it acceptable to put lectures and quizzes online and call them a course. Students want not only their money's worth but their time and effort not wasted. Using what we know about learners and learning, it is imperative that we design e-Learning to be effectively structured so that students can be self-directed and learn and apply what they need and want to know. Instructors should assume the role of facilitators rather than givers of information. Students need to utilize inquiry, research, discovery, analyzation, and evaluation as processes for learning and sharing in the responsibility for what is accomplished. Student-directed discussions that allow freedom of expression and thoughtful reflection promote clarity of ideas. Complete learning should involve problem solving and reflection so that students may transfer knowledge from situation to situation to become what may be referred to as capable people. Heutagogy allows instructors and students alike to be creative and to enjoy a mutual respect of ideas. This paper will explore the concepts of heutagogy as compared to pedagogy and andragogy, how heutagogy enhances right-brain thinking, and the development of elearning techniques in the conceptual age.

**Keywords:** Andragogy, pedagogy, heutagogy, double-loop learning, conceptual age

## **Organizing Web Educational Resources According to Specific User Needs**

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**Abstract:** Information overload is a major concern that retrieval systems face. Information is ubiquitous and information resources are frequently used as educational resources, available from many distinct sources. The main issue is to get just the right piece of information that might satisfy our specific needs. Many of these sources organize their resources on a given ontology. However, these are static and do not allow for personalization. This fact degrades the value of the service if there is no easy mental mapping between user specific needs and the general source ontology. Organizing educational resources according to particular needs might increase users' satisfaction and save their time. In this paper we present a methodology to filter and organize information resources according to users' interests, based on content text, granting users with a personalized edition of the resource, especially tailored towards their specific needs. Our experimental results confirm that it is possible to automatically personalize document resources with high precision at a reduced editor workload. We believe that the application of this methodology in an educational setting might contribute to build – or complement – and maintain educational resources and greatly improve their usefulness. Our methodology may be applied to explore and organize a repository of learning objects, according to specific objectives, thus working as a courseware semi-automatic editor. Students themselves might use such a tool to build a course on a specific competence; or to help them collect a set of learning objects that might help in understanding a given concept or how to apply a given technique. Whenever a user, or group of users, wants to be kept informed on some topic, an automatic resource compilation system can be of great value. We may imagine some potential interested parties: organizations, associations and specific interest groups, commercial companies trying to gather information on their market, news wire services, students interested in some subject, to name a few. Nowadays the problem is not to obtain information but to organize it and to extract its intrinsic value in due time. An automatic system, which adapts to user information needs, may be very valuable and potentially interesting to private as well as to professional users. In our work we pretend to automate the content retrieval task in order to reduce editorial effort while improving end-user satisfaction.

**Keywords:** Educational resources; automatic organization of web resources

## **Interventions for Second-Order Change in Higher Education: Challenges and Barriers**

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**Abstract:** From 2005 to 2008 the international research and development project iCamp carried out a series of targeted educational interventions into existing teaching and studying practices within a cluster of European universities. These interventions were meant to establish educational experiences that would correspond with key features of international, distributed and technologically mediated work settings. The main educational objective was the advancement of important dispositions (skills, knowledge, attitudes and orientations) for collaborating with others and for self-directing intentional learning projects in such settings. The large-scale, homogenous and centrally administered landscapes of tools and services commonly provided in institutions of higher education proved to be conceptually and technologically incompatible with iCamp's overall intervention perspective. Instead, iCamp fostered the systematic use of loosely-coupled, networked tools and services in the realm of social media and social software (such as Wikis,

Weblogs, Webfeeds, etc.) to augment personal and distributed learning environments. The conceptual and technological shift provoked by iCamp challenged institutional representatives, facilitators, and students alike. This paper focuses on the description and interpretation of some key challenges, tensions, and barriers experienced by the research and intervention team in the context of the final field study carried out within the project. The paper finally suggests that the reported challenges and barriers represent re-occurring problems in educational research and argues for the need to develop an adequate conceptual framework for educational intervention that focuses on second-order change.

**Keywords:** Educational intervention, social media, higher education, system change

## **The Lecture is Dead Long Live the e-Lecture**

**Duncan Folley**

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**Abstract:** This research paper investigates if the traditional lecture is no longer appropriate for Neomillennial Learning Styles and whether an alternative blended approach could/should be used? Over the past decade the lecture as we know it, has gradually been under attack from constructivists, Twigg (1999) for example argues that the lecture is in the main a one-way process with little or no active participation and does not allow the student an opportunity to learn in a collaborative form. Exley & Dennick (2004) quote an unknown source as saying, "Lecturing is the transference of the notes of the lecturer to the notes of the student without passing through the brains of either" (p3). To counter balance this Race (1999) explores different methods of how active, interactive learning can take place within a lecture. With these and many more damning critiques of the lecture it is no wonder that HE is looking at alternative methods of delivery. This research explores whether there is a place for lectures and if blended learning technology can enhance the learning experience given within a lecture theatre environment. The primary research is based on two questionnaires, the first to a cohort of undergraduate students and the second to academic staff at Leeds Metropolitan University. The results of the research shows that students are demanding more for their tuition fees, this is in agreement with the BBC education reporter Sean Coughlan (2009) who reported that "Fees fuel campus consumer culture" and also discussed the Swansea University's student paper who following the recent bad weather reported "Students lose £20 a lecture after snow sends university into lockdown." (par 2). The paper also looks at the effects of increasing demands being placed on students' time and how this has developed the students into becoming more strategic learners in what they are prepared to attend and how much time they are willing to give to a subject. Therefore the use and availability of blended learning techniques (VLE, podcast) was investigated. The research shows that both students and academics see value in lectures, however the traditional didactic form of lecturing needs to change and academics need to embrace new technology, which can enhance the lecture and as such the overall teaching and learning experience.

**Keywords:** Lecture, strategic learners, podcast, blended learning

## **The Combined use of e-Learning and Traditional Learning Systems for Students of Biology and Biochemistry**

**Susana Gaytan and Rosario Pasaro**

**University of Seville, Spain**

**Abstract:** The European Higher Education Area needs methods to examine the specific training of its students, as well as to provide strong scientific and technical foundations, and so it is of interest to use Information and Communication Technology (ICT) as an educational resource for teachers and students. The present didactic project had two aims: first — as we are in charge of innovative teaching technologies in the Faculty of Biology — we have promoted the use of web learning by the teachers of the different courses in both the Biology and Biochemistry degrees. To assess such use, we polled the teachers. In general, teachers agreed that the use of ICT in the classroom is not only useful, but also necessary to connect with the students. Second, as teachers in Biology and Biochemistry, we have prepared an interactive on-line learning program, and have improved traditional classroom methods in three courses. We used Web-CT and various other Web 2.0 tools to exemplify the interactive learning system. We designed a system to enable the learner's self-assessment of knowledge, creating specific "independent learning tools" for students, which would allow our periodic tutorage of the student's learning progress. Classroom methodology has also been improved by means of problem-resolving methods, in an attempt to develop the student's creativity in defining problems and seeking solutions. Finally, a poll of the students indicated that the methods facilitated the interchange of information between teacher and student and among the students, helping them to recognize their learning difficulties and to improve their self-sufficiency. The statistical results concluded that the learning process has been improved, with respect to previous courses; consequently, the use of web-based and problem-based learning represents a pedagogical and technological recipe for a better teaching practice in higher education.

**Keywords:** e-Learning, European Higher Education Area, virtual learning environment

## **Crossing the Ts and Closing the Tags: Improving Web-Standards Compliance in Open Source e-Learning Platforms**

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**Abstract:** In this paper we argue that Web-standards compliance of open source e-Learning platforms is an important issue which has to be thoroughly addressed. The draft evaluation of randomly selected open source e-Learning platforms, against usability and accessibility standards, resulted in an unexpectedly high failure rate for the validators employed and eventually set the basis for the examination of learning management systems with respect to Web-standards. In an effort to improve the level of Web-standards compliance, we attempt to identify the type of the usual mistakes, along with their origin, and suggest appropriate solutions. More specifically, we attempt to classify the errors according to the alleged origin source by testing demonstrative installations of e-Learning products as provided by their developers. In the first part we discuss in theoretical level the way in which contemporary content management systems affect the web publishing process, as opposed to the static hypertext authoring of the past. In addition, we argue in favour of Web-standards compliance especially in the case of e-Learning platforms. In the second part, which is oriented to practical solutions, we examine, in a per e-Learning platform basis, characteristic examples of code fragments which fail to comply with Web-standards and we demonstrate the appropriate solutions. An important part of this section is the distinction between the errors found in the original source code, which should be

attributed to the developers and the errors found in the markup code of the content, which should be attributed to the user who provided the content. The contribution of this work is bi-fold: At the theoretical level it examines the importance of Web-standards with respect to open source e-Learning tools and argues in favour of compliance with the established standards in order to enhance usability and accessibility for the benefit of end-users. At the practical level it provides examples of solutions to the most common errors observed in the evaluated platforms and proposes the implementation of techniques that improve Web-standards compliance. The main conclusion, reflected in the title of the paper, is that most Web-standard compliance failures can be easily avoided by the use of well-known techniques and practices already established. In the modern hypertextual environment, “closing the tags” and following the Web-standards seems to be, more or less, the equivalent of our childhood’s “crossing the Ts and dotting the Is”!

**Keywords:** Web-standards, LMS platforms, usability, validators, markup and stylesheets

## **Educational Issues in Computer Based Assessment**

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**Abstract:** Learning outcomes in educational context must address issues of measurable standards, so that assessment is strongly linked to the learning-teaching team. Assessment plays a vital role in achieving and maintaining academic standards by diagnosing learning problems and progress, improving and enriching teacher and student performances. No matter at what level viewed - of the individual learner, the class, the institution, the educational system – the term assessment turned in e-assessment as a consequence of the use of e-Learning in 21<sup>st</sup> century practice in a technology-rich context. This paper highlights several issues regarding the integral relationship between learning, teaching and assessing by discussing the assessment approach used in the *e-plasticity* asynchronous module, an e-Learning solution designed and implemented in a Land Forces Academy study, as a part of a research project funded by the Ministry of Education, Research and Innovation. The aims of the paper are to describe motivate and comment the “Test” module implementation of the developed e-Learning solution module in engineering domain, as well as the impact on students that found the e-Learning experience positive and useful, contributing not only to better understanding of subject knowledge, but also to better improvement in critical and analytical thinking, and problem-solving skills. The use of the educational module and in particular the test part demonstrates that the computer-based assessment, as part of the e-Learning solution, is an effective and efficient way to insure that each student has a working knowledge of critical information, allowing work through problem sets with immediate performance feedback.

**Keywords:** e-Assessment, computer based assessment, e-Learning

## **A Framework for Supporting Postsecondary Learners with Psychiatric Disabilities in Online Environments**

**Scott Grabinger**  
**University of Colorado Denver, USA**

**Abstract:** Elena has a psychiatric disability: bipolar (manic/depressive) disorder. Daniele suffers from depression. Both are serious cognitive disorders that have significant effects on learning, especially learning online. One of the problems students with psychiatric

disabilities encounter is finding support in online environments, especially when 10, 50, 100, or even 6000 kilometers away from the originating university. Students with disabilities represent a growing number of students in postsecondary education. As the opportunities for online education continue to grow exponentially, so do the number of students with cognitive disabilities, like Elena and Daniele. Unfortunately, this is often a forgotten group because of ignorance and fear in society. Taking online courses is an important option for all students. As we will see, at the same time an online course can be difficult for students with disabilities, it also has advantages. Access to online instruction needs to be made available to students with cognitive disabilities just as it is for students with learning, mobility, PTSD, and traumatic brain injury disorders. The fundamental question, then, of this paper is “what can be done to improve access, retention, and success for the 14% of postsecondary students with cognitive impairments taking online classes?” Targeting specific types of impairments is not an efficient option, given that even the same kinds of impairments often present themselves in different ways. Rather, this paper develops a conceptual framework around work done by the Center of Applied Special Technology in the application of recognition, strategic, and affective brain networks to improve instruction related to cognitive impairments including attention and memory, language, executive function, problem solving, and social interaction. Additionally, I recommend turning the locus of support for students with cognitive impairments 180°, addressing support for students at the instructional level rather than the institutional level, which usually takes the learner out of the classroom. This has the negative effect of making the students feel like they are not part of the class, and it delays support until the disabilities office has time to help the learners. This just-in-time approach based on instructional strategies personalizes instruction, minimizes frustration, and encourage persistence—leading to better learning and success. Caveat: Statistics and the nature of the problems described here describe the situation in the United States of America and are not meant to make assumptions of the postsecondary situation in Western Europe.] **[Note:** There may be a follow up presentation at this ECEL conference on some research conducted related to this topic.

**Keywords:** Cognitive impairments; online education, universal design for learning

## **Communication for Learning: too Much Choice?**

**Susan Greener**

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**Abstract:** Whether we are lovers of constructivism or connectivism, or at heart just plain old rewarders of good behaviour, as university teachers we often aim to develop collaborative communication amongst and within learning groups as part of what we see as sense-making and learning. The benefits of communication mediated by good teachers is widely discussed in the literature, especially in relation to technology enhanced or online learning (Laurillard 1993; Mason 1994; Su et al. 2005; Kim 2008). But of course such collaborative communication has been practised for generations in the classroom by those who consider one-way lecturing an outdated and constraining practice. George Siemens’ perspective of connectivism moves us towards a concept of knowledge residing in networks which will not be wholly internalised or known by individuals, but which relies on the development of appropriate connections and the ability to evaluate worth within an abundance of knowledge (Siemens 2004). Technology plays a large role here, whether we are talking about “learning in education”, “learning in work” or “lifelong learning”. So what role can technology-enabled communication play in helping learners learn? This paper seeks to review the currently favoured methods of communicating between teachers and

students in the specific context of Higher Education, in order to determine which methods may be useful in which contexts of learning. As teachers, we have to decide where to expend energy and time to best result amongst the different communication options now available. Five principal communication channels are analysed: email groups used outside a Learning Content Management System (LCMS), discussion forums used within LCMS, synchronous conferencing (or livechat) within LCMS, wikis within LCMS based on ELGG software, and group blogs within LCMS based on ELGG software. While these five channels represent different stages of communications technology (CT) and do not include webconferencing, it is proposed that a brief reflective analysis of these increasingly commonly available CTs will allow us to explore their value in learning and opportunities for collaboration. Affordances of these CTs are found to include variations of structural fit to expected communication outcomes, and power and identity of communicators, as well as defined purpose, are seen to produce different results depending on the chosen channel of communication.

**Keywords:** Communication, CMC, Higher Education, teaching

## **Effective Provision of Formative Feedback in an e-Learning Environment**

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**Abstract:** Formative feedback is a vital part of education. It can be effective in promoting learning if it is timely, personal, manageable, motivational, and in direct relation with assessment criteria. However, despite its importance, research suggests that a number of students do not value feedback primarily for reasons that relate to lack of motivation and difficulty in interpretation of the feedback comments. In this paper we present an e-Learning environment that effectively supports the provision of formative feedback. Our aims are to enhance feedback reception and strengthen the quality of feedback through the method that it is communicated to the students. We suggest that an effective feedback communication method should integrate and facilitate a number of quality attributes in order to ensure that students engage with the feedback contents. We believe that the developed system successfully addressed the issues of student engagement and motivation and achieved its objectives. The results of using the system for two years indicate a positive perception of the students which, in turn, encourage us to further explore its effectiveness by integrating it into an open source learning management system.

**Keywords:** Formative feedback, online feedback

## **Studying Herbal Medicine: From Correspondence Course to Virtual World Polyclinic**

**Rose Heaney**

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**Abstract:** UEL commenced direct delivery of its herbal medicine programme about five years ago, having taken over responsibility from a specialist partner organisation which closed down. It has always been a blended programme, which in its original form meant



correspondence style learning with campus attendance for occasional seminars and clinical practice. Hardcopy course materials were mailed to students, communication was by post or phone with no use of email or other internet services. Such a non-technological model was unsustainable in the UEL context as well as being inconsistent with other clinical education programmes such as podiatry and physiotherapy where the VLE (WebCT) had been in use for some time. Moreover, the very fact that students spent so much time studying off campus made it an obvious candidate for some form of technology enhanced learning provision. However, the students and staff who transferred to UEL with the original programme were in the main unable or unwilling to countenance technology in any form. This paper describes the journey, often painful but also rewarding, from a paper based individualised learning experience to a much more collaborative and technology rich learning environment which is still very sensitive to the needs of the subject area and learning preferences of students. The paper will focus on technology deployment but will set it in the context of many other changes on the programme without which the technology interventions would have been impossible.

**Keywords:** Blended learning, VLE, healthcare, e-assessment

## **Mobile Devices and Archaeological Sites: An Emergent Context in Mediterranean Europe**

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**Abstract:** Archaeological sites are one of the best platforms to see the improvement in consideration, management and use of cultural patrimony. Those sites have been subject of research, recovery and reassessment processes. After that, besides the scientific outcomes they provide, archaeological sites are increasingly immersed, in the search of ways for being to advantage and public utility to the community who finances them and in which they fit. From these new necessities of social performance and justification, tourism and education are becoming the two fundamental action guidelines in order to uphold that social outcome, being this outcome economical, educational or social. This way, the last years have seen a lot of initiatives in archaeological sites all around the world. Many of these initiatives are innovative for tourism and education, thus raising an interesting work line around the process of introducing ICTs. It is worth to remark a group of initiatives started in a bunch of European sites, conveyed around the possibilities that mobile technologies provide, supported with wi-fi infrastructures and hand-devices, such as PDAs and cellular phones. In this field, we identified a tendency toward the development of experimental practices oriented to the research and implementation of mobile technologies, whether in educational programs or in the attendance of tourist visitors, in a series of archaeological sites from southern Europe. The sites share three main features: they are located in countries from the European Mediterranean; the main time period of occupation of the sites is related to classic cultures, especially from the roman period; and finally, they are located in urban or near-urban environments, and are integrated in physical contexts so distorted that the integral understanding of the sites are very difficult. The identified initiatives are mainly located in Italy, Greece and Spain. They are usually structured as technological, education and/or tourist research projects, and they are promoted by diverse institutions and social actors. The execution of the projects is conducted by university laboratories, and is financed with public money. From this basis, there has been a development of intervention models in wi-fi environments. Two sorts of interventions stand out from the others: in tourism, those derived from the exploitation of

the possibilities that magnified reality offers; in education, the integration of global locating systems through GPS.

**Keywords:** Mobile technologies, archaeological sites, mobile devices, mobile learning

## **Wiki Tools in the Preparation and Support of e-Learning Courses**

**Antonín Jančařík and Kateřina Jančaříková**  
**Charles University, Prague, Czech Republic**

**Abstract:** Wiki tools, which became known mainly thanks to the Wikipedia encyclopedia, represent quite a new phenomenon on the Internet. The work presented here deals with three areas connected to a possible use of wiki tools for the preparation of an e-Learning course. To what extent does Wikipedia.com contain terms necessary for scientific lectures at the university level and to what extent are they localised into other languages? The second area covers the use of Wikipedias specialised in one theme as a knowledge base for e-Learning study materials. Our experience with Enviwiki which originated within the E-V Learn project and its use in e-Learning courses is presented. The third area aims at the use of wiki tools for building a knowledge base and sharing experience of the participants of an e-Learning course.

**Keywords:** Wikipedia, wiki tools, enviwiki, e-Learning, localization, mathematics education

## **Building the Future Student's Blended Learning Experience From Current Research Findings**

**Amanda Jefferies and Ruth Hyde**  
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**Abstract:** The JISC funded STROLL (STudent Reflections On Lifelong e-Learning) project has researched into the experiences of current undergraduate students in Higher Education (HE) and Further Education (FE) between March 2007 and Feb 2009, with a series of diaries constructed by student volunteers. Using video and audio recording to capture students' own reflections on their learning and their use of technology over a 2 year period the project data has offered many reflections from students on their use of technology for learning and leisure. Building on this and other JISC project data, we now assert that for most of our students technology has become a ubiquitous part of their lives to the extent that they may have multiple pieces of personal equipment that are used interchangeably for learning and leisure, including their computers and their mp3 players. At the University of Hertfordshire access to technology enhanced learning has included use of the managed learning environment (MLE), which has been highly praised by the campus-based undergraduates participating in STROLL for making their learning accessible 24/7. How can we learn from the experience of our current students and their reflections on becoming effective learners supported by technology? Our research indicates that technology can support students in their balancing act and we will share the experiences of how students have enthusiastically reported that technology is an enabler for them. In 2008 the team presented earlier reflections from the project; this year we present how students use technology in HE and offer an opportunity to discuss how institutions might support this.

**Keywords:** Student experience, blended learning, technology use, reflection

## AntiPlag – a Sampling-Based Tool for Plagiarism Detection in Student Texts

**Tuomo Kakkonen and Niko Myller**  
**University of Joensuu, Finland**

**Abstract:** This paper introduces *AntiPlag*, an advanced plagiarism detection tool intended for use on student texts. It is capable of both *hermetic detection* that scrutinizes only local collections of documents (other students' texts and lecture materials, for example) and *web plagiarism detection*, in which the aim is at identifying instances of plagiarism that have been sourced from the Internet. The main feature of the system is the *sampling-based web plagiarism detection*, a novel approach to plagiarism detection that is based on combining web and hermetic search technologies. The system uses standard web search engines to locate documents on the Internet that might have been used as sources of plagiarism by the writer of a text. During this sampling phase, the suspected sources are downloaded, converted to ASCII text and saved to the local database so that they can be later processed by using the hermetic detection methods. We evaluated the system by using a test set that contained instances of verbatim copying as well as texts in which plagiarism was concealed by minor editing, replacing words with synonyms and by paraphrasing. We compared the results achieved by AntiPlag to an earlier evaluation study of four web plagiarism detection systems, SafeAssignment, Turnitin, EVE2 and Plagiarism-Finder. AntiPlag performed better than any of these systems, achieving the accuracy 95.8% over all the test items.

**Keywords:** Student plagiarism, automatic plagiarism detection, web plagiarism, sampling

## Visual Analytics for Educational Data Analysis

**Zdeněk Kedaj<sup>1</sup>, Lenka Nováková<sup>2</sup> and Luboš Popelínský<sup>1</sup>**

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**Abstract:** We give a brief overview of methods for data visualisation. Then we focus on a field of educational data, namely electronic/internet-based tests, and show what are main features that must be taken in account in a process of visual analysis. We describe *bc.razor.cz.ver.2*, a new version of a library for visualization and data analysis that has been developed at KD Lab FI MU Brno and is freely available. We present new tools that have been used for educational data analysis.

**Keywords:** Visualisation, visual data mining, educational data mining, electronic testing

## Web-Based English Language Learning Environments in Technical Part-Time Studies Self-Directed and Collaborative Approaches

**Andrea Kelz**

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**Abstract:** Web-based English language learning environments are becoming increasingly popular in higher technical education as both teachers and students gain benefits from such scenarios. The wealth of language learning materials and activities available on the web gives English language teachers and learners access to a variety of language

learning resources. While online newspapers, magazines, films, discussion boards, and blogs provide authentic material for language learning, a wide range of language skills can be enhanced with the use of web-based exercises and activities from vocabulary practice, grammar lessons, reading and writing tasks to listening and pronunciation exercises. All exercises and activities can be created either by the teachers themselves or, when it comes to using open resources, used freely and be tailored to suit the specific needs of their technical students. Online learning environments can not only increase interaction among students with web-based communication tools that permit group work that would be difficult to arrange if students had to meet in the same physical location at the same time, they also foster and promote self-directed learning and provide technical part-time students with the opportunity to actively pursue areas of personal need and/or interest. Creating student-specific learning paths in a supportive web-based environment is one powerful tool to support a student's learning efforts and goals. However, the World Wide Web's capability for interactivity makes it particularly exciting as a resource for collaborative language teaching and learning. Examples of such interactive learning environments include online discussion boards which can increase both student-student and student-teacher discussion and help develop language, critical thinking and social interaction skills, as well as online workspaces which allow working on, presenting and discussing the results of web-based collaborative learning activities such as simulations, web-quests, and case studies. Besides depicting some ways to promote self-directed and collaborative language learning, this paper partly also focuses on English language needs assessment and learner-centred evaluation approaches in technical part-time studies.

**Keywords:** Language learning, technical part-time studies, self-directed approaches, collaborative activities, learner assessment, blended learning

## **Undergraduate Perceptions of the Usefulness of Web 2.0 in Higher Education: Survey Development**

**Swapna Kumar**

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**Abstract:** Recent research has highlighted how teaching and learning can benefit from the inclusion of Web 2.0 applications like blogs, wikis, and social bookmarking in higher education. However, there is insufficient empirical evidence to support the discipline-specific usefulness of certain new technologies over others. This paper reports on the development of a pilot survey that assesses undergraduates' use and their perceptions of the usefulness of Web 2.0 technologies in higher education. Focus groups were conducted with undergraduates ( $n=21$ ) from different disciplines (Arts, Communication, Education, Mathematics, Engineering, and Sciences) to get digital native input for the proposed survey. The term 'Web 2.0' was deemed by participants as problematic and not commonly understood by undergraduates. They suggested the use of the term 'new technologies' and specific names of applications, e.g. Facebook instead of 'social networking'. Likewise, participants discussed several interpretations of 'Web 2.0 use' in higher education, resulting in more clarity in survey questions and options. The importance of subject-matter or learning goals when teaching with Web 2.0 became clear as participants highlighted the usefulness of certain Web 2.0 applications over others for their respective disciplines. Online discussions or blogs, audio or video podcasts of classroom lectures, and collaborative document sharing (Google Documents) were found to be the most useful technologies across disciplines. Students' prior use of new technologies in on-campus courses greatly influenced their perceptions of their usefulness in higher education. Participants in the focus groups as well as the resulting pilot survey ( $n=26$ ) did not perceive social networking tools to be useful to teaching or learning. Despite the small

sample size, both the focus groups and the survey pilot described here provide insight into the digital native perspective for instructors seeking to integrate Web 2.0 tools into their teaching.

**Keywords:** Web 2.0, undergraduate, new media, higher education, technology use survey

## **Quality Evaluation and Optimisation of e-Learning System Components**

**Eugenijus Kurilovas and Valentina Dagiene**

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**Abstract:** The main research object of the paper is investigation and proposal of the comprehensive Learning Object Repositories (LORs) quality evaluation tool suitable for their multiple criteria evaluation and optimisation. Both LORs 'internal quality' and 'quality in use' evaluation (decision making) criteria are analysed in the paper. The authors have analysed several well-known LORs quality evaluation methods. In their opinion, the comprehensive multiple criteria evaluation tool of LOR quality should include both general software 'internal quality' evaluation criteria and 'quality in use' evaluation criteria suitable for the particular project or user. In the authors' opinion, the proposed LOR 'Architecture' group criteria are general 'internal quality' evaluation criteria, and 'Metadata', 'Storage', 'Graphical user interface' and 'Other' are 'customisable' 'quality in use' evaluation criteria. The authors have also presented their comprehensive Virtual Learning Environments (VLEs) quality evaluation tool combining both 'internal quality' (i.e., 'General Architecture') and 'quality in use' (i.e., 'Adaptation') technological evaluation criteria. The authors have proposed to use the quality evaluation rating tool while evaluating LORs and VLEs. The authors have analysed that if we want to optimise LORs and VLEs (or the other learning software packages) for the individual learner needs, i.e., to personalise his/her learning process in the best way in conformity with their prerequisites, preferred learning speed and methods etc., we can use the proposed multiple criteria LORs and VLEs expert evaluation tools together with the experts preferred weights of evaluation criteria. In this case we have the multiple criteria optimisation task using criteria ratings and their weights. Quality evaluation criteria of the main e-Learning system components, i.e., LORs and VLEs are further investigated as the possible learning software packages optimisation parameters. Several optimisation methods are explored in the paper to be applied to optimise the learning software packages in conformity with the individualised learners needs. Several open source VLEs evaluation results are also presented in the paper.

**Keywords:** Managing quality in e-Learning, multiple criteria evaluation, learning object repositories, virtual learning environments, optimisation

## **Learning for the Networked Society – Future-Oriented Competencies and the Emergence of the new Learner**

**Karin Tweddell Levinsen**

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**Abstract:** This paper presents a large-scale two-year qualitative study in primary and lower secondary schools in Denmark. The aim of the study was to explore and identify the relation between designs for learning, including ICT and e-Learning, and the pupils' learning with regard to two strands, one related to the learning of specific school subjects and the other – the topic of this paper - related to the learning of the *future-oriented competencies* of the network society. The background to the research strand on future-oriented competencies, ICT and e-Learning was that the new competencies as they are

defined by the OECD are included in the Danish government's educational strategy as The National Account of Competencies. The competencies in this list bear similarities to the Spanish sociologist Manuel Castells' concept of self-programmable labour and to descriptions of the informal learning strategies used by contemporary youth, the so-called *digital natives*, *new learners*, and *power users* who take ICT for granted. Thus, it was indicated that ICT and various forms of e-Learning may play a major role in the development of network society competencies. This leads to the research question: which role, and how is it enacted? In conclusion, the study finds that when they are included in specific genres of designs for learning, ICT, digital media and e-Learning, function as a lever for the development of future-oriented competencies and learning for the network society.

**Keywords:** Future-oriented competencies, network society, self-programmable, digital literacy, eLearning, primary school

## **E-Communication Patterns in Collaborative Learning Networks**

**Hwee Ling Lim**

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**Abstract:** Sociocultural constructivism regards communication as vital to the collaborative learning process. In virtual learning groups, dialogic online interactions are the means for exchanging information, social and emotional support that facilitate knowledge construction. A number of studies have analyzed the quality of such electronic educational discourse with discourse and content analytical methods for indications of collaborative knowledge building. However, this paper reports the use of social network analysis (SNA) in tandem with perception survey analysis to analyze and interpret the e-communication patterns of two virtual learning groups. Social network analysis (SNA) is defined as a set of methods enabling the disciplined inquiry into relational patterns between actors based on the assumption that interactions are building blocks that define and sustain learning groups. The data examined in this study comprised electronic logs from weekly online synchronous (chat tutorial) discussions and responses to a web survey from the undergraduate participants of the two tutorial groups. The SNA measure of reciprocity was used to analyze mutuality in information exchange present in the dialogic interaction during the chat tutorial discussions. The reciprocity value shows the strength of the tendency of the group towards mutual exchange of information. Additionally, a web survey was administered to the student participants that covered the extent of peer learning support perceived to be available during the learning process. The quantitative SNA results revealed different tendencies towards reciprocation of ties at group level. The quantitative survey results showed a stronger perception by one group on the availability of peer learning support that was consistent with the SNA findings. These findings on the e-communication patterns in collaborative learning networks are particularly relevant to researchers for the greater insight into the functioning of effective virtual learning groups. The recommendations presented in this paper can also help e-tutors to design facilitation strategies and manage online collaborative learning processes.

**Keywords:** Computer-mediated communication; distance education; e-tutors; sociocultural constructivism; social network analysis; virtual learning environments

# **GAOOLE: a Gaia Design of Agent-Based Online Collaborative Learning Environment**

**Shuangyan Liu, Mike Joy and Nathan Griffiths**  
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**Abstract:** An intelligent collaborative learning environment (iCLE) provides an online learning community with an interactive and multi-functional work area with intelligent support for the whole cycle of collaborative education, including organizing teams, advising on group work and communication, tutoring, and testing individual contributions. An agent-based approach lends itself to developing iCLE systems since many of the desired properties and requirements of iCLE systems coincide with those provided by the use of agents, such as autonomy, reactivity and proactivity (goal-oriented). Existing agent-based designs for online collaborative learning identify the agent types and the system topology, but lack certain design specifications. In particular, there is a lack of precision with respect to areas such including: the key roles that intelligent agents can play in online collaborative learning management; the computational resources consumed and generated by a role for performing a pedagogical task; the protocols adopted for the interactions between different roles; the agent types with mapped roles and the number of instances of each type in an actual system; and the services that the agents provide. Fully specifying these aspects will enable the system to fully exploit the strengths of agents (including pro-activeness, autonomy and flexibility). In this paper, we propose a new design, GAOOLE (Gaia Design of Agent-based Online Collaborative Learning Environment), which includes a detailed analysis and design specification. It consists of five sub-models: the environment model (describing the computational resources in a collaborative learning environment that are needed by the identified roles and their relationships with them), the roles model (describing the attributes of the roles for managing online collaborative learning – responsibilities, permissions, activities and protocols), the interaction model (defining the protocols for each type of inter-role interaction), the agent model (defining the types of agents and the number of instances of each agent type in actual system) and the services model (describing the services associated with each agent type). We specify these models in this paper by following the Gaia methodology. By applying an established agent-oriented methodology we develop a detailed system design that makes full use of the agent-based approach both in terms of system development, for example by facilitating use of existing components and systems, and in system use, providing characteristics such as flexibility and pro-activeness. In this paper we give an overview of the design, and focus in particular on how the collaborative aspects of the learning environment are supported.

**Keywords:** Intelligent Collaborative Learning Environment; educational agent; design of agent-based systems; gaia methodology; system integration

## **Use of a Electronic Voting System (EVS) to Facilitate Teaching and Assessment of Decision Making Skills in Undergraduate Radiography Education**

**Jenny Lorimer and Alan Hilliard**  
**University of Hertfordshire, Hatfield, UK**

**Abstract:** EVS as a teaching tool was introduced into undergraduate education in 2006 as a means of increasing both student engagement and classroom interactivity. The technology was very positively evaluated by the students. 98.5% of students identified the EVS as being easy to use, 92.5% perceived that the EVS was beneficial to their learning

and 86.5% stated that it was a useful tool for preparation for examination (Lorimer and Hilliard, 2007). Building on this research, the use of the EVS was extended to allow each student to have their own handset. This facilitated the provision of individual student performance feedback and was investigated as to whether this could be used as a predictor for achievement at summative assessment. Results demonstrated an increased and more normally distributed range of marks compared to the previous cohort. Good achievement in the formative assessment using the EVS gave an indication that students' would achieve higher marks at summative assessment. The conditional branching application of the EVS was introduced in September 2008 to integrate decision making skills into the teaching and learning process. Conditional branching refers to the application of the EVS that allows the student group to control the order of slides in a presentation, based on the responses received to posed questions at key decision making points. In line with other established uses of the EVS, the anonymity afforded by the system promotes individual student involvement in a way that is non-threatening, so that all students have the opportunity to participate. The rationale for the introduction of this teaching method was to address the need for diagnostic radiographers to be able to demonstrate good clinical decision making skills, such that they can evaluate the clinical information presented to them in order to justify requests for patient imaging. This case study explored the implementation and usability of conditional branching as a teaching method from the staff perspective. The information will be of use to other academics or institutions to review when considering the purchase and use of EVS. Opportunities and constraints of the innovative technology were identified, providing insight into the viability of its wider adoption across different levels, disciplines, contexts and institutions. A significant perceived strength was an increase in the variety of teaching methods available for use. Utilisation of the EVS has been previously evaluated and demonstrated increased student engagement. Staff perceived that it was a useful method of teaching and formatively assessing the understanding of the clinical reasoning and decision making processes in diagnostic radiography. Constraints experienced by staff in using the concept for the first time were the time taken to create realistic clinical scenarios and appropriate decision making points. It also proved challenging to simplify clinical practice to an extent whereby it formed a straightforward clinical pathway. It was felt by the researchers that it could be considered as a useful teaching method, although it may be suited to a higher level profession, or level of study.

**Keywords:** Blended learning; course design; undergraduate education; electronic voting system; conditional branching; decision making skills; staff experience

## **Reuse and Repurposing of Digital Content: Understanding the Challenges of Design, Process, People**

**Lindsey Martin and Alison Mackenzie**

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**Abstract:** Digital teaching materials and resources are widely perceived to be more sharable and reusable than traditional printed versions. In the United Kingdom, the current debate on the future of Higher Education has produced a vision of online and blended learning supported by a core of open access learning resources available to universities and beyond. Reuse and adaptation (repurposing) of such content is considered to have the potential to support scalable and sustainable diffusion of elearning within and between organisations. Edge Hill University in the North West of England is one of 20 institutions funded by JISC under its Re-purposing & Re-use of Digital University-Level Content and Evaluation (RePRODUCE) programme to test these perceptions in a real-world setting. This exploratory case study reports on the experience of Edge Hill's ReFORM Project and



traces the development of an elearning module using teaching content largely constructed from material reused and repurposed from the wider higher education sector. The paper describes how the team approached the module development and analyses the process using a range of evidence obtained from primary sources such as reports and correspondence, reflections of team members, participant observation and learning objects created as a result of the project. The focus of this paper is therefore on processes and people, not specific technologies. Our paper describes the findings that have emerged from a grounded analysis of the data and which have informed our thinking about the longer-term strategies necessary to diffuse wide-scale reuse of digital teaching content within our university. Our own experience suggests that widespread use and repurposing of digital content is dependent upon an emerging digital content literacy to inform a process of deliberate planning for reuse at the initial design stage. It also suggests that curriculum design using digital content requires a re-thinking of traditional roles and a broad acceptance of new approaches using non-hierarchical, multi-professional teams who can accept a blurring of roles and embrace the 'messiness' and iterative process.

**Keywords:** Digital content, reuse, repurposing, multi-professional teams, digital content literacy, reusable learning objects

## **How do Students Measure Service Quality in e-Learning? A Case Study Regarding an Internet-based University**

**María Martínez-Argüelles<sup>1</sup>, José Castán<sup>2</sup> and Angel Juan<sup>1</sup>**

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**Abstract:** This article discusses the importance of measuring how students perceive quality of service in online higher education. The article also reviews the existing literature on measuring users' perceptions about quality in e-services. Even when there are a lot of articles on this matter, none of them focuses on e-Learning services, so this paper tries to fill that gap. The article proposes using the Critical Incident Technique to perform a qualitative analysis, which contributes to identify the main dimensions and categories that contribute to students' perception of service quality. A case study, regarding a completely online university, is presented and the proposed model is used to obtain some preliminary research results. Among these, key quality dimensions from a student point of view are identified. Some of these dimensions are: learning process, administrative processes, teaching materials and resources, etc. After discussing the research results, a list of recommendations for university managers is formulated. We believe that both the proposed methodology and the case-study recommendations can be of potential interest for managers of several universities offering online higher-education worldwide.

**Keywords:** Online higher education, perceived service quality, critical incident technique, qualitative data analysis

## **Collaborative Language Learning for Professional Adults**

**Linda Joy Mesh**

**University of Siena Language Center, Siena, Italy**

**Abstract:** Institutions of higher education realise the importance of the role of learning organisations in terms of providing personnel training and updating. Yet further consideration should be given to flexible and accessible means for meeting the growing request for continuous learning. Jason Hughes describes an organization's capability to *learn to learn* as a fundamental change in the outlook towards learning, not only by providing training for short-term skill gaps, but by engaging in an ongoing approach for the

development of learning opportunities which encourage innovation and enable a more proactive outlook by organizations (Hughes 2000). Sustainable support for educational development using new technologies in education depends on having a basic roadmap that links current demands for developmental support to a plan for ways in which longer term needs will be recognized and met. The growing demand for continued learning of a second language is evident within the workplace where new technologies offer flexible solutions. In order to meet the special needs of professional adults the University of Siena Language Center (CLA) has developed a multiple-level series of blended English courses from beginner to intermediate levels for life-long learners including the hospital staff of the *Azienda Ospedaliera Universitaria Senese* (AOUS), the employees of a local bank and university technical-administrative personnel. The pedagogical approach takes into consideration both the needs of adults who are working full-time and the aims of the curriculum, which are to develop the four linguistic abilities of reading, writing, listening and speaking up to the Common European Framework of Reference for Languages (CEFR) Level B1. Taking into consideration a constructive use of both teaching hours, classrooms and, above all, the limited time available to adult learners, a blended approach was chosen. This paper will present conclusions regarding the effectiveness of the blending approach for continuous learning of a second language (L2) by adult learners. Through a primarily qualitative analysis of formative and summative course evaluation data we illustrate that communicative language learning online in collaborative activities fosters improvement in second-language writing and reading comprehension skills, while face-to-face (f2f) lessons were found to be useful for the development of conversation and listening comprehension. This paper also demonstrates that online collaborative learning activities in English for specific purposes (ESP) stimulate increased motivation and provide a flexible context for language learning which adults view as a definite advantage for structuring study time when and where it is most convenient.

**Keywords:** Continuous learning, connectedness, blended learning, CMC, second language

## **Social Software, Thinking Styles, Personalization and Case-Based Foreign Language Learning: the Quest for new Pedagogical Models in Higher Education**

**Margrethe Mondahl, Liana Razmerita and Jonas Rasmussen  
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**Abstract:** This article presents the underlying principles of Case-based Foreign Language Learning (CaFoLLe) platform and the factors affecting learning processes by using Web 2.0. CaFoLLe integrates blended learning strategies, including case-based teaching, digital media and in particular social software to support and enhance collaborative learning processes for adult learners' second language acquisition. This article reports work-in-progress, investigating the impact of collaborative learning and social software on learning processes associated with foreign language learning. It presents an outline of the project implementation, initial perspectives from a pilot study, preliminary findings and future perspectives. Furthermore, the article proposes an evolving model for using social software in foreign language learning and outlines future planned work. Based on the analysis of data on student learning and teacher experiences, the CaFoLLe project will contribute to improve student learning, making available transferable models of case-based teaching, collaborative learning, communication and foreign language learning in different contexts and disciplines. The pilot study findings show that students using an electronic platform are more willing to interact and share knowledge during the entire process of task completion, which has resulted in higher assignment quality. The structure

of the article is as follows: the first section outlines basic concepts in foreign language learning, the learning processes that support this and assumptions related to especially the value of students' need for collaboration and social based learning platforms. The second section of the article elaborates on Sternberg's theory (1997) of learning and thinking styles so as to introduce an associated pedagogical model for adult foreign language learning. The third section focuses on the applications offered by Web 2.0 in relation to establishing collaborative, social platforms that seek to enhance learning outcomes for foreign language learners. The fourth section describes the pilot study by outlining the preliminary findings and challenges posed in relation to the setting up of an innovative foreign language learning platform that utilizes social software and draws on case-based teaching. Finally, the article summarizes the main concepts associated with the setting up of the CaFoLLe and pinpoints towards future work plans.

**Keywords:** Web 2.0, collaborative learning, foreign language learning, case-based teaching, learning and thinking styles, pedagogy

## **Using Web2.0 Technology in Work Based Learning**

**Aboubakr Moteleb and Alan Durrant**  
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**Abstract:** Although Web2.0 technologies are increasingly used in supporting learning and teaching in higher education, Work-based Learning is yet to achieve anticipated value from such technologies. Work Based Learning offers learning opportunities for professional practitioners; requiring special settings that link the learner, the university and the organization. Web2.0 is envisaged to provide suitable settings for Work Based Learning because it enables the creation of social environments, empowered by tools and technologies that facilitate learning, networking and collaboration among various stakeholders. This paper reports on the evaluation of a Web2.0 platform in supporting learning and teaching in a Work Based Learning environment. Middlesex University's School of Arts and Education launched a work based learning programme to allow professional practitioners to achieve an undergraduate qualification supported by a Web2.0- based platform for learning, networking and collaboration. The school launched the project reported in this paper to evaluate the impact of using the platform from three aspects: learning experiences, pedagogy and technology. In the first, we investigated how the platform impacted students' learning experiences and how learning experiences could be improved using Web2.0. In the second, we examined how successful the platform was in supporting the programme's learning outcomes, and how support for learning outcomes could be improved using Web2.0. In the third, we explored how successful the platform was in using Web2.0 technologies to support learning and teaching, and what other Web2.0 technologies could be used to improve the learning platform. The paper makes both practical and theoretical contributions. For practitioners it presents insights into designing and supporting Work Based Learning programmes and supporting teaching and learning using Web2.0 technologies. The unique capabilities and needs of individual professional practitioners studying through Work-based Learning programmes require a review of pedagogic strategy in light of the potential of Web2.0 technologies. The evaluation equally addresses a gap in the literature for empirical research into the use of Web2.0 technologies in supporting learning, networking and collaboration to facilitate Work Based Learning.

**Keywords:** Work based learning, e-Learning, Web2.0, social technology, arts, education

# Since Everybody Needs Need Analysis why do we Fail to Investigate?

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**Abstract:** It is widely believed that needs analysis is almost an exclusive concern of educationalists. Yet, there are other sectors of our daily activities which are just as important and need to have a reliable and accurate information through market research and needs analysis. Such sectors are: Industrial production, transportation means, commercial trends, consumer's demands, particular agricultural features and many others. This paper will briefly illustrate the impact of needs analysis in the creation of effective strategies in the above sectors. However, its main interest will focus on the educational and training sectors and the benefits resulting from the implementation of needs analysis. In parallel, efforts will be made pted to identify the reasons that the needs analysis procedure has not been followed. To this end, an empirical research has been carried out and the research questions included: (a) How far do you feel that needs analysis will help companies to meet the current needs of the market? (b) Why some people refuse to accept innovations in our everyday lives? In recent decades, educational reforms have been frequently developed attempting to enhance the quality of education and training and keep in pace with scientific and technological developments. Nevertheless, success in meeting actual needs has been disputable As a result, it is supported that all these initiatives have failed to cope with the contemporary demands for knowledge management and distribution be it for academic and/or professional reasons. There are numerous deficiencies which render these attempts unsuccessful. Among them, probably, the most prominent is considered to be the lack of important and useful data due to zero or insufficient needs analysis. Even the most elaborately designed training courses tend to be useless and ineffective if they are not based on specific description of demands which should be satisfied. These demands may, only, be adequately identified through the collection of the necessary information, analysis of the basic characteristics and systematic study and interpretation of the relative data. To design training courses, or to decide to put new products in the market, without previously understanding the specific needs, their location, and their magnitude, will simply result to complete failure. As concerns training of staff of enterprises a recommended procedure, from the needs analysis to the evaluation of the courses delivery, has to follow a sequence of ten steps, i.e. job description, qualifications required, curriculum design, syllabi development, material production, courses delivery mode, qualifications of instructors and learners, implementation and finally evaluation.

**Keywords:** Empirical research, needs analysis, job description, training courses, success

# Conveyor Belt Production of Course Material – a Case Study in Sri Lanka

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**Abstract:** In this paper we study the content development process for an external bachelor degree in information technology (eBIT) at University of Colombo School of Computing (UCSC) in Sri Lanka. The eBIT degree program was started in the year 2000 and has since 2004 been funded from both the European Union (EU) and from the Swedish International Development Cooperation Agency (Sida). Since the start of the project one of the main focuses has been on content development. Content development at UCSC is instrumental and hierarchal where different actors are responsible for different parts of the content development process. The different roles are Subject Matter Experts (SME) who decide what material that the course should be based on and what knowledge that should be transferred to the students; Instructional Designers (ID) are responsible for organizing the course and material, they decide the pedagogy to be used and how the instructions should be structured; Content Developers (CD) are the ones that create the actual content based on the instructions and material provided by the SMEs and IDs. This study is mainly based on observations that have been done since 2005 but also on interviews, both formal and informal, with UCSC staff. Since 2005 12 field trips have been done by the two authors - each lasting between two and three weeks - so an extensive understanding of the development process has been achieved over the years. The study is mainly descriptive as we explain the development process at UCSC which can be seen as a conveyor belt production of course material, but we also analyze the benefits and disadvantages this approach results in. Findings show that benefits of this approach are a high production of material and the model has also proved to be both time and cost effective. To further speed up the production the development process is highly dependent on templates, e.g. flash templates for learning activities and SCORM templates to design course and lesson structures. The use of templates to speed up the productions does, however, pose a disadvantage as there is a low degree of variety in activities in the produced material. Because of this the content does not fully support the pedagogy strived for in the eBIT program.

**Keywords:** e-Learning, content development, learning objects, templates, Sri Lanka

## A National Strategy for Ensuring Authenticity in Student Work

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**Abstract:** Against a background of concern surrounding access to electronic sources of information via the internet and the authenticity of students' assessed work, in 2002 the Joint Information Systems Committee (JISC) founded the Plagiarism Advisory Service in the UK. The service aimed to develop a national strategy for plagiarism detection, backed up by sound pedagogic advice and guidance, and to disseminate best practice throughout UK universities and colleges. The service sought to unite existing pockets of good practice within universities and colleges, in order to develop an holistic approach to addressing plagiarism, combining institutional policy and procedure, assessment strategy, student study and information literacy skills, combined with access to the US-based Turnitin plagiarism detection software. Whilst backed by the plagiarism detection software the

service aimed to place a positive emphasis on learning and teaching approaches to formative prevention and appropriate use of electronic sources, rather than after the fact detection. An initial campaign of awareness raising promoted the importance of adopting this holistic approach to ensure the detection technology was not viewed in isolation, but rather as part of this integrated strategy. Nevertheless, arguably technology has acted as a catalyst for change within this area, and for many UK institutions has prompted a review of and further development of academic misconduct policy and procedures. Additionally, the service has provoked a rethink of assessment strategies, in an attempt by many institutions to effectively eliminate opportunities for cut and paste plagiarism, resulting in more stimulating and rewarding activities for learners. Almost seven years since the service's inception, TurnitinUK has now been adopted by over 96% of universities in the UK and a growing number of further education colleges, and, now, renamed PlagiarismAdvice.org the service continues to promote and encourage an holistic approach to ensuring authenticity in student work by establishing and sharing best practice. A need has also been identified for extending this approach to schools, in order to establish best practice and encourage original work and appropriate use of electronic sources of information from students at an early stage in their academic career.

**Keywords:** Plagiarism, plagiarism detection, assessment, Turnitin

## **The Role and use of Essay Tests in e-Learning: a Japanese Case Study**

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**Abstract:** One of the learning goals of university instruction is develop students' logical thinking and writing. This is true even with online courses which are gaining popularity in higher education and are taught as blended or fully online courses. E-Learning, however, has its restrictions on how learning performance is assessed. Online testing is usually in the form of multiple-choice questions, without any essay type of learning assessment. Major reasons for employing multiple-choice tasks in e-Learning include ease of implementation and ease of managing learner's responses. On the other hand, conventional face-to-face classes often employ essay-type examinations for the purpose of assessing the learners' meta-cognitive understanding and ability to build logical structures beyond the understanding of basic knowledge. To address this limitation in online assessment of learning, this study investigated an automatic assessment system as a natural language processing tool for conducting essay-type tests in online learning. The study also examined the relationship between learner characteristics and learner performance in essay-testing. Furthermore, the use of evaluation software for scoring Japanese essays was compared with experts' assessment and scoring of essay tests. Students were enrolled in two-unit courses which were taught by the same professor as follows: blended learning course at bachelor level (n=47), fully online course at bachelor level (n=39), and blended learning course at masters level (n=78). All students took part in the final test which included two essay-tests at the end of course, and received the appropriate credit units. Learner characteristics were measured using five constructs: motivation, personality, thinking styles, information literacy and self-assessment of online learning experience. The essay-tests were assessed by two outside experts. They found the two essay-tests to be sufficient for course completion. Assessment scores from each of the two essays strongly correlated with each other ( $r=0.67$ ), therefore they were merged to form a single score. Another score, which was generated using assessment software,

consisted of three factors: rhetoric, logical structure and content fitness. Results show that experts' assessment significantly correlates with the factor of logical structure on the essay for all courses ( $r=0.30$ ). This suggests that expert evaluation of the essay is focused on logical structure rather than other factors. When comparing the score of experts' assessment between blended learning and fully online courses at the bachelors level, no significant differences were found ( $t_{(73)}=0.47$ ,  $p=.64$ ). This indicates that in fully online learning, as well as in blended learning, learning performance can be measured using essay tests without the need for a face-to-face session to conduct this type of assessment. Further, additional interesting correlations were observed: essay-test scores negatively correlated with "e-Learning evaluation" scores ( $r=-.41$ ); and, the information literacy factor scores of "operational confidence and knowledge" ( $r=-.47$ ) in blended learning and essay-test scores correlated with "the number of days attended" ( $r=0.40$ ) in blended learning for masters students. These findings may be related with the content of the courses. Other learner characteristics did not affect students' essay-test scores.

**Keywords:** Online learning, essay-testing, learner characteristics, learning performance

## **Analysis of e-Learning Courses Used at FIM UHK With Respect to Constraint Satisfaction Problems**

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**University of Hradec Králové, Czech Republic**

**Abstract:** The paper presents results of analysis of WebCT e-courses that are in use at the Faculty of Informatics and Management, University of Hradec Králové (FIM UHK). The shift from the traditional face-to-face education to various forms of web-enhanced education is strongly supported by the management of the faculty. Approx. 70% of teachers participate on e-courses' design. There were 187 e-courses in use in academic year 2008-2009, with nearly 21 000 seats in total. Each student accessed around 4 e-courses per term. After the overview statistics of WebCT utilization at FIM UHK we focused on the form and organization of electronic study materials inside particular e-courses. Usually the structure of materials corresponds to the structure of course topics, or the content is divided into units with respect to the calendar (e.g. new unit defined for each week of the term). We highlight differences among particular e-courses, designed by academics from different departments of the faculty. In some e-courses distance learning principles are reflected and applied thoroughly, while other e-courses work like digital repositories regardless of specifics of e-Learning. Authors of computer science related e-courses are more experienced in technical aspects of WebCT utilization and they prefer simple and effective e-courses, where the order of learning units and prerequisites for each unit (in terms of content, organizational and temporal constraints) is more strictly defined in comparison with e-courses built at departments of management or linguistics. Surprisingly, less ICT skilled e-courses' designers are more enthusiastic, they tend to build more complex structures of learning materials, they use learning modules also for publishing students' projects and presentations, they care about frequent communication in discussion threads and they focus on visual attractiveness of electronic study materials. The order of learning units in their e-courses is more difficult to be analyzed and numerous ways of passing the e-course content can be defined. The paper was written in context of our research project which objective is to apply new solutions based on artificial intelligence techniques, namely constraint satisfaction problem solving methods, in the process of e-courses' design and utilization. To achieve this, it is essential to deeply understand how e-courses are developed and managed, what are expectations and

requirements of designers, tutors and students and what are limitations of nowadays learning management systems such as WebCT.

**Keywords:** WebCT, e-course structure, constraint satisfaction problem, optimizing, e-Learning

## **E-Portfolios in University and Blended Learning Settings**

**Rikke Orngreen**

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**Abstract:** This explorative study researches the barriers and possibilities present when working with process portfolios in an educational system and culture, which traditionally prioritises written academic language. The paper presents an analysis of ePortfolios in use; of the students' process with portfolios; and the teacher's attempts to proactively adjust the plan as the module was running. The analysis dwells on the duality and mutual influence between the ePortfolio and the other activities taking place in the module, both face-to-face and online. Findings revolve around balancing the students' inner and outer motivations with the hurdles they must overcome to begin the ePortfolio; as the cultural issues associated with, what the students, teachers and the educational institutions believes is "proper" academic work. In addition, technical issues that influence the communication between the students are highlighted. Here it was found, that particularly the issue of choosing between wiki and blog formats represented two different paradigms for communication about the individual story of the student, but also made an unintended and somewhat surprising difference for the persons interested in looking at the other participants' processes (the timely and historical development of the ePortfolio). All in all, considerations that may turn out to be important for similar setups not only in ePortfolio work. They might also apply for other story telling methodologies and problem oriented project or case work, if the process of and interaction between the students are prioritised. The paper adds to the existing findings within ePortfolio and their application to formal learning settings. It discusses both the planning of and running the process, psychological barriers, students' motivation as well as more technological practical aspects of ePortfolio use, that are relevant for people engaged in IT and learning.

**Keywords:** Portfolio, educational design, e-Learning, university teaching, it didactical design

## **Domain Ontology Creation Based on Automatic Text Extraction for Learning Objects Characterization**

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**Abstract:** This article presents a research work to analyze the development of domain ontologies through automatic text analysis. The final goal is to use this domain ontology as the basis for the domain characterization of learning objects stored in a learning objects' repository. The work progressed through two vectors: one concerned an effort to achieve automatic extraction of ontological terms and their relations through the use of specialized text analysis software. Existing tools were tested and benchmarked and the Text2Onto software was chosen. A collection of electronic texts (bodies) in natural language were



used to build the corpus. Different tests were performed because results differ if we consider single or multiple documents and different analysis algorithms. At the same time, a bibliographical study was conducted to collect all the research projects and documentation already existing in this field. It was possible to identify several ontologies addressing the domain of relational databases although most of these were very basic and not suitable for a complete domain representation. This work follows the ideas for ontology creation proposed by the projects STASIS\_D232 (Beneventano 2008), OWL-DSDO (Zhang et al. 2007), RDB2ONT (Trinh et al. 2006) and (Liu et al. 2007). In the process of drafting the ontology of this study, we used the Protegé tool, developed by Stanford University. With this process it was possible to use the terms and properties extracted from Text2Onto and relate them to the existing limited ontologies. The article describes all the steps taken to accomplish the final ontology, presents and justifies the ontology itself. Therefore it provides a full replicable overview of the process of creating domain ontologies. But the article also addresses how to use this domain ontology to identify, characterize and validate learning objects in a unique way.

**Keywords:** Ontology, web semantics, learning objects repositories

## **Plumbing the Depths: Stories, e-Portfolios: Pedagogy, Ownership**

**Jennifer Patterson**

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**Abstract:** Over the course of this academic year, a colleague and I implemented an e-portfolio pilot with 82 students aged 17 to 50 on a team-taught 30-credit Level 1 core course on behalf of the University of Greenwich. The students are studying for a degree in Education Studies and come from a wide range of backgrounds. The module comprises elements of PDP interwoven with lectures on contemporary education issues and was originally designed as a paper-based course. The pilot navigated the PebblePad system as part of a wider trial of a number of different systems by the university. This paper presents the results of research combining mixed methodologies mainly allied to the interpretive paradigm but incorporating elements of critical theory. The research evaluates the differing experiences of students and lecturers using this e-portfolio system for learning, teaching, reflection and assessment. Methods used include initial and final student reflections, surveys, interviews and critical analysis including the narrative 'soundings' of sample experiences from student blogs and visual analysis of some student portfolios. We used the PebblePad as a mini VLE, uploading course documents and lecture presentations and sending messages as well as creating online gateways for formative and summative assessment submission. It was accessed externally to the university systems. In a scaffolded process, students constructed and submitted blogs and e-portfolios composed of a number of assets. The process of interactions with an e-portfolio system has raised substantial and complex challenges for course design and learning outcomes relating to pedagogy and assessment as well as challenges of implementation, resistance to change and around concepts of ownership. As a commentary on academic practice, an element of personal reflection on the project and the research is included in the form of a dialogic interlocution with these narratives, raising questions about the way in which we might use e-portfolios in Higher Education and considering how we evaluate online learning. As a process of evaluation, the research does not offer hypotheses or answers as such but aims to create space for different views by raising complex questions and challenges for consideration in the process of contextualising and making sense of the users' different experiences, of plumbing the

depths. Drawing on diverse genres and media the paper presents the results of the research and samples some of the work produced.

**Keywords:** e-Portfolios; digital identities; check

## **Portraits of Learners: an Ethnographic Study of Computer-Supported Collaborative Learning (CSCL) Practices**

**Andriani Piki**

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**Abstract:** The need for innovation drives organisations to pursue global, interdisciplinary projects and expand in several directions simultaneously. This presents educators with the challenge to prepare graduates for global competitiveness and collaboration. The need for fostering educational excellence, alongside the increasing availability of collaborative technologies (CTs), has led to a growing interest in computer-supported collaborative learning (CSCL) practices. The research draws from an exploratory field study in postgraduate business education and attempts to address the question: *'how do CSCL practices affect student engagement and the learning outcomes?'* In particular, the paper explores how CSCL tasks (such as collaborating through videoconferencing and participating in a group blog) engage learners and help them develop the diverse skills necessary for being successful in their future careers. The paper further explores how individual learning preferences and different motivational mechanisms affect student engagement and attempts to identify the range of 'learner profiles' prominent in this context. To examine these aspects in depth an ethnographic study was conducted. Students were observed in their natural environment while using CTs and participating in collaborative activities. In addition, the research draws from data collected through focus groups where students talk about their experiences regarding learning in groups, their individual learning preferences, and what motivates their level of engagement with CSCL activities. Finally, students working via videoconferencing were recorded on video for a detailed analysis of their social learning practices. The findings illuminate the important role that CSCL tasks, learning profiles, and teaching strategies play for regulating student engagement and achieving the learning outcomes. This highlights the significance of managing student expectations, addressing student diversity, and continuously evaluating the effectiveness of the teaching strategies used. The findings are analysed with a view to identify the key features of successful pedagogical models which emphasise learner inclusivity, participation, and motivation.

**Keywords:** Computer-Supported Collaborative Learning (CSCL); Collaborative Technologies (CTs); learning preferences; learning profiles; ethnography; business education

## **Barriers to a Virtual Europe**

**Andy Pulman**

**Bournemouth University, UK**

**Abstract:** In order to prepare healthcare students to be culturally competent and proficient within a diverse health care environment a curriculum is required that offers opportunities with a cultural perspective or experience. However, although the need for health professionals to address issues of diversity and culture are clear (French 1992), there is limited information on strategies that ensure successful integration of cultural awareness in

practice or how it should be taught within an educational setting (Campinha-Bacote 1999). The three year Virtual Europe project was part-funded by the Consortium of Institutes of Higher Education in Health and Rehabilitation in Europe. It is a web-based European community (Pulman 2008) from which health education scenarios may be accessed for learning and teaching purposes. Featuring a map allowing access to country specific resources, it is populated with different cultural case studies allowing contrasts between cultures to be examined. Virtual Europe builds on the conceptual model of the UK web-based learning resource Wessex Bay (Pulman et al. 2009) and applies it to an international framework. The Wessex Bay simulated community having already been successfully utilised within the Interprofessional Education curriculum at The School of Health & Social Care in Bournemouth University. At the conclusion of the Virtual Europe project, this paper offers a unique viewpoint on the benefits and limitations surrounding the development and pilot of a European health based simulated community. It discusses how the project has not successfully achieved its targeted objectives and reflects on the barriers which stopped the project from being successfully utilised within European health education curriculums. It contrasts the lessons learned from work on the Wessex Bay virtual community (Scammell et al. 2008) with its international counterpart and offers some suggestions on the practicalities of working on future interprofessional, intercultural e-Learning projects.

**Keywords:** Interprofessional, simulated community, health education, Virtual Europe, barriers

## **Designing for Immersive Learning Environments; a Study of Teacher Innovation Using the Learning Federation (TLF) Digital Learning Resources**

**Peter Reimann, Peter Freebody and Margery Hornibrook  
The University of Sydney, Australia**

**Abstract:** This paper will report on a study conducted in the western region of New South Wales during the early part of 2009. It was concentrated in both primary and secondary schools around the regional city of Dubbo, about 350 kilometres northwest of Sydney. The study is based on an adaptive expertise view of teachers' professional knowledge and skill. Self-directed, focused problem solving and reflection in the context of everyday practice enables teachers, like other professionals, to learn and develop expertise. However, only a relatively small percentage of teachers engage in such practices systematically and continuously. This can in part be explained by the fact that teachers' work is still mostly conducted individually and that the organisational culture of a school is often not conducive to teachers' individual growth and practice innovations. This is a particular disadvantage in rural areas, such as in many parts of Australia where teachers find themselves often hundreds of kilometres away from the next large school. Employing a teacher-led design approach, we used a combination of workshops and on-line, mainly wiki-based collaboration to engage teams of teachers into a 6-week innovation activity. They were challenged with the task to innovate their ICT use--teachers have been more or less routinely using Interactive Digital Whiteboards and e-Learning content--by integrating new elements of immersive learning (such as Second Life) into their teaching practices. Our main research questions were: How is TLF and other digital content being utilized by teams of teachers who design for learning experiences in immersive environments? What is the nature of teachers' pedagogical innovations and what is the nature of their innovation processes? How can teachers' distributed work and knowledge sharing be effectively supported, including using online collaboration environments (web-conferencing

and wiki-based document management)? How do teachers interpret and utilize (on-line) resources that inform about the nature of educational innovation processes and about research on learning in immersive environments? We were particularly interested in the question of how teachers extend their current practices rather than acquire (by means of "training") completely new ones. This because teachers have had access to The Learning Federation's (TLF) digital learning resources, available to all Australian and New Zealand schools. The TLF project is a collaborative initiative of all Australian and New Zealand governments. Since 2001 high-quality, innovative content has seeded and supported schools' moves into 21st-century education, and is an integral part of Australia's digital education revolution, the national strategy. Teams of teachers were encouraged to design and/or adapt an 'immersive learning experience' for their students, for instance design for learning that takes place in an easily accessible world such as 2nd Life or Wonderland. We used a mixed-method approach, collecting on-line performance as well as survey and interview data. Our observations on the teams' work and learning will be summarised, along with a range of enablers and obstacles that were identified as the teachers tried to come to terms with immersive environments and web-based collaboration.

**Keywords:** Digital classrooms; Immersive learning environments; collaborative on-line learning; on-line curriculum content

## **3D Virtual Worlds: the new Virtual Learning Environments**

**Rosa Reis, Paula Escudeiro and Nuno Escudeiro**  
**Instituto Superior de Engenharia do Porto, Portugal**

**Abstract:** Nowadays, the virtual worlds provide the users a high level of immersion, being a stage for new concepts such as "virtual life". It seems that the only and real world is already not sufficient, and many people feel the necessity to belong to different worlds where they can move in space and in the time, advancing and retreating inside a virtual extended attractive space not to obey to the same rules and laws as the real world. The real and the virtual worlds get confused in a hybrid fusion of concepts. In this context the present paper aims to contribute to an increasing use of these environments, which we can stimulate the knowledge, including the development of learning to learn autonomy. Our research provides a definition of virtual 3D Virtual worlds, distinguish the different types of social virtual worlds (Second Life, Active Worlds and There) and makes a comparative analysis between them, based on the matrix developed by Manninen in 1999, which includes a set of measures chosen according the differences and distinctions technical and user interface criteria. Finally, we discuss the potential of three dimensional social virtual worlds for educational purposes. In the future, these worlds may provide a set of services educational including e-Learning materials, course module materials, assignments and class sessions, communications between tutors and learners and e-assessment. However most of today's educational institutions will be challenged to encompass the informal and holistic learning scenario

**Keywords:** Collaborative environments, virtual worlds, virtual sociability, MMOGs

# **The Playground Model: Bridging the Gap Between Digital Technology and Curriculum an Evaluation of the Introduction of e-Portfolio Within Post Graduate Nursing Education**

**Anne Robertson**

**University of Edinburgh, UK**

**Abstract:** The increasing use of digital technologies within the higher education institutions has led to a re-evaluation of the pedagogical approaches for adult learners. Nursing studies within the University of Edinburgh has embraced the challenge by developing a new MSc programme which is based on the use of e-portfolio (Pebblepad) and incorporates student led learning. This paper explores the development of the new post graduate masters programme and highlights issues that were faced whilst integrating the technologies. The paper introduces the pedagogical approach used by Nursing Studies and the creation of the Playground model to enhance the students' use of eportfolios. The implementation of Pebblepad within a completely new programme provided numerous challenges and opportunities. Previous experience of e-portfolios highlighted that pedagogy must drive the implementation of technology. The inclusion of the Playground model provided a theoretical framework for both staff and students to engage with the technology and the new programme. The model grounded in the everyday past experiences of the users provided an accessible visual starting point for engaging with e-portfolios. The resultant evaluation highlights several key points for effective practice; education of users on the understanding of technical and philosophical uses of e-portfolios, integration within the curriculum and student and staff partnership. This paper is of interest as it introduces a conceptual model which can be used to increase the uptake of e-portfolios amongst students and staff. It also provides evaluated results which indicate best practice when introducing e-portfolios within a programme

**Keywords;** e-Portfolio, post graduate nurse education, pedagogy, Playground Model, nurse education

## **Transition From Conventional Training Towards e-Learning: how to Ensure Success**

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**Abstract:** The purpose of this study is to define what e-Learning consists of, its characteristics and the various barriers to it for SMEs and to verify, through a multiple case study, the extent to which Atlantic Canadian SMEs face the same barriers than larger organizations when they want to use e-Learning. The purpose of the study is also to present the different approaches, such as determine an overall learning strategy and upgrade the technological skills of the employees, that small and medium-sized businesses can use if they want to make a successful transition from traditional training to e-Learning to train their employees.

**Keywords:** e-Learning, training, SME, barriers, transition strategies toward e-Learning

# **Methopedia - Pedagogical Design Community for European Educators**

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**Abstract:** The paper will discuss theoretical, methodological and technical aspects of the community based Methopedia wiki ([www.methopedia.eu](http://www.methopedia.eu)), which has been developed as a part of the EU-funded collaborative research project “Community of Integrated Blended Learning in Europe” (COMBLE; [www.comble-project.eu](http://www.comble-project.eu)). Methopedia is a wiki and social community aimed at facilitating knowledge transfer between trainers/educators from different institutions or countries through interactive peer-to-peer support, and sharing of learning practices. We describe how Methopedia has been developed through engaging practitioners in workshops with the aim of collecting known learning activities, designs and approaches, and how the models for sharing learning practices have been developed by drawing on practitioners' experiences, ideas and needs. We present and analyse the outcome of the workshops and discuss how practitioners have informed the practical design and theoretical issues regarding the design of Methopedia. The workshops have led to redesigns and also a number of important issues and problems have emerged. In the paper, we therefore present and discuss the socio-technical design of Methopedia, which is based on open source Wiki and Social Networking technologies. We describe the issues, functionalities and needs that have emerged from the workshops, such as metadata (taxonomy & tags), localised versions (multi-lingual) and the need for visual descriptions. Furthermore, we discuss the templates trainers/educators can use to describe and share their learning designs or learning activities, e.g. what categories would be helpful? How much metadata is relevant and how standardised or flexible the templates should be? We also discuss the theoretical considerations underlying the descriptive model of the templates by drawing on research within learning design and the educational pattern design approach. In particular we focus on exploring designs and descriptions of singular or sequences of learning activities. Furthermore, we discuss some of the tools and concepts under development as part of the work on Methopedia, such as a flash based tool to structure learning processes, a pictorial language for visualising learning activities/designs and how we aim to connect to existing networks for educators/trainers and initiatives similar to Methopedia.

**Keywords:** Methopedia, learning design, wiki, community, social web, didactic process map language, design patterns

# **The Assessment of Web Sites Related With Teaching Science and Mathematics Used by 4th and 5th Grade Elementary Students and Their Teachers**

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**Abstract:** Internet is becoming an important reference after its use in most of the schools for educational purposes. Both students and teachers have been using internet to collect information on science and mathematics. However, the presence of so many internet sites related makes the choice of correct site difficult and time consuming. Hence, the questions of “which science and mathematics related sites are most commonly used by teachers and students?” and “which criteria are important for the teachers and students in selecting these web sites?” should be answered. In this context, this study aims at determining and assessing science and mathematics related web sites used by 4th and 5th grade elementary students and their teachers. In order to determine the web sites commonly used by the students, five open ended questions were prepared. Similarly, a data collection tool consisted of five questions were prepared to determine the web sites used by the teachers. During the preparation processes of these data collection tools, the opinions of the experts on those subjects were considered. Additionally, in order to improve comprehension, the data collection instruments were applied to three students and teachers at different schools. Considering their opinion, the tools were revised. The study was conducted in a school located at Turkey. The 33 students at 4th grade from two classes and 28 students at 5th grade from one class and their class teachers (total teacher number three) were selected. In Turkey, class teacher are responsible for teaching science and mathematics at 4th and 5th grades. This is the reason for selecting class teachers for the present study. The students were required to answer five questions related with science in a one-hour science lesson; similarly the same students were required to answer five questions related with mathematics in a one-hour mathematics lesson. The students were also asked for giving information not only about the name of the most commonly used web sites but also some other information about them. Additionally, the teachers were interviewed for one hour and wanted to answer five questions to determine the web sites most commonly used by teachers and the criteria important for teachers in the selection of the sites. After collecting data both from teachers and students, the web sites were ranked and the contents of these sites were examined.

**Keywords:** Teaching science and mathematics, web-sites, 4th and 5th grade students, class teachers

## **Role-Taking as Strategy for Active Participation in a Blended Learning Course**

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**Abstract:** The study here presented is included in a larger research, whose aim is to define specific pedagogical methods in order to manage effective blended learning courses. This paper mainly focuses on role-taking-based activities, considered from many researchers as useful to support active learning. Many roles can be designed and proposed within learning contexts supporting various skills and psycho-social process; in this paper two roles have been studied: the e-tutor, acting during forum-discussions, and the editor, in charge of supervising a collaborative writing task. A quantitative analysis was conducted to verify the impact of the two roles in terms of: a) participation of the course members to the online activities, b) their preference for one of the roles and c) their perception about the relevance of each role in acquiring academic skills. Forty-nine in-service teachers attending a blended course responded to a 9-items semi-structured questionnaire and their participation has been measured by counting their reading and writing activities. Main results show that no relevant difference in participation score was

found between participants performing only the role of editor or that of e-tutor. However, the highest participation is obtained when participants had the possibility to play both roles. Participants prefer one or the other role on the base of specific motivations that we categorize by using theoretical metaphors, from a behaviorist-based motivation to a socio-constructivist one. Such motivations are differently reported by higher or lower participants showing that the first ones report socio-constructivist argumentations, while the second ones declare a more behaviorist preference. Both roles were perceived as useful for fostering participation and improving communication and collaboration skills. Nevertheless, the role of the editor is perceived as more useful than the e-tutor role in promoting both online and offline participation and individual learning. These results are discussed by highlighting practical implications and suggesting that role-taking activities are as effective on learning as they are perceived familiar and relevant for participants. For this purpose, role-taking activities should be introduced by a specific training.

**Keywords:** Role-taking, blended learning, participation, collaborative learning, active learners, e-tutor, collaborative writing

## **A Video Gem for a Health e-Portfolio**

**Jakki Sheridan-Ross, Gill Harrison and Janet Finlay  
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**Abstract:** This paper describes an investigation into the use of video technology to support an exercise for final-year honours degree students of Public Health Nutrition (PHN). The result would form part of their e-portfolio. PHN students may well in their subsequent careers be called upon to make radio, television, or internet broadcasts on public health topics at very short notice. The exercise that they undertook was designed to give them an “authentic” experience mirroring this. In a half-day session, they were each given some scientific summary data about a particular nutrient (for example folic acid, vitamin C, selenium etc.) and asked to prepare two outputs: a written “Press Release” for a newspaper, and a video-recorded interview about the nutrient, in which they answered known questions. Reflection on their learning experience was encouraged and recorded immediately afterwards, as well as at a later time. This was a novel addition to the student experience, constituting a use of technology in support of learning that was not related to the Virtual Learning Environment (VLE). Students were introduced to a flexible learning space where they could work informally using laptops prior to presenting their data in the video-recorded interview. Several aspects of the exercise caused the students some trepidation, but they recognised it as being closer to a real-world experience than other assessments. The findings of the paper include a consideration of the factors influencing the success or otherwise of the exercise drawing on experience gained not only during the current delivery of the session but also during the delivery of an earlier version carried out in the previous academic year. An analysis of the student and staff feedback gathered immediately after the session, and again eight weeks later, is presented. The usefulness of the exercise, the method of assessment, and the applicability to other areas are also discussed.

**Keywords:** e-Portfolio, video, PHN, assessment, authentic



# **Developing a Social Collaborative Platform for a Curriculum Review Process: A Case Study of an Iterative Component Based Method**

**Alisdair Smithies and Chris Banks**  
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**Abstract:** This paper explores the use of a development method, designed for use in educational technology projects, to build a Web-based collaborative toolset from a 'mash-up' of existing Open Source components. A funding requirement for this project was to employ the Users and Innovation Development Method (UIDM) and use existing Open Source building blocks. Similarly to other agile development methods, UIDM specifies short-cycle design, implement and review iterations. The project's aims were to develop a system that supports the founding and evolution of a community of distributed work-place tutors and actively involve them in the process of curriculum review. Here, we present the challenges and opportunities encountered through the iterative development cycles of the system. The UIDM method focuses on user engagement throughout the project lifecycle. Several different groups of stakeholders were identified, each with particular requirements. During the early stages of the project, the design of the system focussed on the provision of services and features that would benefit key stakeholders within the organisation. As the project gained momentum, engaging stakeholders from the wider user community, a further set of requirements emerged. These varied significantly from the initial set of requirements, but added value for the user community and were felt to be necessary for engagement with the target audience. Consequently, the services offered by the system changed significantly from the original plans. Using a mature content management platform with a modular architecture gave access to a library of pre-existing modules, already tested with an active and supportive user base. Consequently, new features could be added as requirements emerged with little or no time required for development or customisation. The combination of an existing mature Open Source system with a bespoke collaborative authoring component has provided the degree of versatility and reliability required in this enterprise-level development endeavour.

**Keywords** Open source, web 2.0, collaborative authoring, UIDM

## **New Technologies in Siberia: e-Portfolio for Student Evaluation and Professional Development**

**Olga Smolyaninova and Tatyana Ryzhkova**  
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**Abstract:** One of the fields of interest of Siberian Federal University today is improving the quality of education, assessment and evaluation via the use of modern technologies. That is why the university launched a project supported by Russian Humanitarian Fund and aimed at exploring the potential of student e-portfolio. The project is directed at bachelor- and master-degree students with a major in education. It seems reasonable to start the project in this field of study, because future teachers and educators can provide more professional feedback and participate in the project development. The task of the project is to work out the main principles and the methodology of e-portfolio for student assessment and professional teacher development. The paper describes the first experience of e-portfolio methodology being introduced at both levels of the university including e-portfolio

effectiveness and possible threats, its impact on assessment, learning, and teaching. These are presented as a result of a survey aimed at studying teachers' and students' opinions about e-portfolio.

**Keywords:** e-Portfolio, student assessment, teacher accreditation, educational and professional achievements

## **Transformative Online Education for Educators: Cascading Progressive Practice in Teaching, Learning and Technology**

**Keith Smyth**  
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**Abstract:** As we come to understand more about what current and emerging technologies can offer in supporting and developing pedagogic practice, there has been a growing focus on the transformative potential of technology in relation to the student experience, and also the ability of educational institutions to meet 'big picture' challenges including widening access, student diversity and skills development (e.g. the work of the TESEP project <http://www2.napier.ac.uk/transform>; JISC, 2008). However, while the primary concern is rightly around how to engage students in learning effectively within technology-supported contexts, it is important not to lose sight of the educator. One argument here is that unless the educator on the ground (and in the 'online classroom') understands what it means to be an online learner, and has experienced what good technology-supported offers, then the potential to use technology in truly transformative ways will remain only partially fulfilled. This perspective has driven a slight shift towards more learner-centred staff development in recent years, and there are also a slowly growing number of accredited programmes in educational technology. This paper presents one such programme, Edinburgh Napier University's MSc Blended and Online Education (MSc BOE), which is based around a specific model of course design that is intended to quickly empower the professional educator in experiencing the benefits of current and emerging technologies, whilst simultaneously applying their developing knowledge and skills to supporting learners in their own FE, HE and staff development contexts. Driven by choice and negotiated learning, this approach sees participants work from the outset on personally relevant technology-supported initiatives, and group projects around common interests. Critically the programme's approach sees the participants gradually assume more control over the programme itself, and this has both a developmental as well as an intentional role re-defining purpose. After introducing the MSc BOE, and then exploring key ways in which it aspires to model a progressive pedagogic approach to blended and online education, this paper then explores the ways in which members of the programme community have cascaded their work on the programme into their own learning, teaching and assessment practices, and more widely. The paper concludes by outlining important practical considerations associated with a programme like the MSc BOE, which may help others to further realise the transformative potential of technology within their own contexts.

**Keywords:** Educational technology, progressive pedagogy, transformative learning, learner empowerment, staff development, online learning

# Mobile Knowledge Management Toolkit

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**Abstract:** The transition towards a knowledge-based society triggers the need and pressure to learn continuously, yet the time available for learning is getting shorter and the knowledge gaps are widening. Knowledge management-enabling tools play a useful role in learning organizations, especially in an era when information overload is plaguing most organizations with an Intranet, enterprise resource planning, or business intelligence system. Mobile and wireless technologies and associated infrastructures improve significantly the access to knowledge at any time from any place through diverse and capable hand-held devices. The rapid development of mobile knowledge supports robust contributions to the development of knowledge communities. Building adaptive learning resources reconfigurable based on the device attributes and users' preferences represent a key research issue of mobile learning within organizations. The contribution of this paper consists in describing the similarities, differences and challenges recorded during the development process of a mobile knowledge management system that provides secure access to learning content for users situated in various mobile settings. In this respect, we shall present the implementation settings of the MOBNET-Learning Project developed by “Carol I” National Defence University in Bucharest in partnership with Advanced Technology Systems, the Research Institute for Artificial Intelligence of the Romanian Academy and two other private companies. The research domain of the project is advanced information systems for education and it has been financed through the “Partnership” national funding scheme. The MOBNET project aims to identify new opportunities to extend the lifelong learning arena of the educational and training systems through advanced information and communication technologies. This project addresses specific learning needs in terms of content, availability, and flexibility, with a stress on security due to the fact that it is implemented within the “Carol I” National Defence University. The authors propose a framework for an integrated mobile learning system that provides access to various mobile users, within formal or vocational educational systems, to knowledge databases in support of the Anyone, Anytime, Anywhere (AAA) paradigm. This mobile knowledge management system aims to capture and integrate the learner's feedback and to create the framework for an optimised virtual learning environment. The paper also takes into consideration the challenges and the limitations implied by the mobile world in terms of hand-held devices and mobile user interface design.

**Keywords:** Mobile knowledge management, hand-held devices, mobile user interface design, semantic web, HTTPS

# **New Pedagogical Models Strengthen Workplace Training and Know-How Transfer to Personnel From Industry**

**John Stav and Erik Engh**

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**Abstract:** Quality assurance in the mechanical industry sector depends to a large extent on effective lifelong skills management. Up to date skills developed through harmonized educational processes in Europe ensure that personnel have the required technical competence and experience to execute specific tasks according to internationally acknowledged quality standards. Up to date qualifications is especially urgent in industries where the output quality depends on the management of production where different categories of staff work. Through ongoing Leonardo da Vinci projects are the experiences from use of Activity Based Training (ABT) disseminated to several European countries. ABT utilizes pedagogical models that have been developed recently. Welders, welding engineers, welding organizations and industrial training organizations constitute model user groups. Instructor training activities provides examples on good practices, learning activities, technical advices based on expert knowledge, good practice based on collective end-user knowledge, and model recommendations for the wide adoption and effective integration of video services into in-company training programs. This paper presents good practices and experiences related to use of video and ABT in skills upgrading, and the extension of ABT into higher education.

**Keywords:** Activity Based Training, workplace training, e-Learning, blended learning, work orders, work order, vocational training in industry

# **Integrating new Online Simulator Services Into Vocational Education and Training**

**John Stav, Trond Thorseth, Kjetil Liestøl Nielsen and Erik Engh**

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**Abstract:** This article reports ongoing development work, including design considerations, targeting new online simulator tools that address technological and pedagogical innovations in industrial training. The services offer students and instructor's access to a new training environment that utilizes evaluation processes where they may "play" dynamically with essential production parameters by using a "what happens if" scenario. In this way students visually understand the tolerance window occurring in real life production facilities. The simulator may from an instructional point of view, help reducing manufacturing defects by making up alternative decision routes that may handle both technical and economical production tasks.

**Keywords:** Simulator services, in-company training, video streaming, e-Learning, blended learning, vocational education

# Integrating Student Response Services for iPod Touch and iPhone into e-Learning Environments

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**Abstract:** Growing student numbers reduce the potential for teacher and students to communicate in an engaging way during large-scale lectures. US universities are now taking advantage of commercial Student Response Services (SRS) technology for learning gains in large classes. In Europe, this does not yet appear to be common practice, a main obstacle being the costs of dedicated hardware per student. This article discusses pedagogical aspects related to design of the first SRS in the world, that uses cheap and widely accessible mobile phone solutions. Such a SRS system is currently being developed in a EU founded project. The iPhone/iPod solution for SRS is more flexible than existing on-site technological solutions, since it uses the mobile or Wi-Fi network to provide responses from students. The technology may be used for 1) in-class, 2) laboratory, but also for 3) distance training purposes, the latter being an entirely new option in SRS technology.

**Keywords:** Student Response System, iPhone and iPod Touch, e-Learning, blended learning, voting systems, polling systems, clickers

## Emergence of the Most Knowledgeable Other (MKO): Social Network Analysis of Chat and Bulletin Board Conversations in a CSCL System

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**Abstract:** By conducting a social network analysis of chat and bulletin board conversations in a CSCL (Computer-Supported Collaborative Learning) system and identifying some underlying factors that impact learning and collaboration at the individual level and group level, we detect the emergence of the Most Knowledgeable Other (MKO, Vygotsky 1930/78) among the CSCL classroom participants. The study spanned three semesters and eight different courses, all of which used both in-class and CSCL teaching, and data was collected using a combination of methodologies with questionnaires and archived chat and bulletin board conversations. To map emergent student communication patterns, social network analysis tools were used to analyze relational data, calculate centrality scores and identify the formation of cliques (maximal subgroups in a network). Structural equation modeling was then performed on the hypothesized model to determine the impact of these centrality measures and the social factors on students' perceptions of respect and influence in group decisions, knowledge gained and their satisfaction with their performance in the course (Sundararajan 2009). While the formation of social network structures due to student chat and bulletin board conversations did have some significant impact on how the students perceived whether they gained respect among their classmates and whether they had influence on work related matters in online discussions, the most interesting finding was the emergence of peer MKOs within these class networks.

This in turn did appear to have some significant impact on the students' perception of conceptual and new knowledge gained during the course and this is explained with relevance to group effects like cohesion and clique formation. Following the works of Johnson, Johnson & Holubec (1986) on cooperative learning and referring to the mapping of Vygotskian ideas and instructional design considerations for online teaching and learning from Hung and Chen's (2001) work, adapted by Taylor (2002), a model is proposed to take advantage of such findings of MKO emergence in CSCL environments and incorporate them into teaching and learning situations in CSCL environments or otherwise. The proposed model is called the PI-Matrix (Participation-Interaction Matrix) and can be used to help lurkers and shirkers, become workers and take an active role in their learning.

**Keywords:** CSCL, Most Knowledgeable Other (MKO), Zone of Proximal Distance (ZPD), social network analysis, instant messenger, bulletin board, synchronous and asynchronous communication, participation, interaction

## **Utilising WebCT as a Collaborative Participatory Research Tool to Question the Effectiveness of Notetakers who Support D/eaf University Learners**

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**Abstract:** Numerous studies have focussed on the undergraduate 'disabled' student or student with 'special needs' but not specifically the D/deaf student and their experience of note taking support. Moreover, the use of a VLE-based discussion forum to elicit the experiences of undergraduate D/deaf students support from note takers is not evident in the literature and therefore the methodology is unique. This paper focuses on the outcome of an in-depth study of D/deaf University students and their experience of note takers which will form the basis of further study in this area. The role of the participants in this study are as co-researchers; their input to the discussion forum providing key data for development of a questionnaire to be used in the second stage of the study. WebCT was used as a discussion forum to empower the D/deaf students to share their experiences in a non-threatening, anonymous environment that was facilitated by an experienced note taker and IT Advisor. The qualitative empirical data from the discussion forum was imported into NVIVO for thematic analysis. The results are illuminating in that the co-researchers focus on 'support' and being an 'individual' over challenges of 'disability'. Quantitative data from WebCT based tools were used to define participation levels within the study. The co-researchers varied enormously in both number and frequency of contributions to the discussion forum as well as time spent in the forum itself. Analysis of co-researcher reading/posting data supports the notion of 'lurkers' – those participants who read but did not post - and the length of time spent in the forum suggests that the co-researchers made considered postings rather than rushed responses. Many of the textual responses contained spelling, grammatical and punctuation errors. These are reproduced in the paper without amendments, evidencing challenges for analysis but to correct them would be to destroy the richness of the qualitative data collected. The findings demonstrate that utilising WebCT as a discussion forum has enabled the co-researchers to collaborate in their response to note taker effectiveness and provide the questions that will form the basis of the second stage questionnaire.

**Keywords:** Discussion forum, note takers, d/deaf students, co-researchers

## **Developing a Conceptual Framework and Strategies Overcoming Intrinsic Inhibitors to e-Learning**

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**Abstract:** The co-researchers teach ethics to qualified nurses. Both use blended learning approaches and both universities have adopted Blackboard technology. Since 1999, whenever possible, they have linked classes together to discuss ethics cases using e-Learning to facilitate the contextual understanding of these qualified nurses working in very different healthcare systems. We originally observed greater resistance to e-Learning in the U.K. students and felt it was important to explore this phenomenon further. We were also concerned to ensure that the e-Learning element deepened student learning because we identified a risk that the vastness of web-based information available could make student understanding of healthcare ethics inappropriately shallow. The majority of the barriers identified in contemporary literature focus more on extrinsic aspects, such as access to computers and the internet or prior computer experience, internet accessibility, readability of materials and effective facilitation of discussions and few explore person-specific characteristics such as gender, culture or personality type. This paper explains how we have researched student engagement with e-Learning from the perspective of intrinsic factors such as personality type and learning style and mapped these against Maslow's hierarchy of needs and Bloom's learning taxonomy. Based on our findings, we have developed strategies which have proved effective in practice. Through further engagement and reflection, we have developed a combined Maslow-Bloom model which now underpins the design of our courses, content delivery and assessment. This paper presents our model and explains how it underpins the educator strategies helping to overcome intrinsic barriers to e-Learning by targeted use of intrinsic motivators. The conceptual framework and detailed strategies based on the personality types and learning styles of students can be adopted by other educators in the design and delivery of their e-Learning courses.

**Keywords:** Blended learning, Maslow hierarchy, Bloom's learning taxonomy, personality type, learning style, Ethics education

## **Exploring Learner Participation in Curriculum Development Towards Employing More Read/Write Approaches on a Distance Learning Professional Programme**

**Pam Thompson and Jo Richardson  
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**Abstract:** The emergence of read/write approaches in learning and teaching has implications for curriculum design on a range of programmes in HE, none more so than those delivered by distance learning and in a professional context. Some programmes are further down the line in embracing these than others, both in the use of a range of technologies, and, importantly, facilitating learner participation in ongoing curriculum development. This paper describes the results of a small-scale survey done by students on the Certificate of the Institute of Housing MSC in Housing Studies in a move to evaluate the e-Learning features of the curriculum with a view for modification and/or development.

In doing so, the authors make a comparative study with another Masters distance learning programme in the same institution, one which embraces read/write technologies extensively with a view to enhance student participation and engagement. The paper also draws on other research where these approaches in teaching and learning have been used for professional development of teachers in Higher Education in order to find useful directions for staff and students on the programme at hand. A critical element of this work and of future work is whether any of these strategies encourages and facilitates students in collaborating about and designing their own curriculum.

**Keywords:** Web 2.0, curriculum development, distance-Learning, learner participation

## **Social Bookmarking: Creating and Sharing Content in Postgraduate Learning**

**Andy Tomkins and Dawn McLoughlin**  
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**Abstract:** The use of Web 2.0 technologies in education has been widely explored and documented. Despite the lack of agreement regarding a definition of the term Web 2.0 (Alexander, 2008), it is generally accepted that the label refers to the aspects of the World Wide Web which allow individuals to create their own content and to share that content with others (Jarche, 2008). In the United Kingdom a number of reports have been produced under the auspices of bodies such as the Joint Information Systems Committee (Anderson, 2007; Franklin & van Harmelen, 2007) and the Teaching and Learning Research Programme (Selwyn (ed), 2008), which explore the current and possible future use of Web 2.0 within the educational sector. The publication of these reports reflects a trend for students to become increasingly familiar with Web 2.0 technologies, and for teachers to explore methods of incorporating such applications in their pedagogic practice (Alexander, 2008). Interaction and collaboration are becoming increasingly prevalent within the e-Learning landscape, allowing students to become co-constructors of knowledge and members of a community of practice. Such notions are contrary to the traditional parameters of educational practice. Much of the shifting of educational boundaries has been facilitated by the use of social networking sites, such as FaceBook, and social bookmarking sites, e.g. Delicious (Wheeler, Yeomans & Wheeler, 2008). Social bookmarking enables individuals to bookmark their favourite web sites, which are saved remotely, and to share their favourites with others. Users can attach keywords to each favourite, known as a tag, and it is possible to seek out others who use identical tags. This may be indicative of a shared interest and by examining the web sites saved by such an individual further useful web sites may be discovered (Anderson, 2007; Franklin & van Harmelen, 2007). This paper will address a case study involving the use of social bookmarking in a UK university. An opportunity arose for the establishment of a collaborative partnership to promote the use of Web 2.0 technologies between members of Learning Services and the Faculty of Education at Edge Hill University, a new university in the north west of England. A lecturer within the Faculty was approached with the view to setting up a pilot project involving the use of a social bookmarking site by her students. These students were studying for a Post-Graduate Certificate in Education, and they spend large periods of time on professional placement, away from the lecture theatre. It was felt that social bookmarking would help overcome the pressures that distance education places on these students. Furthermore, it was felt that the social bookmarking site known as Diigo contains features which could be advantageous by those undertaking study or research. A closed group was established for the students, which they had to ask to join. This paper will analyse the following: Interaction, Appropriate use of Web 2.0 technologies, Feedback and evaluation of the pilot study and The wider academic context



of Web 2.0 technologies. This paper will draw conclusion from the case study and from the wider academic literature. The underlying argument will be that whilst social bookmarking can facilitate the co-construction of knowledge and the development of a community of practice, these do not occur automatically but require a supportive environment in order to occur.

**Keywords:** Web 2.0, social bookmarking, teaching and learning, teacher training

## **Social Network Software and Education: South East Asia**

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The University of Manchester, UK**

**Abstract:** Social networking has become a worldwide phenomenon among users of the Internet. There have been suggestions on using social networking and Web 2.0 tools for the purpose of revolutionizing education. This paper discusses some findings that will encourage implementing these collaborative tools for the purpose of tertiary education in South East Asia. The research applied Soft Systems Methodology because it provides a holistic approach to support learning process. SSM is often used to analyse and resolve problems in complex social studies. This paper applies SSM in analysing social network software and education. Quantitative and qualitative surveys in Thailand and Malaysia suggest that there is a great potential for integrating collaborative tools within tertiary education. This paper also suggests the cultural and contextual aspects that need to be taken into consideration for a smoother and more successful implementation for collaborative learning in the region.

**Keywords:** Social network software, soft systems methodology, collaborative tools, education

## **A Conceptual Design of an e-Learning Platform for Mathematical Control Education**

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**Abstract:** *E-Learning* techniques have emerged as key sources of expansion and competition of the education process. In this article, we follow two basic directions. Firstly, we identify some basic concepts forming the foundations of the control curriculum which are common and well understood by mathematics and engineering tutors. These concepts help in explicitly clarifying the technological components and tools of the e-Learning platform that is proposed in the sequel. Briefly, the most significant concepts common to all disciplines of control theory are: *the dynamical system, stability, feedback and dynamic compensation*. Secondly, we desire to propose a conceptual design of an innovative *e-Learning platform* using satellite communications for distant courses of mathematical control. The proposed platform includes: a virtual classroom, off-line operation, sharing of applications, private/public chatting, and audio/video streaming. A concise description of the system network architecture depending on the DVB-RCS standard is provided justifying our choice of the telecommunications platform.

**Keywords:** Control education, e-Learning platform, satellite, architecture, DVB-RCS system

## **Do Teachers e-Learning Needs Differentiate Among Countries?**

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**<sup>2</sup>Advanced Technology Systems, Romania**

**Abstract:** The e-Learning training needs of people are very important to consider in a society that promotes lifelong learning, in order to improve the educational status of people and to make them capable of meeting the current demands of the dynamic environments in which they operate during their everyday activities, regardless of the fields they activate in. To have more successful students, a country should have more successful teachers, and training programs should be delivered to teachers according to their needs. A critical review of literature is carried out with the aim of developing a more practical framework for achieving success in e-Learning. Furthermore, to capture data about K-12 teachers e-Learning training needs, a questionnaire, consisting of 62 items, was created by the authors and distributed online and on paper. The online questionnaire, which was posted on SurveyMonkey.com, and the paper questionnaire were distributed in four countries (England, Romania, Turkey and Cyprus), in three languages (English, Romanian, and Turkish). 600 paper questionnaires were distributed in schools without computer access and in total; it was distributed to over 2000 K-12 teachers. A total of 621 questionnaires were filled in 3 months. Responses revealed that schools socio-economic backgrounds and schools racial expectations were two factors that contribute to the teachers' e-Learning gap. Overall result was that 90% of the participant teachers have access to the internet both at home and at school and 57.3% of these preferred "self study". In conclusion, researchers found out that "online self learning" programs would be the best way to improve K-12 teachers' e-Learning training needs. Responses on questionnaire differed significantly based upon countries. Teachers are key personnel in the integration of computers in instructional situations and in the adoption of all other innovations in schools Hence, further studies of the researchers would include implementation of "online self learning programs".

**Keywords:** Countries, e-education, teachers, training needs, self study

## **Let Students Talk: Web 2.0? Web 3.0? Or None?**

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**Atatürk Teacher Training Academy, Nicosia, North Cyprus**

**Abstract:** Students in 21st century have changed radically with the evolving technology and Web 2.0 tools. They are no longer the students the current educational system was designed to teach. Using technologies that support high levels of accessibility web tools, and providing students with choices are of the highest importance. Although many students engage with Web 2.0 technologies on a daily basis, they view them as social networking tools and they have different expectations from Web 3.0 tools. A questionnaire was created to find Web 2.0 tools preferences of high school students and university students (which was posted on SurveyMonkey.com). 210 high school students and 231 university students, in North Cyprus, have answered the questionnaire. 15 high school students and 15 university students were chosen randomly for one-to-one interviews with the researchers. Interviews were carried out to drive out students' expectations from Web

3.0 technologies. Students' responses in the questionnaires differed significantly based upon students' schools: High school students were mostly using web tools for communication with their friends and university students were using web tools mostly for communication with their family members. Some of the other interesting results of this research are: Facebook is the most commonly used Web 2.0 tool and Hi5 is the second most commonly used web tool. In the interviews, some of the interesting answers of the students were: "Web 2.0 tools should have better group meeting audio systems"; "They should contain Multilanguage support" and "they should have better group meeting audio system". Most of the students said that they want to learn how to use Web 2.0 tools, although their parents restrict themselves. In conclusion, lots of results were obtained by "letting the students talk". Researchers found that "blended education" programs would be the best way to improve high school students and university students Web 2.0 training needs. Teachers and parents should be informed about the benefits of the usage of web tools in education. These results should provide insight to educators and cause them to rethink and analyze their Web 2.0 choices for their courses. It presents a framework for Web 3.0 projects. Further studies of the researchers would be "Teachers web 2.0 choices and their expectations from Web 3.0 tools".

**Keywords:** Students, Web 2.0 tools, Web 3.0 tools, education

## **Selecting Tools and Services: an Expression of Self-Direction in Higher Education**

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**Abstract:** Current higher educational institutions provide participants with structured, ready-made central systems to support and mediate their activities. This prevents them from experimenting with a continuously emerging set of networked applications to meet their personal objectives in a particular context. But in many life- and work-contexts individuals increasingly need to find and combine various networked tools and services to support their individual or group projects. This paper emphasises the importance of providing participants in higher education with challenging and authentic educational experiences that require them to select the most suitable applications for carrying out their tasks in distance. Furthermore, the paper suggests that personal discoveries and experiments with different tools and services can be considered as an expression of self-direction. This paper presents a specific intervention that was implemented into current higher educational teaching and studying practices. The intervention focused on an educational experience in which participants were given increased control and responsibility for supporting and mediating their own activities with a set of social media applications that they combined according to their perceived needs. The purpose of this educational experience was to provide opportunities for the participants to develop their skills, knowledge and orientations to support and augment their activities and tasks' performance with a heterogeneous landscape of social media applications. Semi-structured interviews were carried out with some of the participants who had taken part in this educational experience two years ago. The purpose of the interviews was to find out in what way and to what extent this educational experience has influenced their later activities. This paper discusses the preliminary results of how the participants have made use of different social media tools and services after this experience. It also presents preliminary indicators for change in participants' orientations, attitudes and values towards the shift of control and responsibility for one's means.

**Keywords:** Self-directing intentional learning and change projects, social media, personal control

# What is Important? Digital Literacy or Literacy in a Digital Environment?

**Henri Verhaaren and Ann De Meulemeester**  
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**Abstract:** Limited training in the use of Information Resources has been introduced in the curricula of the Faculty of Medicine and Health Sciences since 2003. In the academic year 2008-2009 a structured course in Library and Information Sciences has been integrated in the curriculum of the first bachelor in Biomedical Sciences, preparing a research career. The aim of the course is digital literacy. Beside the theoretical teaching, e-Learning and self-learning techniques (portfolio, chat box, wiki), were used to learn technical competences in word processing, presentation software and spreadsheet. Search strategies were intensively trained in smaller groups in the PC-room. This paper summarizes the examination results of 138 students coming directly from middle school (K12-level, after secondary school). Three components were separately graded: theoretical knowledge by oral interrogation; technical competences using portfolio and a spreadsheet application; search strategy by a literature task, almost identical to the search exercises instructed during the semester. For the search strategy a paragraph of a text was chosen to formulate context-sensitive research questions, one to be selected and answered using a factual database, another to be answered using three different bibliographic databases. The student had full access on his PC to lecture notes, digital library and the internet. Strict instructions were written on the first page of the examination folder. 66 % successfully passed the theoretical oral part, 81 % the spreadsheet exercise. Portfolio was satisfactory in 92 %. Literature searching, however, was less successful: 43% of the students were unable to distil correct research questions from the text. The choice of index terms from a standard thesaurus (MeSH, Medical Subject Headings, which is the structured thesaurus from NLM – National (US) Library of Medicine) was successful in 68%. Only 25% of the students made the correct choice for factual or bibliographic databases, depending on the question, and 25% of the students correctly used the three bibliographic databases, exactly as written in the instructions. Limits were poorly used to make a selection of the best possible hits, mainly language, recent years of publication and subject. Limitation by publication type was selected by as few as 19%. The bad performance in the search tasks can be explained by poor basic literacy and by lack of critical reading training. The low number of students capable to phrase correct questions, and the failure in choosing the right database, despite the access to teaching material and explicit instructions, reflects poor reading capability and lack of critical and integrative senses. To become digital literate and to take profit of the power of digital technology in learning, basic literacy is more important than technical competences. The overemphasis on digital software in middle school programs, neglecting basic literacy and critical text analysis skills, might become a negative factor in the use of present powerful data and information resources and explain the sometimes disappointing results of digital learning.

**Keywords:** Literacy skills, search strategies, competence testing, performance-based assessment, e-Learning

## **Open and Transparent Consensus: a Snapshot of Teachers' use of Wikipedia**

**Albin Wallace**

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**Abstract:** The title of this paper (*Open and Transparent Consensus*) is derived from Wikipedia's own description of itself, and reflects its philosophy and approach to collaborative knowledge production and use. Wikipedia is a popular, multi-lingual, web-based, free-content encyclopaedia and is the most well-known of wikis, collaborative websites that can be directly edited by anyone with access to them. Many teachers and students have experience with Wikipedia, and in this survey teachers were asked how Wiki-based practices might contribute to teaching and learning. This study was conducted in England with 133 teachers from a wide range of schools, who have used Wikipedia in some way. The survey was anonymous to protect individuals' and schools' privacy; there was no way of identifying individual responses. The survey was conducted online and respondents were encouraged to be as open and honest as possible. Participation in this survey was entirely voluntary. Many of the questions were based upon descriptions by Wikipedia about itself and these were intended to elicit responses from teachers that reflect how closely their usage relates to the original intention and philosophy of the encyclopaedia. Other questions were intended to probe different ways in which teachers use the website.

**Keywords:** Internet, wikis, teachers, learning

## **Embedding e-Portfolios for Effective Lifelong Learning: a Case Study**

**Anne Wheeler and Rowena Yeats**

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**Abstract:** Lifelong learning is a 'keystone' of educational policies (Faure, 1972) where the emphasis on learning shifts from teacher to learner. Higher Education (HE) institutions should be committed to developing lifelong learning, that is promoting learning that is flexible, diverse and relevant at different times, and in different places, and is pursued throughout life. Therefore the HE sector needs to develop effective strategies to encourage engagement in meaningful learning for diverse student populations. The use of e-portfolios, as a 'purposeful aggregation of digital items' (Sutherland & Powell, 2007), can meet the needs of the student community by encouraging reflection, the recording of experiences and achievements, and personal development planning (PDP). The use of e-portfolios also promotes inclusivity in learning as it provides students with the opportunity to articulate their aspirations and take the first steps along the pathway of lifelong learning. However, ensuring the uptake of opportunities within their learning is more complex than the students simply having access to the software. Therefore it is argued here that crucial to the effective uptake and engagement of the e-portfolio is embedding it purposefully within the curriculum. In order to investigate effective implementation of e-portfolios an explanatory case study on their use was carried out, initially focusing on 3 groups of students engaged in work-based learning and professional practice. The 3 groups had e-Portfolios embedded and assessed at different levels. Group 1 did not have the e-Portfolio embedded into their curriculum nor was the e-Portfolio assessed. Group 2 had the e-Portfolio embedded into the curriculum and formatively assessed. Group 3 also had the e-Portfolio embedded into the curriculum and were summatively assessed. Results suggest

that the use of e-Portfolios needs to be integral to curriculum design in modules rather than used as an additional tool. In addition to this more user engagement was found in group 2 where the e-Portfolio was formatively assessed only. The implications of this case study are further discussed in terms of curriculum development.

**Keywords:** Lifelong learning; e-Portfolio; e-Learning; curriculum design; summative assessment; formative assessment

## **Teaching Animation Concepts Using e-Learning Tools and On-line Communities**

**Stephen Wilkinson**

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**Abstract:** The growth in Creative Technology courses within the UK has grown rapidly in the last decade. Many courses in this area, for example Multimedia have grown out of many different University departments, either from an Arts, Computer Science and even Engineering Faculty. The challenges of this type of course are numerous and are outlined within this paper, namely how “Creative Technology” as a subject area skates the art and technology boundary. Other issues include, how to design and deliver these types of course to students who are very familiar with Web 2.0 tools and now expect a Virtual Learning Environment (VLE) as support. This in turn raises issues regarding the balance of e-Learning support, face to face and hands on teaching. The term “Blended Learning” is now an everyday expression which refers to the combination of virtual and face to face teaching and learning. The teaching of Digital Animation is a worthy example of how computer technology and art come together. This paper describes how diverse and creative subjects such as Animation Concepts can be taught using Blackboard, Podcasts and other on-line learning communities. The need to deliver this in a short period of time to a large number of students is also discussed. Other drivers which influence the delivery of University subjects include increased efficiency in terms of student numbers per module, student staff ratios whilst at the same time improving the student experience and module success rates. This paper will show how creativity and diversity can be embraced and the above challenges met using Blended Learning and the help of student led on-line learning communities. This paper is relevant because it shows how the latest on-line learning tools and student led learning communities can be used to good effect. The benefits of the chosen tools and techniques used and supporting theory is given by this paper.

**Keywords:** e-Learning, blended learning, learning communities, diversity, creativity

## **A Contextual Mobile Learning System in our Daily Lives and Professional Situations**

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**Abstract:** The rapid development of mobile technologies and new learning theories offer opportunities for developing mobile learning systems. Recently, contextual or context-aware mobile learning has become a special focus, as the learning context is a crucial factor for determining learning content and learning objective, or for enhancing learning experiences. What interested us is to apply contextual mobile learning theories to our daily lives and professional situations. We designed a contextual mobile learning system based on IMERA (Mobile Interaction in Augmented Reality Environment) platform, with MOCOCO (Mobility, Contextualization, and Cooperation) features. The system framework is introduced in this paper. The production of learning units using IML-SCORM and LOM

standards is the starting point. We used RFID technologies to produce contextualization phases. CTTE (Concur Task Tree environment) tool was used for analyzing and modeling tasks. Mobile devices and peripherals were properly considered and configured according to learning activities and tasks. We suggest that learning methods should be properly considered and adapted based on learning activities, context, devices, etc. In our system, learning activities are very closely related to tasks. Just in time learning, learning and doing, and collaborative learning were appropriately blended into our approach to offer more effective task-centered learning experiences. In actual practice, we propose a learning strategy based on three main steps: before the task, during the task, after the task. The contextual mobile learning system was applied in two case studies: (1) Computer Hardware Maintenance Scenario: we proposed a solution that uses mobile devices (Tablet PC or PDA) and augmented reality accessories (see-through Head Mounted Display) to provide just in time learning opportunities, when users experience difficulties in carrying out computer hardware maintenance tasks. (2) HSHB (Healthy Spirit in Healthy Body) project aimed at assisting people in selecting dishes in university refectory or self-service restaurants according to nutritional composition information and personal preferences offered by mobile devices like PDA or Smartphone. Primary experiments and evaluations were carried out in our laboratory. Usability and acceptability of system and devices together with efficiency and satisfaction of learning activity were the main factors assessed by questionnaire forms. Some useful viewpoints provided by the participants are detailed in this paper.

**Keywords:** Mobile learning, contextualization, learning theory, Augmented Reality, RFID, learning units

# **Research in Progress**



# **A Study of the Reliability and Validating the Felder-Soloman Index of Learning Styles in Arabic**

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**Abstract:** There are challenges when applying English language versions of robust psychometric instruments to identify learning styles, to a non-English speaking learning environment. The instruments have typically been written in English for a Western culture. Used in a different language raises issues of translation and culture. For instance, there may be linguistic differences in a literal translation of questions or items, resulting in subtle or even significant different meanings in the translated instruments, thus threatening the validity and reliability of measurement. This paper reports on research in progress on the development of an Arabic version of the Felder-Soloman Index of Learning Styles (ILS) instrument. The research is part of an overall project producing an adaptive learning environment for students at a Saudi University. Literal translation of the ILS applied to a pilot study resulted in lower internal validity in the instrument than found in the English language versions. The paper discusses the development of a translation protocol undertaken to improve the validity and internal reliability of the Arabic version of the ILS. This includes test-retest reliability, factor structure and internal reliability. As part of this, the paper explores the development of a Scale for content validity of the Arabic version of the ILS by computing a content validity index (CVI), using ratings of item relevance by content experts. We analyzed how the CVI was calculated and found considerable consistency for item-level CVIs (I-CVIs). The paper argues that Scale developers should indicate which method was used to provide readers with interpretable content validity information. The paper's contribution is providing guidance on applying robust instruments across languages and cultures. The overall research hopes to make a contribution by providing a robust instrument that can be applied to Arabic speaking communities as well as providing a firm base for developing adaptive learning system based on the Felder-Soloman Index of Learning Styles for non-English speaking students.

**Keywords:** Learning style, translated instruments, translation protocol, validity, reliability, factor analysis

## Web 2.0: Tool for Teaching or Context for Learning?

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**Abstract:** This paper explores the role of Web 2.0 in teaching and learning, arguing that instead of being regarded and used merely as a set of tools, it has become the context for these processes, thus shaping them. Considering several classes of the Communication course at the Catholic University of Portugal as case studies, we resorted to ethnography in the classroom and interviews to the students to explore Web 2.0 use, focusing social communities (an extranet class website and *Hi5*), user-generated content (blogs and wikis), virtual worlds (*Second Life*) and instantaneous communication (*MSN Messenger*). We identified two opposite approaches: Web 2.0 required use as a tool to accomplish specific tasks (the teachers' view) *vis-à-vis* Web 2.0 natural emergence as part of the context (the students' view). Our main findings so far are the following: imposed or suggested Web 2.0 use in specific tasks result in low participation; spontaneous Web 2.0 use whenever the students found useful added initiative and creativity to their work and resulted in enhanced motivation and engagement; the Web 2.0 allows new forms of assessment, in which transparency, equality and immediacy are the most appealing features both for teachers and students.

**Keywords:** Web 2.0, teaching, learning, tool, context, assessment

## A 'Hybrid Space' for Peer Review: can Facebook Inspire new Ways Of Thinking?

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**Abstract:** Peer review can be broadly categorised as either the individual-based review system used to review academic papers for publication or the group peer review system used, more usefully, in student reviews of their work. Web 2.0 technologies present an opportunity to consider a hybrid of these two modes of peer review. Using the rapid communication with, and 24/7 access to, a shared online environment it is possible to identify explore a form of hybrid space between the two orthodox modes of peer review. This paper describes an initial attempt to examine how student peer groups operate within the subject of art & design, and whether their use of social networking sites can apply in a wider academic context. By examining current models of web 2.0 categorised by having a self-selected user or member group, (Facebook for example) we have witnessed a form of peer review taking place. In this form of peer review, members appear to make almost entirely informal and qualitative judgments. We designed a space and observed students interacting with it in order to explore what we might productively learn from this form of peer review process and have explored how these models might provide an insight into a new model for peer review.

**Keywords:** Peer review, web 2.0, art & design, web publishing environment, e-Learning

## **Online Presentation Strategies for Visual Learners**

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**University of Phoenix, USA**

**Abstract:** This paper describes the application stage of an action research project in which an online instructional innovation has been implemented based on the findings of a previous study that explored how learning style might relate to learner satisfaction in the context of contrasting course delivery modes in college-level courses. The findings of the first stage study in this action research project are briefly summarized in terms of how the visual side of the visual-verbal dimension of students' learning style(s) was positively correlated to satisfaction with "themselves as learners" in an e-blended course delivery mode and negatively correlated to satisfaction with "the classroom environment" in the context of a traditional classroom course delivery mode. Drawing from a review of the literature, the author provides a practical foundation for identifying and measuring learning styles in an online course, how online learners can accommodate divergent teaching styles, and how online teachers can accommodate divergent learning styles. As the larger action research project is on-going and disseminated for scholarly review, the author provides suggestions for teachers whose own preferences may have limited use of visual materials in their online courses. This instructional innovation is described in terms of its empirical foundations, a rationale for re-use of media, and the techniques used to search, select, encode, and annotate video segments, still images, animations, and other visual types of information for use in Web-based online courses. These methods are described in the context of legitimate re-use tactics and data repository use that conform to established intellectual property conventions for public domain, licensed, and fair use of existing visual materials.

**Keywords:** Learning style, visual learners, re-use, data repository, intellectual property

## **Innovative use of web Conferencing Tools in a Multi- Process Approach to Learning**

**Kathy Seddon, Matthew James and Kevin Mulryne**

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**Abstract:** The National College for School Leadership (NCSL) exists to serve the development needs of school leaders. The college has begun to use web conferencing in several ways in its professional development programmes, strategic initiatives, support and networking opportunities. Externally it is used in its work with school leaders, education experts and policy makers. Internally it is used for staff meetings and for CPD provision. Web conferencing tools offer a range of modes of interaction including audio, chat, text, desktop sharing, presentations and video conferencing. Such tools thus have the potential for multi-process learning. This research investigated the ways in which organisers can promote multi-process learning using the tools. A literature review was carried out to provide background on the current thinking about learning through web conferencing; this drew on material published about a range of web conferencing tools currently available. A selection of recorded internal and external NCSL web conferences were chosen as case studies; and these provided the data for analysis. Qualitative

grounded analysis of the content in these web conferences was carried out, independently, by each of the researchers. This provided core categories for use as we sought to reach an understanding of the learning processes taking place. Conclusions were drawn and related to the current literature. From this analysis a model was developed that offers potential for further development and review. A version of this *model of multi-process learning in web conferencing* is put forward in this paper.

**Keywords:** Web conferencing, multi- process learning, adult learning, distance learning

## **An Intelligent Mashup Learning Environment with Social Interaction**

**Joaquim Fernando da Silva and Francisco José Restivo**  
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**Abstract:** Social networking sites are being massively used, especially by youngsters, for leisure and fun purposes. In Portugal Hi5 is the Social Networking (SN) site preferred by the majority of high school students. Also Hi5, as member of the OpenSocial platform, is consistently providing interesting and appealing applications, as well as, improving the site functionalities, to increase user's interest and usage. The primary goals of meeting new friends and maintaining the friend's relationships are being reinforced with new and exciting applications that enhance social interaction. The Learning Management Systems (LMS), in particular the Moodle software, on the other hand, are widely used by school teachers, for supporting class activities. However students do prefer the Hi5 environment instead of the Moodle system. The informal learning that can occur in the Hi5 site could be used for doing activities supported by teachers. Unfortunately these social networking sites are not used by the majority of teachers. Therefore there is a difficulty in using SN in learning contexts, when teacher are not involved in it (Ofcom, 2008). With this scenario in mind, our research aims to bridge the gap between students and teachers preferred environments, that is, Hi5 with Moodle, by delivering a hybrid solution, or a mashup application. The starting hypothesis is that technology must be adapted to education and not the other way round in order to reach higher levels of effectiveness, when compared to using available standalone Web 2.0 tools in learning contexts. In fact our research question claims that it is possible to establish bridges between formal and informal learning, supported by social networks, linking school subjects with students' lives. Additionally, a smart mashup ongoing developing tool is mentioned with a server-based architecture that uses Moodle API and OpenSocial RESTful API to get data, store data and perform social operations (such us posts and invites) from and to SN Hi5 site.

**Keywords:** Intelligent e-Learning system, mashup, social networking

# Posters

# Teaching Virtual networks; An Application at the Framework of Co-Operation for Development

**Elisa Amo-Saus, Jose Garcia-Meseguer, Ramon Serrano-urrea, and Thouraya Douglas**

**Castilla La Mancha University, Spain**

**Abstract:** The University Education in Spain follows the adaptation process to European Space of Higher Education in order to enhance the employability and mobility of citizens and to increase the international. One of the specified objective is the adoption of a common framework of readable and comparable degrees. Besides to achieve greater compatibility and comparability in the systems of higher education mainly an intra-European issue, the Bologna Declaration wants that the vitality and efficiency of any civilisation can be measured by the appeal its culture has for other countries. Even Though the term globalization typically refers to economic phenomenon, there are a ripple effects that make the impact of globalization much broader socially and culturally. Ideas, costumes and cultural movements all follow closely after the exchange of goods across national boundaries. In this context, intercultural competence provides students the knowledgeable background and necessary skills to succeed in today's multicultural environment. This competence must be recognized as core component of Higher Superior Education curricula in our increasingly diverse and multicultural society. We presented a current accomplished investigation by a teaching net compound of professors of the University of November 7 Carthage (Tunisia) and professors of the University of Castilla-La Mancha (Spain). The distance between both countries implies to work through a virtual platform necessary. Works are guided for professors from both countries, that also are coordinated virtually. The realization of works of the degree end between both countries (Spain - Tunisia) allows to develop the competence which we named "Integration in interdisciplinary and intercultural working teams". This skill is divided into three sub-competences: Team Work; Usage of the Techniques of the Information and the Communication (mainly virtual platforms of learning); and Intercultural. Contrary to the evaluation of specific competences, in the evaluation of the across skills the professors, as the learning managers of the student, have big difficulties because of the lack of a variety of contrasted evaluation tools. These instruments must be applicable to our environment. At this scene, we show the design of learning activities by different tools of virtual platform. We show how we structure the virtual tutorships. Besides we design some indicators for the evaluation of this cross-sectional competences in the University Higher Education. This frame will allow us to take assessments in degree of acquisition of skills. Indicators will finally be exposed.

**Keywords:** Virtual learning networks, evaluation of cross-sectional competences through the net, interdisciplinary intercultural teams of work

# Conversational Podcasts; Being Casual and Connected in Online Teaching

**Sara Archard and Rosina Merry**

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**Abstract:** In recent years there have been many technical advances in sharing information. It would seem that these advances enable messages to be shared faster and in many different mediums. It's also interesting that this new technology, which was initially used to directly replace older technology, is opening up possibilities and uses that had not originally been thought of. Podcasting is one such technology, which can be used in various forms in tertiary teaching. Much of the research on podcasting tends to focus on the technological aspects of podcasting and is aimed at capturing traditional, formal styles of lectures that are a direct transmission of content to an audience. On the other hand, conversational Podcasts involve two lecturers engaged in a conversation about content and pedagogy.

The authors teach in an online Graduate Diploma of Teaching at the University of Waikato in New Zealand. They use podcasts to provide information for the students. Since they teach some of the papers collaboratively, they began to send out joint podcasts. Initially, the purpose of the podcasts was a way for the two lecturer's to share the responsibility for delivering some of the content of a particular unit in the paper. They would remind each other of key points and begin with only sketchy notes. Invariable, these podcasts responded to students' questions from the general 'question and answer' or 'one-to-one' spaces. Frequently these questions were about impending assignments, or as a consequence of a unit of work that raised dilemmas and uncertainties that the students wanted clarified. Teaching is a social activity, and the collaborative podcasts were an attempt to mirror this.

Easton (2007) has commented that e-learning technology can change purpose and outcome in unexpected ways. The authors now recognise that what they have called conversational podcasts can enhance the personalisation of the eLearning environment, contribute to the development of an online community of learners, and support students' motivation and connectedness.

The development and use of podcasts in this manner has led to research on the personalisation of an eLearning environment by one of the authors, and they are also considering the possibilities of reciprocal podcasts in this teacher education programme. This is a work in progress, and this paper will report on this research and these discussions.

**Keywords:** podcasts, personalising, teacher education, online community, connectedness.

# **An Innovative Approach To Supporting Clinical Skills Development In Remote And Disparate Geographical Areas**

**Margaret Bruce, Sally Abey, Miriam McMullan and Catherine Smith  
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**Abstract:** Students of podiatry at the University of Plymouth (UoP) are required to undergo periods of placement within the South West region in order to experience authentic practice opportunities where theory can be integrated with the practical skills required of a podiatrist. The practice experience the students receive on placement is key to the development of their clinical skills and professionalism. Until recently the students underwent clinical development in-house and experienced academic staff worked with students to enhance their skills development. Due to a variety of different political pressures this facility was relinquished and clinical skills are now developed mostly on placement. The geographical area in which the students attend their placements is widespread (23800sq km) and served by 14 different health care organisations. Regular face-to-face support of students and Practice Educators (PEs) in the practice placement area is not achievable due to high costs and the logistical challenges travelling to practice placement areas to support the students.

PEs are required to identify student clinical skills that need development, be able to formatively assess students and give feedback that will result in the student progressing in this particular area. Their ability to perform summative assessment to a standardised and equitable level is a key objective. Failure to achieve this level of skill will result in the student failing a key module in their pursuit of a BSc (Hons) in Podiatry. Anecdotal reports from mentors and students raised concerns at the standard of some of the areas of clinical skills development and dissatisfaction with existing levels of support from the University. To produce an electronic resource and support package which enables the development of student's psychomotor scalpel skills whilst on practice placement. This package is designed to give clear guidance to PEs regarding micro-skills required to carry out more complex and skilful techniques and ultimately the recognition of scalpel skill competence which is important to student progression.

PEs were interviewed via questionnaires to ascertain levels of confidence in supporting students scalpel skill development. A good response was received which reflected the anecdotal reports and were positive in terms of the development of reusable learning resources. An audiovisual support package was developed to facilitate formative and summative assessment by the PEs and to guide students in scalpel skill development. This has practical application for students throughout the practice placement area and is a valuable and expedient tool that can be used widely in rural and remote areas. It overcomes problems that can be experienced using packages that rely on internet access which maybe unavailable or inhibited by security issues. The reusable learning resource is being trialled by PEs in the practice placement areas in April and May this year. Initial responses from the PEs are favourable. The outcome is being measured and the results will be available in June this year. The impact on the current cohort will monitored until their graduation in 2011 when the full effects will be evaluated.

**Keywords:** re-usable learning object, podiatry, placement education, psychomotor scalpel skills, distance learning



# **Building a Web2.0 Learning Community; Finding the Right Platform and Making it Work**

**Colin Gray**

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**Abstract:** Edinburgh Napier University runs a large range of workshops for the purposes of supporting staff members in learning new technologies and approaches. One of the largest difficulties in this is that learners often leave the workshop very motivated, but the disparate nature of our Schools leads to ideas dwindling through lack of support and a feeling of isolation. Therefore, the creation of an online community learning system has been undertaken whereby participants of the workshops could collaborate post-workshop in the running of projects, the sharing of good practise and concentrate on furthering their skills. This system will be community driven with the vast majority of content created by the learners for the learners. In order to fully involve workshop participants in creating their own community learning experience it was decided that the environment used must be as fully editable by the users as possible. This requires a content management system with full registration, creation and editing facilities. This study's aim was to test a number of content management and community networking platforms for this purpose, namely Wordpress, Joomla, Sharepoint, Elgg and the new WebCT based community module newly released by Blackboard. For this purpose, a test community site was created in each where projects, ideas and results could be posted in a magazine style format and collaboration and communication could easily be managed via a related discussion board. Further site requirements were researched in order to provide a fully realised staff collaboration site, and each platform was tested against these by the author.

The platform testing portion of this project has now reached an end and two platforms emerged as the most effective: Joomla and Elgg. Both platforms have strengths and weaknesses, Joomla being particularly strong on the information management and navigation side, while Elgg holds the advantage with regards to networking and communication. It was decided that ease of content creation and navigation was the most important requirement for a new site of this type and so Joomla is the platform recommended for implementation.

The next stage of testing will involve a pilot that is to be run in the next trimester, from October to December, using the participants of the upcoming staff conference as a user group. This poster will include all of the study's findings up until this stage, including the testing process and how each platform measured up to the site requirements. The poster also intends to encourage debate on the merits of the community site platforms discussed and their possible place in teaching and learning.

**Keywords:** learning community, web2.0, social, open source

## **Technology: Best Practice Techniques for Educators**

**Kim Hyatt, Rose Mary Mautino and William Barone**

**Duquesne University, USA**

**Abstract:** This poster will illustrate how technology can be utilized to facilitate best practice techniques in teacher preparation programs. Two examples will be used to show how technology can impact teacher preparation in order to prepare candidates for the 21st century classroom. The first example shows how the use of technology can facilitate the

preparation of reading specialists who are working in a university reading clinic. The impact of computer technology on reading instruction can be substantially increased if teacher leaders are engaged in a reflective study of how this medium specifically addresses student needs. Through the use of a prototype program "Project Listen" teacher leaders explore the latest evolution of instructional tools. They have an opportunity to infuse the tools into interventions, gather data on the effect and most importantly construct conclusions. It is at this juncture that an exciting opportunity exists. Through reflection, teacher leaders can use reflection to inform their practice. This push on thinking presents an opportunity to enrich current practice and produce a model of professional learning that has the potential of dramatically increasing the use and impact of computer technology in the teaching and learning process. The second example illustrates how technology, specifically, the utilization of an electronic data management system, can be integrated into a program as a lens for reflective practice. Data are used to document teacher candidate learning outcomes and organize the information around the conceptual framework of the teacher preparation program. Organizing the learning outcomes related to knowledge, skills, and dispositions embedded in the domains and themes of the program facilitates reflection on instructional practices. Reflection on learning outcomes and field-based practice informs the development of future practice.

**Keywords:** best practice, teacher preparation, reflection, learning outcomes, conceptual framework

## **e-portfolios; Do we need them? An Evaluation of Student and Tutor Experiences at the University of Greenwich**

**Malcolm Ryan and Anthony Kandler**

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**Abstract:** The University of Greenwich is a large primarily London based Higher Education Institution (HEI) with over twenty thousand full time equivalent students, studying a wide range of subjects on 3 campuses. They are no stranger to the use of technology in supporting students both on and off campus with the exploitation of Computer Mediated Communication with adult distance learners well established from as early as the mid 1990's. Currently, it is one of few institutions in the UK to have integrated its Portal (Luminis), Management Information System (MIS) in the form of Banner and Virtual Learning Environment (VLE) WebCT, facilitating single sign on for students and staff to all on-line services and resources. Missing from this integrated range of tools and technologies used to enhance learning and teaching is an e-portfolio. During the academic year 2008-9, the University has been piloting two e-portfolio products with nearly 300 students and 10 staff from 3 schools to inform a strategic decision on whether it is desirable for Greenwich to add an e-portfolio to its technology toolkit. Already well known for its research into the student experience of e-Learning through the Higher Education Academy (HEA) funded SEEL project (Ryan, 2008) and as co-founders of ELESIG (<http://elesig.ning.com>), members of the original project team have focused their attention on evaluating the experiences of participants engaged in 8 pilot e-portfolio projects. The observations of academics who led the 8 pilot projects indicate a clear preference for one of the tools but also question the value of and need for an e-portfolio. They report that many students were initially enthusiastic about using them but that where related activities and tasks did not lead to summative assessment and credit, the level of engagement with the e-portfolio tended to reduce significantly. Where the use of the tool was primarily to facilitate formative feedback, many students made little or no use of the e-portfolio which, whilst understandable on the one hand, is contrary to the data captured by the National

Student Survey (NSS) in which students state they want more feedback!. The on-line learner evaluation survey suggests that using an e-portfolio helped students think about how they learn and generally enhanced communication with tutors. In contrast to the tutor perspective, many students extolled the benefits of sharing the contents of their portfolios with staff and peers in order to facilitate feedback, which they valued highly. The processes of navigating, uploading and sharing evidence within the e-portfolio tools was criticised by some students. The issue of ownership was considered important by students who felt that one tool provided fewer opportunities for customisation. It is evident from both the case studies and on-line survey that more training in the use and application of whichever tool is chosen will be welcomed and beneficial to future developments.

This paper will outline the context within which the e-portfolio pilot projects were established, present selected findings from 8 teacher generated case studies and an on-line evaluation of the student experience of using these tools alongside an examination of issues raised that will contribute to strategic decision making.

**Keywords:** e-portfolio evaluation learner-experience strategic

## **Vidcasts for the Self Directed Learner**

**Angela Shapiro and Aidan Johnston**

**Glasgow Caledonian University, Glasgow**

**Abstract:** This case study presents the learning journey towards the development of vidcasts at Glasgow Caledonian University (GCU). This was undertaken by the Effective Learning Service and the Spoken Word Teams. A Vidcast or vodcast, was developed to contain audio and images, either moving or fixed. The impetus for and subsequent shape of the project was driven by research on students' attitudes towards workshops by the ELS. The majority of responses rated the workshops high/very relevant. Similarly, they responded that workshop materials rated highly for their preparation for undertaking specific assignments. Nevertheless, it is impractical to expect that every student can attend the workshops or meet with ELS staff face to face and many students access the ELS materials, spending significant time consulting these on line (4,595 used support guides on line 2008/2009). Moreover, many students commented that they would also have liked to have had the opportunity to re-access workshop material at a later date. Whilst it was not feasible to repeat workshops, the team wanted to try to replicate the experience emphasising the oral voice. They also wanted to give students options, including when they could engage with the material format and different ways of accessing it that could be accessed on computer and on students' mobile devices. In the initial stages of developing the vidcast, the lecturer was videoed delivering a workshop on essay writing to students. However, once the video recorded output was viewed, the lecturer's presence detracted from the recording, rather than adding to the pedagogical value. It was also apparent too many non-essential visual cues were appearing at the same time. The decision to produce vidcasts was also influenced by attempting to meet a diverse range of learning needs. Podcasting appeals to auditory learners and with the addition of visual prompts the vidcast can also support dyslexic students in retaining information. Alternatively users with visual impairments will be able to select to listen solely to the audio element and can download the material on to their mobile device. Students can also choose when and where they wish to engage with the vidcasts and this approach enables students to revisit the material at their own pace, all contributing to self – directed learning opportunities. The vidcast can be fast-forwarded and the user can also select to watch the vidcast with or without sound. Whilst Powerpoint can give part of the story the addition of the oral voice is a powerful tool in delivering workshops as vidcasts. The PowerPoint slides are in chapters, supported by further links to specific areas of the ELS website to give additional information. Two formats were used: one for on line access embedded within a

webpage using a flash based video player and one for students to download for use with their iPod/mobile video device. Further refinement is now underway as the vidcasts are currently being evaluated through a questionnaire distributed to a much greater range of users.

**Keywords:** podcasting, mobile learning, independent learner

## **Adoption and Student Perceptions of Mobile Learning Opportunities in a Technology Based Dental Nursing Programme**

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**Abstract:** Flexible and blended learning opportunities are at the centre of the design and execution of the National Dental Nurse Training Programme of Ireland. The programme aims to break down geographical barriers to learning across Ireland and commenced in 2004 utilising videoconferencing as its main mode of delivery. In 2009 the evolution of the programme has seen the introduction of a virtual learning environment for the learners that supports asynchronous and synchronous discussion areas, a virtual library, web streaming facility, interactive online quizzes, instant messaging and its newest addition of mobile learning. This paper aims to examine the initial experiences by both learners and providers of the introduction of mobile learning to a dental nursing programme and their perception of how it enhances the already technology assisted learning experience. The study will compare their current experiences with the virtual learning environment available to them and assess the benefit of the added mobile learning experience alongside its limitations. This group of learners has a varied level of technology literacy and accessibility which will also be investigated. Evaluation has been key to the development of the programme and will be highlighted on how evaluation and quality assurance has been key in the evolution of the learner's technological assisted learning journey.

The paper will include evaluation of the following themes:

1. How accessible is mobile technology for this group of learners?
2. Does the use of mobile learning lend itself to an independent and personal learning experience in comparison to face to face learning?
3. What is the motivation of the learners to use the various technology assisted learning applications?
4. Will mobile learning be used alongside other web-based applications to support learning experiences, or will it be used to replace them?
5. Where are the most likely locations to take advantage of mobile learning opportunities?
6. How do the students make decisions in relation to time management and technology choice for learning?

This investigative paper analyzes in progress research for a group of learners with varied technological skills and their adaptation and use of technology assisted learning for a blended rich educational experience.

Professional discourse in online learning environments

**Keywords:** Mobile learning, evaluation, development, flexible learning, blended learning

# Professional Discourse in Online Learning Environments

**Eulalia Torras**

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**Abstract:** Written environments in online learning enable professional discourse to be analysed in depth and provide greater knowledge for improving learning and for planning and delivering courses aimed at professional development. Until now, research into professional discourse has highlighted the importance of interaction in the development of professional discourse, the need to analyse professional discourse as much from a historical point of view as from a situational one and the influence the demands of the context have on this discourse (Bromme & Tillema, 1995; Etelapelto, 2000; Brosnan, & Burgess, 2003; Engeström, Engeström, & Kerosou, 2003; Borko, 2004; Madsen, 2006; Logan, 2006; Jonassen, 2008). The educational context allows the professional to reflect on their practice, relating the theoretical content to their activity. Furthermore, if the educational context is an interactive learning environment, then the professional discourse is fully recorded, facilitating its complete analysis. For this reason, we chose to segment and codify the professional discourse that emerged during the progress of an online professional practice development course. This study takes this triple result and delves further into the professional discourse verbalised by 10 professional politics taking an online practice development course, and incorporates an integrated historical and situational analysis. The professional discourse reflected in interaction observed in an individual activity and in the study material for the course was analysed to discover the principal sources of power and sources of content. The historical analysis revealed four sources of power: researchers of recognised standing, the author of the study material, the expert professional acting as teacher and the primary sources of information. The situational analysis revealed four sources of content: politicians as actors, interdependence, the perspective of theoretical models and policy as structure and product. Sources of power, sources of content and also the type of request made by the teacher are elements identified in the discourse that take on a special relevance in the design and planning of courses for professionals in interactive learning environments.

**Keywords:** e-Learning platforms; emerging and best practices digital classrooms; e-Learning effectiveness and outcomes; pedagogical models.

## **Development of online IT literacy judgment test and effects of passing grade setting of it**

**Matsumoto Toyoji and Susuki Tsuneo**

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**Abstract:** In 2006, Kanazawa University (KU) adopted a policy that made it mandatory for all freshmen to have a laptop PC, and started a new class called Introduction to Information Technology as a compulsory first-year subject in which the students would have to use their PC'S as a tool for blended e-Learning. We imagined that the student to have a varied IT literacy ability attends this class because this class is a compulsory class to all freshmen regardless of the science course or the liberal arts course. Therefore, the class design to do the motivation of the learning in the future without loss of the greediness for learning of the students was important. Therefore, the mechanism that is able to measure student's IT literacy ability was necessary for us. Then, we originally developed the online examination teaching material to measure the IT literacy (knowledge). The

contents of the test are five items (fundamental knowledge about PC, E-mail, word processing, spread sheets, and presentation tools). For each item, ten questions were automatically selected at random from a problem collection. Then, the set of the questions was different for each student. We set the passing grade to the online test only to improve student's desire, and the passing is not reflected in the record at all. And we announced it to the students, nevertheless we obtained same interest findings as a result of the IT literacy judgment test from 2006 to 2008. We set the online test that was possible to execute by the trial only once in fiscal year 2006. As a result, we get the curve of the score increase gradually toward the set passing grade, and decrease gradually from passing grade toward full marks. And we set the online test that was possible to execute two or more times in fiscal year 2007 and 2008, if the students hoped it. As a result, we obtained a result pattern obviously different from fiscal year 2006 in fiscal year 2007 and 2008, the result pattern increase rapidly from passing grade to 90 point, and decrease rapidly from to full marks. As a result, we confirmed the number of passing increased by 10-30% by setting the passing grade to the examination though there is no necessity and by increasing the chance to pass the examination. Moreover, we can confirmed that the examination result has decreased because of the average by 5%, and we can confirmed that the execution frequency has also decreased in fiscal year 2008 compared with fiscal year 2007. And we can confirmed that we were able to obtain useful information for the course design in the next fiscal year through this online test.

**Keywords:** online IT literacy judgment test, effects of passing grade setting, e-Learning

## **Digitise and Deliver; A Collaborative Partnership in e-Learning Resource Provision**

**Ruth Wilson and Dawn McLoughlin**  
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**Abstract:** Digitization is making resources increasingly available to both researchers and academics within higher education. From 2008 McGill University, Montreal intends to process 100 – 200 books per week from its special collection (Albanese, 2008) and the Library of Congress digitised its 25,000th book in 2009 (Free, 2009). Although making such materials available is becoming common place for items in the public domain, it is still the norm that many resources are still only accessible as print materials. However the digitizing of resources needs to be examined within the wider context of e-library and the needs of academics and learners teaching and learning in the digital age. E-Learning has impacted significantly in higher education in the United Kingdom and to support the growing environmental in which academics are working requires new solutions in the delivery of learning materials.

**Keywords:** Digitization, Collaborative partnership, postgraduate, pedagogic approach